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ORIGINAL RESEARCH

Effect of patient education on Number of Re-Hospitalizations in Patient with Chronic Heart Failure Disease

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ABSTRACT

Background: Heart failure is a global health issue that affects approximately 26 million individuals worldwide. The majority of individuals with heart failure live with a significant symptom burden, comorbidities, and impairment; up to 88% of persons with heart failure experience breathlessness at repose.
Objectives: determination the Effect of patients education on number of re-hospitalizations in Patients With chronic Heart Failure disease.
Methodology: A randomized control trail (RCT) was conducted in Holy Karbala City in Iraq. A purposive sample of heart failure patients in clinic and out clinic. Then based of Block Random Assignment, the patients were divided into two groups, the control group consist of (35) patients and intervention group consist of (35) patients, the patients in study group exposed to the health education about heart failure self-management . Data were collected by using demographic questionnaire included age, gender, marital status, level of education, duration of heart disease, side of heart failure, Occupation Status, and number of hepatizations during last three month. A descriptive and inferential data statistical technique was used to analyze the data.
Results: The results of study showed a significant decreasing number of hospitalization Among patients in intervention group comparing with those in a control group at a p-value less than 0.01.
Conclusion: Implementation of Patient education can decrease in number of re-hospitalizations of patients with chronic heart failure.

Keywords: heart failure, self-management, continues care, patient Education.

INTRODUCTION

Heart failure (HF) a clinical syndrome that occurs when the ventricles of the heart cannot fill or pump enough blood to satisfy the body's oxygen and nutritional requirements. This can lead to HF. (Patton & Bell, 2018). HF is a disease that gradually deteriorates and cannot be cured. Patients who have heart failure may experience dyspnea and fatigue for the rest of their lives, which can lead to poor functional capability and a reduced quality of life (Hinkle & Cheever, 2018).

At least 37.7 million people around the globe, as well as (1-2 %) of the total population, are affected by HF (Mozaffarian et al., 2015). In addition, the prevalence of HF in Middle Eastern countries is

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estimated to be 3.75 million people. Affected individuals are at least 10 years younger on average than their Western counterparts (Buja et al., 2016).

Treatment of HF include pharmacological and non-pharmacological interventional strategies that can improve clinical outcomes. Self-management is major part of the non-pharmacological treatment for HF patients (Williams & Hopper, 2015).

Self-management (SM) is defined as a process in which families and individuals use knowledge and beliefs, self-regulation skills and abilities, and social facilitation for achieving health-related outcomes (Zaharova, Litwack, Gopalakrishnan, Ellis, & Saltzberg, 2022) .

According to the Individual Family Self-Management theory (IFSMT), self-management (SM) is defined as a process in which individuals and families use knowledge and beliefs, self-regulation skills and abilities, and social facilitation to attain health-related outcomes (Ryan & Sawin, 2009) .

In the context of chronic diseases, self-management (SM) refers to the actions done by patients themselves to take control of their health. Daily weight and symptom monitoring, reviewing changes in weight and symptoms, adjusting medication and behavior based on symptoms, and so on are just a few of the many challenging and frustrating responsibilities that patients with HF must perform as part of their own self-management (Ponikowski et al., 2016; Yancy et al., 2013).

Self-management is an important component of the Chronic Care Model, which has been utilized internationally to lead clinical quality improvement programs (Tung et al., 2013). Self-management interventions and support aim to assess a patient's competence in illness management and supply them with the appropriate information, skills, and confidence to reach treatment objectives. Therefore, cardiovascular nurses play a critical role in enabling self-management by thoroughly assessing patients, assisting them in setting goals that are realistic and achievable, assessing their progress toward those goals, promoting healthy lifestyles, and educating them on how to manage their condition independently (Toback & Clark, 2017).

One of the most significant models for chronic heart disease patients is continuous care. Indeed, continuous engagement and acceptance are the foundation of continuous care. This model emphasizes the efficient and collaborative roles of educator, patient, and family (Rahmani, Moradi, & Aghakarimi, 2017).

AIMS OF THE STUDY

determination the Effect of patients education on number of re-hospitalizations in Patients With chronic Heart Failure disease.

METHODOLOGY

A randomized control Trial (RCT)design used in the study to achieve study aim by randomly assign the study sample into two groups then control one of these groups and implement the intervention on the other group (Rahmani et al., 2017).

Sampling:

probability sampling was performed. A purposive sample of HF patients in clinic and out clinic. Then based of Block Random Assignment, the patients were divided into two groups, intervention and control.

Inclusion criteria:

1. Patients who are diagnosed with heart failure since 6 month and more.
2. Patients who are accepted to attended in study
3. Patients who are conscious
4. Patients without mental disorders
5. Patients with stage three and four heart failure.

Exclusion criteria:

1. Patients who are reluctant to attended in the study.

Sample size

According to the(Kato 2016), regarding α of 0.05% and 80% power the sample size was estimate to be

35 for each group by using this formal $N = 2\frac{[(a+b)^2\sigma^2]}{(\mu_1-\mu_2)^2}$ (Kato et al., 2016).

Data collection instrument:

The study instrument included demographic questionnaire like age, gender, marital status, level of education, and information about stage of heart failure, duration of heart disease, side of heart failure, number of hepatizations during last three month, and Occupation Status.

Procedure:

The patient filled the questionnaire by self-report for both groups:

Control group: The patients in the control group received usual care at Al-Imam Al-Hussain medical city. But at the end of the intervention, they access to the study educational material.

Intervention group: The patients in the intervention group are supply with an educational booklet based on HF self-management and two training sessions, each of which is scheduled to last one hour and take place at a training facility located within Al-Imam AL-Hussain medical city in Karbala .

The data was analyzed using Statistical Package for Social Sciences (SPSS) version 26.0. Data from the questionnaire was analyzed quantitatively. The data analysis included descriptive statistics, using frequencies, mean and standard deviation. Data was further examined by using inferential statistics (Mann-Whitney, Wilcoxon- test) to assess the significance difference between pre-test and post-test in one group,

Ethical clearance was sought from the Institutional Research ethics committee of Faculty of Nursing and Midwifery and Rehabilitation, Tehran University of Medical Science (TUMS), International campus (IR.TUMS.FNM.REC.1401.090). And got approval from Karbala Health Directorate in order to obtain an official permission to carry out the study. Later on, the permission was presented to the hospitals in order to ensure the agreement and cooperation. The Consent form facilitated access to the hospitals facilities to complete the study. Participants were assured that participation was totally voluntary and that they will not be affected in any way if they choose not to participate in the study. They were also assured that information obtained will be treated with utmost confidentiality.

RESULTS

Results showed the age distribution for both groups is similar, with the majority of participants in the study group falling in the 56-61 age range, accounting for 40% of the sample. In the control group, the majority of participants were evenly split between the 50-55 and 62-67 age ranges, each accounting for 22.9% of the sample. In terms of gender, both groups had a nearly equal distribution of males and females, with females slightly outnumbering males in the study group at 57.1%. Marital status was also similar across both groups, with the majority of participants in both groups being married. However, the study group had a slightly higher percentage of widowed individuals at 25.7% compared to the control group's 20.0%. Regarding hospitalizations in the last three months, the majority of participants in both groups experienced 2 hospitalizations during that time period, with 51.4% in the study group and 40.0% in the control group. In both groups, the majority of participants lived in rural areas, with 62.9% in the study group and 51.4% in the control group. Regarding occupation status, the control group had a higher percentage of participants who were government employees at 22.9%, while the study group had a higher percentage of unemployed individuals at 25.7%. Finally, in terms of the duration of heart disease, the majority of participants in both groups had been diagnosed with heart disease for 1-3 years, accounting for 31.4% in the control group and 42.9% in the study group (table 1).

The study results showed that the majority of study participants in intervention group before the intervention were admitted two time to hospital in last

three month with (37.1 %), while the percentage was (40) for two time hospital admission in control group. after intervention more than half of study participant were admitted for one time in the three months after the intervention with (54.3 %) (table 2).

The study results showed that the majority of study participant in control group were admitted one and two times with (34.2%), also the results demonstrate that there were no significant differences in number of hospitalizations in control group after the intervention with p value equal (0.948) (table 3).

the study revealed that the was no significant differences between the intervention and control groups in number of hospitalization on baseline with p value equal (0.081) while there was significant differences in in number of hospitalizations after the intervention with p value equal (0.000)(table 4).

DISCUSSION

The study results demonstrates that the patient education positively impacts on number of hospital readmissions. Hospital readmission significantly decrease in study group after the intevention when mean score dressed from (1.62) before the intervention to (0.54) after intervention with P value equal (0.000) while there were no significant changes in number hospital re-admission in control group, these results addressed the effectiveness of the program in number of hospitals re admission of chronic heart failure patients

These results supported by a study published by (Boyde, M et al. 2018) aimed to determine the effect of Self-care educational intervention to reduce hospitalizations for heart failure patient. The results showed the self-care educational intervention reduced the risk of readmission. And there were 24 participants who had an unplanned hospital readmission in the intervention group compared to 44 participants in the control group (p=0.005) (Boyde et al., 2018).

CONCLUSION

The study results showed that there was a decrease in the number of hospitalizations after intervention for patients in the study group only; these results reflect the effectiveness of the patient education on the number of rehospitalizations of heart failure patients, and that can lead to a decrease in the overload work on nurses and health organizations, economic savings for patients and health care organizations, and also reduce nurses' workload, reduce job burnout, and increase job satisfaction for nurses.

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TABLES:

Table (1): Distribution and homogeneity of the study sample (study and control) according to their demographic and occupational characteristics:

Demographic Data	Groups	Study Group		Control Group		Homogeneity variance
		Freq.	%	Freq.	%	
Age / Years	50 to 55	8	22.9	8	22.9	X2 = 10.917
	56 to 61	8	22.9	14	40.0	P = .281
	62 to 67	14	40.0	8	22.9	
	68 to 73	5	14.3	5	14.3	
	Total	**35**	**100.0**	**35**	**100.0**	
Gender	Male	18	51.4	20	57.1	X^2 =.038
	Female	17	48.6	15	42.9	P = .845
	Total	**35**	**100.0**	**35**	**100.0**	
Marital Status	married	23	65.7	20	57.1	X^2 =5.898
	divorced	5	14.3	6	17.1	P =.207
	widower	7	20.0	9	25.7	
	Total	**35**	**100.0**	**35**	**100.0**	
Education level	Unable to Read and Write	4	11.4	8	22.9	X^2 =30.98
	Read & No Write	6	17.1	3	8.6	P =.189

	Elementary School	6	17.1	4	11.4	
	Middle School graduate	6	17.1	5	14.3	
	High School graduate	5	14.3	8	22.9	
	Bachelor's degree and more	8	22.9	7	20.0	
	Total	**35**	**100**	**35**	**100.0**	X2 =2.053
Side of heart failure	left side	20	57.1	18	51.4	P =.726
	right side	11	31.4	12	34.3	
	both sides	4	11.4	5	14.3	
	Total	**35**	**100.0**	**35**	**100.0**	
Residency	rural	18	51.4	22	62.9	X^2 =.230
	urban	17	48.6	13	37.1	P =.631
	Total	**35**	**100.0**	**35**	**100.0**	
Socio economic status	satisfied	15	42.9	9	25.7	X^2 =6.109
	satisfied to some extent	10	28.6	11	31.4	P =.191
	un satisfied	10	28.6	15	42.9	
	Total	**35**	**100.0**	**35**	**100.0**	
Occupation Status	Employee	9	25.7	5	14.3	X^2 =35.435
	Government employee	3	8.6	8	22.9	P =.081
	Free job	2	5.7	6	17.1	
	Unemployed	9	25.7	6	17.1	
	Retired	7	20.0	5	14.3	
	House wife	5	4.3	5	14.3	
	Total	**35**	**100.0**	**35**	**100.0**	
Duration of heart disease	1 to 3 years	15	42.9	11	31.4	X^2 =5.909
	4 to 7 years	11	31.4	14	40.0	P =.206
	8 to 11 years	9	25.7	10	28.6	
	Total	**35**	**100.0**	**35**	**100.0**	
Number of hospitalizations during last three month	No hospitalization	2	5.7	3	8.6	X^2 =4.612
	One time	12	34.2	10	28.6	P =.798
	Two times	14	40	13	37.1	
	Three times	5	14.2	6	17.1	
	Four times	2	5.7	3	8.6	
	Total	**35**	**100.0**	**35**	**100.0**	

(Freq.): frequency, (%): percentage, (X2): chi-square, P: p value.

Table (2): Frequency of times hospitalization in study group (before and after intervention).

	Hospitalization times	**Before the intervention**		**After three months**	
		Frequency	**Percentage**	**Frequency**	**Percentage**
Number of hospitalizations in last three month	No hospitalization	3	8.6	16	45.7
	One time	10	28.6	19	54.3
	Two times	13	37.1	0	0
	Three times	6	17.1	0	0
	Four times	3	8.6	0	0
	Wilcoxon- test (4.6015), p value (0.000)				

Table (3): Frequency of times hospitalization in control group (before and after intervention)

	Hospitalization times	Before the intervention		After three months	
		Frequency	Percentage	Frequency	Percentage
Number of hospitalizations in last three month	No hospitalization	2	5.7	3	8.6
	One time	12	34.2	14	40
	Two times	12	34.2	10	28.6
	Three times	5	14.2	3	8.6
	Four times	4	11.4	5	14.2
Wilcoxon- test (0.0645), p value (0.948)					

Table (4): Comparison of Hospitalization Status between Intervention and Control Groups before and after intervention

Hospitalization statues	group	Mean rank	Mann-Whitney	P value
Before intervention	study	20.81	448.50	0.081
	Control	27.19		
After three months	Study	20.71	95.000	0.000
	Control	50.29		