Effect of a Health Educational Program on Patients Knowledge regarding Heart Failure: A Quasi-Experimental Study

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ABSTRACT

Backgrounds and objective: Heart failure is a major public health problem in the world with a significant load of disease on population and the individual, this burden of disease can be measured in terms of mortality, readmission rate, and healthcare costs. Adequate knowledge about the disease is an effective strategy to prevent further disease complication. The study aimed to determine the effect of a health education program on heart failure patients regarding their disease through a pre-post-test approach.
Methods: A quasi-experimental study with the application of pre and post-test approach for both the study and control group at Hawler Teaching Hospital, Rizgary Teaching Hospital and Rojhalat Hospital on patients with heart failure. A non-probability purposive sampling technique used on 400 heart failure patients chosen to include in the study. The study samples were divided into two groups; 200 patients as a study group and exposed to the health education program, and the other 200 patients were not exposed to the health education program and considered as the control group. The measurement of the effectiveness of a health education program through the knowledge assessment includes six main domains like General information, risk factors, causes, clinical manifestation, diagnosis, and management of heart failure. Statistical data analysis achieved through descriptive and inferential data analysis.
Results: The results indicated that a health education program was effective among patients regarding management heart failure. It also indicates that there is good improvement with highly significant differences in study group between pre and post-test, in overall items.
Conclusion: The study concluded that the educational program is an appropriate and effective way to improve the patient's knowledge about heart failure.
Keywords: Health educational program; Knowledge; Heart failure; Mortality

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INTRODUCTION

Heart failure (HF), a state in which the heart muscle is unable to pump enough blood throughout the body, is considered a worldwide problem in the 21st century with increasing effect on healthcare systems [1]. Prevalence of HF is rising in both industrialized and developing countries, according to the American Heart Association (AHA), about 1 in 5 over age 40 years suffer from HF [2].Heart failure is one causes of hospitalization of patients over 65 years old, it costs around 2% of the entire budget of health care in many developed countries [3]. The disease has a substantial effect on physical ability, quality of life, public health and the cost of healthcare. This can happen to many

patients being readmitted to the hospital every year, which cause a continuous growing burden of HF on society [4,5]. Patients may have many medical conditions, along with many medications, no social support, and other factors limiting the success of some treatment options. In addition, patients with HF may have low knowledge about their medication, weight and sodium management, and activity modification. For this, patients need healthcare and increased knowledge about HF to produce changes in health behaviour [6,7]. Nurses have an important role in the reassessment of heart failure disease, controlling the hemodynamic function and management of HF[8]. Nursing implications help to minimize patient suffering from HF, the patients who are provided with care acquired from programs show a significant effect on morbidity and mortality reduction. Hence, the nurse should become adequately prepared as an educator to manage a patient with HF [9]. Most heart failure management program's goals are to make patient receive ideal medical care by assessing needs and implementing medical management, device therapy teaching, self -care, follow-up, and psychosocial health care [10]. Advancing patients on self-care management can help in behavioural reinforcement and accompanied with effective outcomes, including subjective symptoms, weight observation, low salt diet, improve exercise, medication intake, and a plan for management in case of symptoms agitation. Additional knowledge is important in improving patients' results and to maintain patient condition in the hospital and the outpatient [11]. Studies have shown that half of the patients with heart failure who have been re-admitted to hospital can be prevented from re-entering the hospital if they continue with the prescribed treatment [12].Patients, as well as their caretakers, level of knowledge, is significantly related to their level of adherence to recommended care regimens [13].Patients knowledge is an essential component for the treatment of their disease [14]. Heart failure requires a strong focus on the education of patients and their families to improve their knowledge of self-care and compliance [15].

METHODS

A quasi-experimental study was carried out through with the application of pre and post-test approach for both case and control group, The study was conducted at Intensive Care Unit (ICU) and Medical Ward at Hawler and Rizgary Teaching Hospital, as well as Rojhalat Emergency Hospital. A non-probability purposive sampling technique used on 400 heart failure patients chosen to include in the study, the sample size were determined through the formula " Sample size= Z2pq/ d2 ". The samples of the study were divided into two groups; 200 patients as a case group were exposed to the health education program and the other 200 patients are not exposed to the health education program, considered as the control group. The two groups have the same demographic characteristic. The educational program is designed and based on the patients need assessment and from reviewing the relative scientific literature, and previous studies. The content of the program is evaluated by experts in different fields, revision is made on the content of the program from based on these experts recommendation and suggestions. To evaluate the effectiveness of the educational program on patient knowledge, the researcher constructs a questionnaire interview form for the purpose of data collection, which contains six main domains:General information 10 items, risk factors 10 items, causes 5 items, clinical manifestation 8 items, diagnosis 4 items,

and management of HF 4 items. The content validity of the program and study instruments are determined by a panel of experts, reliability of the tools was determined through the use of test-retest approach obtained through evaluating 20 patients selected from above hospitals with interval period of two weeks. The result of the reliability coefficient was 0.91 for patients knowledge related to heart failure. The statistical data analysis approaches were used in order to analyze and assess the results of the study under the application of the Statistical Package (SPSS) ver. 22.0: Descriptive data analysis: Frequencies, Percentages, Mean of the score (MS), Grand mean of scores (GMS), Standard Deviation (SD), Relative Sufficiency (RS%), as well as inferential data analysis: The Independent-Samples t-test to compares means for two groups of cases, and Matched Paired-Samples t-test (MP t-test) to computes the differences between values of the two variables for each case and tests whether the average differs from zero.

RESULTS

Respect to study socio-demographical characteristics in table (1), results show that study groups had recorded no significant differences at P>0.05, except in age groups, and levels of education, which represented significant different at P<0.05, rather than most of the studied group's individuals distribution concerning age, and levels of education were very similar. In regards to age, the majority of study groups were at the age group of (75-79) years old with mean of age and standard deviation 76.68 ± 6.67, while the majority of the control group were at age (70 -74) years old with mean of age and standard deviation 75.44 ± 6.32.

DISCUSSION

The study showed that most of the case group were at age group of (75-79) years old with mean of age and standard deviation 76.68 ± 6.67, while the majority of the control group were at age (70-74) years old with mean of age and standard deviation 75.44 ± 6.32, these findings agree with the result of cross-sectional study done by Gianluigi and Lars, on 199 heart failure patients and they concluded that the majority of the patients age was above 70 years old [16]. Moreover, the result of the present study agrees with the study on heart failure, the finding of their study revealed that the mean of age and slandered deviation was 75.2. ± 6.18 [17]. According to the cases group main domains knowledge along pre-post periods, the results showed that the GMS of patients knowledge regarding heart failure in the study group has been improved after exposure to a health education program, and this was indicated by the significant difference between pre-test and post-test of the results. Moreover, regarding the control group main domains knowledge along pre-post periods, the study indicated that changes in the case group were significantly higher than that of the control group. The study comes along Mahramus et al, who founded in his study that there is a significant improvement in patients' knowledge regarding heart failure after imparted the study samples with a health education program [18]. Furthermore, the study in agreement with Sundel, who stated that providing heart failure education classes to patients can be successful in increasing their knowledge [19].For summarizing the overall knowledge assessment along pre-post periods in case-control groups, it could be concluded that suggested educational program could be applicable for case

group, since the absence of significant differences between the two groups regarding knowledge of patients with heart failure.

Table 1: Socio-demographical characteristics of the samples

Socio-demographical characteristics.	Classes	Study group		Control group		P-value
		No.	(%)	No.	(%)	
Age	< 65	8	(4)	0	(0)	0.015 (S)
	65 – 69	23	(11.5)	32	(16)	
	70 – 74	45	(22.5)	64	(32)	
	75 – 79	64	(32)	58	(29.9)	
	80 – 84	38	(19)	33	(16.5)	
	85 – 89	14	(7)	9	(4.5)	
	90 >	8	(4)	4	(2)	
	Mean ± SD	76.68 ± 6.67		75.44 ± 6.32		
Gender	Male	105	(52.5)	104	(52)	0.920 (NS)
	Female	95	(47.5)	96	(48)	
Levels of Education	Illiterate	101	(50.5)	139	(69.5)	0.001 (HS)
	Read and write	31	(15.5)	15	(7.5)	
	Primary	16	(8)	14	(7)	
	Intermediate	13	(6.5)	11	(5.5)	
	Preparatory	11	(5.5)	12	(6)	
	Institute graduate	11	(5.5)	4	(2)	
	College graduate	17	(8.5)	5	(2.5)	
Occupation Before disease	Employed	33	(16.5)	24	(12)	0.107 (NS)
	Unemployed	33	(16.5)	42	(21)	
	House wife	78	(39)	93	(46.5)	
	Self- employed	23	(11.5)	22	(11)	
	Retired	33	(16.5)	19	(9.5)	
Occupation After disease	Returned to work	12	(6)	13	(6.5)	0.836 (NS)
	Out of work	188	(94)	187	(93.5)	
Marital Status	Married	134	(67)	132	(66)	0.832 (NS)
	Widowed	66	(33)	68	(34)	
Residential Area	Urban	179	(89.5)	185	(92.5)	0.295 (NS)
	Rural	21	(10.5)	15	(7.5)	

Table 2: Cases group main domains knowledge along pre-post periods

Main Domains	Group	No.	GMS	SD	SE	t-test	P-value
General Information	Pre	200	0.563	0.193	0.014	-20.14	< 0.001(VHS)
	Post	200	0.782	0.128	0.009		
Risk factors	Pre	200	0.223	0.178	0.013	-34.60	< 0.001(VHS)
	Post	200	0.620	0.157	0.011		
Causes	Pre	200	0.354	0.208	0.015	-22.69	< 0.001(VHS)
	Post	200	0.692	0.191	0.014		
Clinical Manifestation	Pre	200	0.636	0.170	0.012	-20.66	< 0.001(VHS)
	Post	200	0.854	0.120	0.008		
Diagnosis	Pre	200	0.393	0.317	0.022	-17.34	< 0.001(VHS)
	Post	200	0.770	0.249	0.018		
Management	Pre	200	0.386	0.212	0.015	-16.77	< 0.001(VHS)
	Post	200	0.719	0.259	0.018		

(*) HS: Highly Significant at P<0.01; NS: Non-Significant at P>0.05; Testing based on Matched Paired t-test; GMS=Grand mean of score

Table 3: Control group main domains knowledge along pre-post periods

Main Domains	Group	No.	GMS	SD	SE	t-test	P-value
General Information	Pre	200	0.566	0.170	0.012	-7.79	< 0.001(VHS)
	Post	200	0.623	0.153	0.011		
Risk factors	Pre	200	0.195	0.164	0.012	-5.70	< 0.001(VHS)
	Post	200	0.257	0.207	0.015		
Causes	Pre	200	0.353	0.180	0.013	-6.42	< 0.001(VHS)
	Post	200	0.415	0.221	0.016		
Clinical Manifestation	Pre	200	0.630	0.159	0.011	-5.74	< 0.001(VHS)
	Post	200	0.661	0.159	0.011		
Diagnosis	Pre	200	0.400	0.321	0.023	-5.45	< 0.001(VHS)
	Post	200	0.465	0.325	0.023		
Management	Pre	200	0.373	0.226	0.016	-4.93	< 0.001(VHS)
	Post	200	0.429	0.249	0.018		

(*) HS: Highly Significant at P<0.01; NS: Non-Significant at P>0.05; Testing based on Matched Paired t-test; GMS=Grand mean of score

Table 4: Overall main domains knowledge along pre-post periods in case-control groups

Groups	Group	No.	GMS	SD	SE	t-test	P-value
Case	Pre	200	0.426	0.106	0.008	-46.4	< 0.001(VHS)
	Post	200	0.739	0.085	0.006		
Control	Pre	200	0.419	0.098	0.007	-7.92	< 0.001(VHS)
	Post	200	0.475	0.128	0.009		

(*) HS: Highly Significant. at P<0.01; Testing based on Matched Paired t-test.

CONCLUSION

In conclusion, the current study data showed that implementing an education program regarding heart failure in Erbil city had increased patients' knowledge about their disease as well as improved their health status.

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ETHICAL CONSIDERATIONS

Before starting the research procedures, official approval was obtained from the research ethics committee at the college of nursing from Hawler medical university. Written permission was obtained from the Directorate of the health of Erbil city in order to facilitate data collection, after that, informed consent was obtained from the HF patients who engaged in the study prior to data collection.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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