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Impact of a Social Support Program Supervised by a Multidisciplinary Team on Psychosocial Distress and Knowledge About Heart Failure Among Heart Failure Patients

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Abstract

Background: Heart failure drains significant financial resources with morbidity and mortality higher than cancer. Social support is defined as the care provided by the family members, friends and health care workers to the patients. Absence of social support and poor perceived social support will create stress, anxiety, depression and anger which further deteriorate the underlying disease and worsen quality of life. Discussion in group creates better understanding of the disease which helps the patients improving their skills in managing their condition.

Objective: To evaluate the impact of multidisciplinary team supervised social support program on components of psychosocial distress and knowledge about heart failure among heart failure patients.

Methods: Adult patients with heart failure attending King Fahad Medical City as inpatient or outpatient were enrolled in this prospective cohort study. Patients were given questionnaire to assess their perception of social support they have at their disposal, quality of life, knowledge regarding heart failure and self-care behavior. They then had interactive education in groups supervised by multidisciplinary team members about the pathogenesis of their disease with management strategies, dietary restriction, importance of exercise and healthy life style pattern. Patients shared their experiences in the group and had opportunity to learn from each other. Patients were assessed regarding their perceived social support, quality of life, knowledge regarding heart failure and self-care behavior immediately after the session and at 1 month interval.

Results: There were total 500 patients participated in the study. Among the study participants 62% were male and majority was living with the family. Components of psychosocial distress were present in up to 40% of study participants and only 36% considered knowledgeable regarding heart failure. After the interactive social support group meeting components of psychosocial distress were significantly reduced with significant improvement in knowledge about heart failure. At 1 month follow up participants reported persistent improvement in quality of life, improvement in self-care behavior, perceived social support and wanted to continue in social group program.

Conclusion: Social support program supervised by multidisciplinary team providing education and social support improved knowledge, self-care behavior, perceived social support and quality of life among heart failure patients.

Keywords: Psychosocial distress, Heart failure, Knowledge, Social support program

Received 2 May 2020; revised 12 September 2020; accepted 15 September 2020.
Available online 22 October 2020.

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1. Introduction

1.1. Background

Heart failure is a chronic condition with morbidity and mortality higher than in many types of cancers [1]. Among the general population, the prevalence of chronic heart failure in up to 3% and increases to 10% among the elderly population [2]. Most of the patients are not adequately knowledgeable about the etiology, course, survival of the disease, and management strategies [3]. This gap leads to a disparity between expectation and reality and causes a profound negative impact on the quality of life, alteration in psychological behaviors, self-neglect, and poor participation in social activities [4]. Empowering the patients with the information and education regarding the disease and treatment will make them take care of themselves in an efficient way leading to improvement in symptoms and good quality life [5].

Social support is defined as the care and help provided by the family members, friends, and health care workers to the patients and their caregivers. It was found to help improve quality of life, self-care behavior, feeling of being taken care of, and supported in their fight against chronic diseases including heart failure, and should be included in the care plan [6–9]. Self-care is considered paramount for improving the health of heart failure patients [10] and include measures such compliance with medications, fluid restriction, clinic visits, regular weight checks, exercise, and observation of sign and symptoms of volume overload [11]. Perceived social care is the expectation of patients from society including family members, friends, and health caregivers when he or she needs help during disease [11]. Patients with adequate perceived social support felt comfortable and confident in dealing with the complex nature of their disease [12].

1.2. Objectives

We conducted a social support program supervised by a multidisciplinary team, led by a nurse that evaluated the impact of the program on quality of life, psychosocial distress, knowledge about heart failure, self-care behavior, and perceived social support among heart failure patients.

Abbreviations

SD	Standard Deviation
HF	Heart Failure
DM	Diabetes Mellitus
HTN	Hypertension
NYHA	New York Heart Association
Wt	Weight
KFMC	King Fahad Medical City

2. Material and Methods

A Prospective cohort study was conducted at the cardiology center of King Fahad Medical City (KFMC) from June 2017 till December 2017. KFMC is one of the biggest tertiary care health facility in Saudi Arabia with approximately 1200 bed capacity and receives referrals from all over Saudi Arabia. Our study thus represents the heart failure patients in Saudi Arabia. The Sample size was estimated to be 500 patients based upon prior studies discussing psychosocial distress among heart failure patients. The proposal was submitted to the institutional review board (IRB) of KFMC and patients were enrolled in the study after approval from IRB. Ambulatory adult patients diagnosed as having chronic heart failure and followed at a heart failure clinic or admitted with acute decompensated heart failure at KFMC were enrolled in the study after proper consent. Admitted patients were enrolled after stabilization and in the compensated state.

Inclusion criteria included age >18 years, compensated chronic heart failure followed at KFMC as out-patient or in-patient, consented for enrollment in the study, able to attend an educational, and social group session. Patients were excluded if they had congenital heart diseases or enrolled in any other heart failure support groups.

Patients were divided into groups of 5–7 patients and their visit to the social group meeting was arranged by the registered nurses depending upon their preferred timing and availability of the multidisciplinary team. Patients were encouraged to be accompanied by the person who is responsible for the care at home. Each group was given education via lectures regarding heart failure etiology, treatment, expected adverse events from medications, sign, and symptoms suggestive of worsening heart failure, daily weight, salt and fluid restriction, dietary modifications, and expected course of the disease by the multidisciplinary team consisting of cardiologist, health educator, dietician, registered nurses and social worker. There were 3 lectures of

10 min each given by a cardiologist, dietician, and health educator. Materials and topics presented in the lectures were discussed among the team members before presentation to prevent repetition. Before the interactive lectures, a questionnaire was given to each participant. The registered nurses helped the illiterate patients by reading out the study questions and recorded their responses if the accompanied person was also illiterate. After the interactive lectures, 30 min was given for social group interaction to the patients for sharing their feeling, expectations, difficulties, and efforts to overcome hurdles during heart failure. The social group session was led by the registered nurses and helped by the other members of the multidisciplinary team. Handouts were also given of the lectures for future references. At the end of the meeting again questionnaires were filled. The contact number of registered nurses was provided to the patients to ask questions or advice regarding heart failure. After 1-month patients were followed by the registered nurses and questionnaires were filled. Most of the follow-up was done on the

telephone and patients' responses were recorded on the questionnaires. During the follow-up period, patients inquired mainly about medications, referral to other specialties, and development of unexpected symptoms (most common symptoms: lower limb swelling, shortness of breath, chest pain, nausea). Patients were provided with guidance by the registered nurses after a discussion with the HF cardiologist. The flow of the study is illustrated in Fig. 1.

The questionnaire gathered the demographic data, information regarding the severity of heart failure, assessment of psychosocial distress, perceived social care, satisfaction with the health care system, knowledge regarding heart failure, self-care behavior, and utility of health care supervised social support program. The demographic and clinical characteristics of the study patients were reported as mean (SD) for continuous variables and counts (percentage) for categorical variables. The Chi-square test was performed to examine the relationship between responses and other variables including duration, diabetes mellitus, hypertension, etc. A comparison between pre and post-

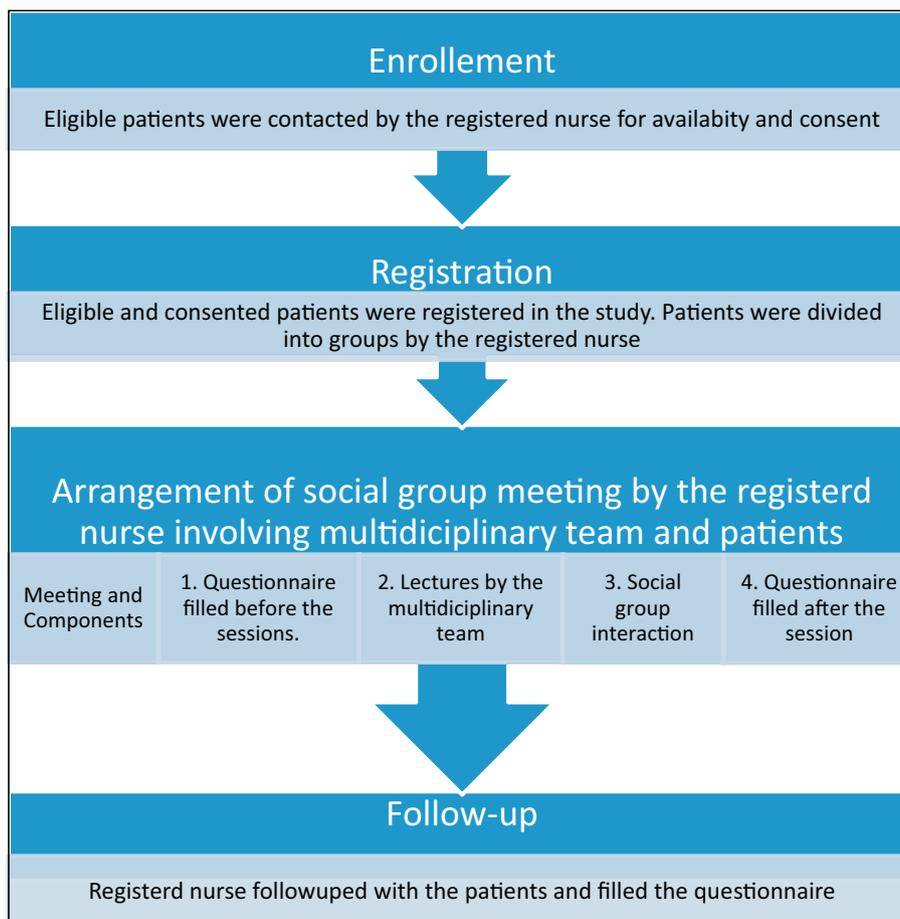


Fig. 1. Flow chart of the study.

intervention responses was done with McNemar or the Bowker test. All statistical analyses were performed using SPSS 25.0 software (SPSS Inc., Chicago, IL, USA) package; two-tailed P-Value of 0.05 was considered significant.

3. Result

500 patients participated in the study. Male were 62% and the majority were living with the family. The most prevalent symptom was dyspnea (82%) followed by edema (51%) (Table 1). The majority of study participants had a history of hospital admission, aged less than 60 years, and had NYHA III/IV (Table: 1). Demographic characteristics including marital status, literacy, employment, geographical lifestyle along with cardiovascular risk factors and symptoms were mentioned in Table 1.

Prevalence of psychosocial distress factors before and one month after the multidisciplinary intervention was mentioned in Table 2, Fig. 2. All the parameters of psychosocial distress had improvement after the intervention at one month follow-up except not having the social support they needed.

The majority of the patients were satisfied with the medical care and naïve to the social support program yet they wanted to continue in the program (Table 2).

Knowledge regarding heart failure and self-care behavior improved significantly after the multidisciplinary social support group intervention at a one-month follow-up (Table 2). The most notable improvement after the intervention was noted in the knowledge regarding heart failure (Table 2). All the participants felt that the intervention helped in understanding disease, improving quality of life, and self-care behavior (Table 2).

Anxiety and not having enough social support were common among patients without a history of hospitalization (Table 3). Components of psychosocial distress were prevalent among patients without diabetes and hypertension than their counterparts (Table 4).

The presence or absence of diabetes mellitus, hypertension, and smoking didn't have any significant impact on knowledge of heart failure or self-care behavior except non-hypertensives were more aware of the adverse effect of smoking on health than hypertensives (Table 5).

4. Discussion

Heart failure prevalence is increasing globally, it is considered as a major public health concern [13] and a significant burden on the health system

[14–16]. Developing countries such as Saudi Arabia are also facing a significant increase in the prevalence of heart failure [17]. The extrapolated prevalence of heart failure in Saudi Arabia is estimated to be 455,222 cases [17]. The negative impact of heart failure is not only on physical signs and symptoms but also on psychological, social, and economic factors [18,19]. Saudi cultural system has strong family support [20] yet heart failure patients have a poor quality of life [21].

In our study majority of the patients were married, living with family, satisfied with medical care, and felt having enough social support suggested the presence of strong family support as reiterated in earlier studies [20,21]. However, 40% of study participants were having feelings suggestive of psychosocial distress, which could be due to poor knowledge regarding heart failure and non-familiarity with health care supervised social support

Table 1. Demographic characteristics, frequencies of comorbidities and symptoms.

Demographic variable	N = 499 (%)
Male	308 (62%)
Age, Mean	57 years
>60 years of age	230 (46%)
Current or Prior Married	483 (93%)
Living with family	485 (97%)
Having >4 children	369 (74%)
Illiterate	232 (47%)
Primary/secondary/high school	192 (38%)
Graduate/Post graduate	75 (15%)
Unemployed	213 (43%)
Employed/self-employed	135 (27%)
Retired	151 (30%)
Comorbidities	
Diabetes	294 (59%)
Hypertension	358 (72%)
Smoker	76 (15%)
Family history of premature CAD	183 (37%)
Dyslipidemia	334 (67%)
Psychiatric illness	63 (13%)
Symptoms	
Chest pain	154 (31%)
Dyspnea	407 (82%)
Palpitation	219 (44%)
Dizziness	203 (41%)
Fatigue	240 (48%)
Edema	255 (51%)
Abdominal distention	174 (35%)
NYHA III/IV	370 (74%)
Duration of heart failure diagnosis	
<5 years	280 (56%)
5–15 years	198 (40%)
>15 years	21 (4%)
Admission with heart failure	
None	59 (12%)
1-2 admissions	290 (58%)
3 or more admissions	150 (30%)

Table 2. Comparison of Pre and Post social support program of psychosocial distress factors, knowledge, and self-care behavior.

	Pre Social Group Meeting	Post Social Group Meeting	P-Value
Psychosocial distress			
Feeling down and not interested	199 (40%)	103 (21%)	<0.001
Feeling anxious	206 (41%)	107 (22%)	<0.001
Feeling stressed	188 (38%)	62 (12%)	<0.001
Feeling angry	180 (36%)	102 (20%)	<0.001
Not having enough social support	51 (10%)	86 (17%)	<0.001
Satisfaction			
Satisfied with medical care	484 (97%)		
Familiar with the social support program	10 (2%)		
Intention to enroll in social program	498 (100%)		
Knowledge and self-care behavior			
Q1. Knowledgeable about HF	180 (36%)	494 (99%)	<0.001
Q2. Know drugs compliance importance	491 (98%)	499 (100%)	<0.001
Q3. Know daily weight importance	248 (50%)	491 (98%)	<0.001
Q4. Knowledge about salt/fluid restriction	349 (70%)	494 (99%)	<0.001
Q5. Know healthy eating importance in HF	333 (67%)	494 (99%)	<0.001
Q6. Know exercise importance in HF	257 (52%)	491 (98%)	<0.001
Q7. Know smoking bad for health	433 (87%)	494 (99%)	<0.001
Q8. Follow salt/fluid restriction	322 (65%)	494 (99%)	<0.001
Q9. Follow clinic regularly	465 (93%)	495 (99%)	<0.001
Q10. Comfortable in discussing problems	462 (93%)	499 (100%)	<0.001
Assessment of program by participants			
Q11. The social support program helped understand the disease		499 (100%)	
Q12. Social support program helped improve the quality of life		499 (100%)	
Q13. Social support program helped to improve self-care behaviors		499 (100%)	

program. In our study diabetics and hypertensive patients had less anxiety, sadness, stress, anger, or feeling of not having enough support which could be explained due to the frequent and repeated exposure and interaction with the health care providers for the management of diabetes and hypertension. In most of the centers' management of diabetes and hypertension included sessions with health educators and specialized nurses discussing

measures to improve lifestyle. In our study, after the social support group session numbers of heart failure patients feeling sadness, anxiety, stress, and anger were significantly reduced which suggested the positive role of social support group intervention in the modification of psychosocial distress factors. Feeling of "not having enough support" didn't improve likely because of the strong family and social system in place however majority showed

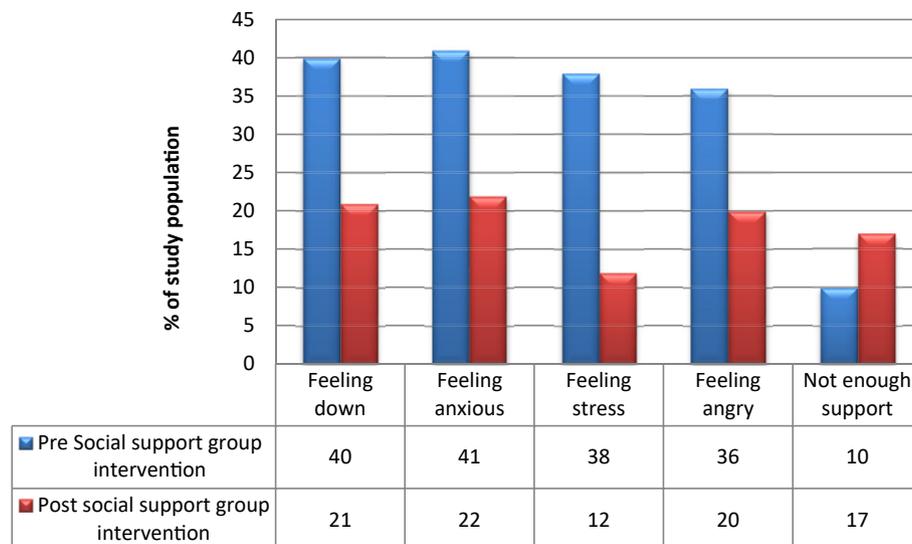


Fig. 2. Comparison of psychosocial distress factors before and after social support group intervention.

Table 3. Effect of Hospital admissions and Duration of HF on Psychosocial distress factors. Values are given in percentages which add up to 100% in each group.

Psychosocial distress screening	Duration of HF		P-Value	Hospital Admissions		P-Value
	<5 years	>5 years		None	≥1	
	%	%		%	%	
Feeling down	38	42	0.210	49.2	38.2	0.072
Feeling anxious	41	42	0.403	54.2	39.1	0.040
Feeling stressed	37	39	0.346	49.2	35.7	0.064
Feeling angry	37	35	0.395	42.4	34.8	0.159
Not enough support	11	10	0.434	23.7	7.8	0.001

Table 4. Effect of DM, HTN, and Smoking on Psychosocial distress factors. Values are given in percentages which add up to 100% in each group.

Psychosocial distress screening	DM		P-Value	HTN		P-Value	Smoker		P-Value
	Yes n = 294	No n = 205		Yes n = 358	No n = 141		Yes n = 76	No n = 423	
	%	%		%	%		%	%	
Feeling down	33.7	48.8	<0.001	34.9	52.5	<0.001	38.2	40.2	0.421
Feeling anxious	35.0	50.2	<0.001	35.8	55.3	<0.001	43.4	40.9	0.386
Feeling stressed	33.7	43.4	0.017	34.1	46.8	0.006	38.2	37.6	0.511
Feeling angry	28.6	46.8	<0.001	30.7	49.6	<0.001	32.9	36.6	0.312
Not enough support	6.8	15.1	0.002	9.2	12.8	0.155	3.9	11.3	0.062

their intent to join the health care supervised social support program suggested the lack of health care supervision in the existing social support system.

The majority of patients in our study were symptomatic with NYHA class III/IV, complaining of dyspnea, edema, and had one or more hospital admissions. Prevalence of diabetes mellitus, hypertension, dyslipidemia, and smokers were comparable to the chronic heart failure registry in Saudi Arabia [22]. Our study population was high risk and based upon prior studies [15,17,23] poor quality of life was expected. This can also explain the high burden of psychosocial distress factors present in our study population. Approximately half of the study population was more than 60 years and diagnosed with chronic heart failure for more than 5

years. Age is considered an independent and significant factor for determining the quality of life [24]. Patients with age >65 years had poorer quality of life than patients with age <65years [15].

Among patients with heart failure quality of life perception and compliance with medications are related to their knowledge regarding heart failure [25]. In our study majority of the heart failure patients had poor knowledge regarding heart failure. Half of the study population was not aware of the importance of checking weight and performing exercises regularly. One-third of the study participants were not aware of the salt and fluid restriction, healthy eating, and neither were following salt and fluid restriction in their daily routine. Lack of knowledge and education regarding heart failure is

Table 5. Effect of DM, HTN, and Smoking on Knowledge of HF and Self-care behavior. Values are given in percentages which add up to 100% in each group.

	DM		P value	HTN		P Value	Smoker		P Value
	Yes	No		Yes	No		Yes	No	
	%	%		%	%		%	%	
Q1. Knowledgeable about HF	38.4	32.7	0.22	36.8	35.9	0.89	35.2	38.3	0.55
Q2. Know drugs compliance importance	98.0	99	0.48	98.7	98.3	0.65	98.0	99.3	0.29
Q3. Know daily weight importance	46.9	53.7	0.15	40.8	51.3	0.11	48.0	53.9	0.27
Q4. Knowledge about salt/fluid restriction	69.7	70.2	0.92	71.1	69.7	0.89	69.3	71.6	0.67
Q5. Know healthy eating importance in HF	66.3	67.3	0.85	63.2	67.4	0.51	65.4	70.2	0.34
Q6. Know exercise importance in HF	51.7	51.2	0.93	48.7	52	0.62	49.4	56.7	0.16
Q7. Know smoking bad for health	86.4	87.3	0.79	64.5	90.8	<0.001	87.4	85.1	0.56
Q8. Follow salt/fluid restriction	67.3	60.5	0.13	63.2	64.8	0.8	64.8	63.8	0.84
Q9. Follow clinic regularly	91.5	95.6	0.1	92.1	93.4	0.63	93.6	92.2	0.56
Q10. Comfortable in discussing problems	92.5	92.7	0.9	92.1	92.7	0.81	93.3	90.8	0.35

one of the reasons for psychosocial distress and lack of self-care behavior. The presence or absence of risk factors such as diabetes, hypertension, or smoking didn't have any impact on knowledge or self-care behavior. Our study demonstrated that social support programs with health caregivers providing education yielded significant improvement in the knowledge regarding heart failure and self-care behavior.

Management of chronic diseases including heart failure is incomplete without proper knowledge and social support programs involving health care workers. All of our study participants endorsed the benefit of the social support program in understanding their disease, improving quality of life and self-care behavior and the benefits persisted at 1 month follow up.

The absence of a control group and study population comprising of heart failure patients treated at one hospital were considered as limitations. However, despite limitations, our study suggested that heart failure patients without cardiovascular risk factors or hospital admissions were not low risk, and had more or at least the same burden of psychosocial distress than their counterparts. Furthermore, the interaction of healthcare workers with the patients and health caregivers supervised social support programs improved quality of life even in a society with an intact family system and good social support.

5. Conclusion

Social support program supervised by a multidisciplinary healthcare team providing education and social support improved knowledge, self-care behavior, perceived social support, and quality of life among heart failure patients even in presence of good social support provided by the family. Psychosocial distress screening should be started early in the course of heart failure disease irrespective of their disease duration, the number of hospital admissions or cardiovascular risk factors, and repeated at regular intervals.

Author Contribution

Conception and design of Study; Literature review: Muhammad A Soofi, Zainab Jafery, Faisal AlSamadi. Acquisition of data: Muhammad A Soofi, Faisal AlSamadi. Analysis and interpretation of data; Research investigation and analysis; Data collection: Zainab Jafery. Analysis and interpretation of data; Supervision of the research: Muhammad A Soofi.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

None declared.

Acknowledgement

We acknowledge the help of Ms. Yara Essam Bashawri in running statistical analysis for the study.

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