Change in the quality of life among patients with heart failure after health education at Quang Ninh general Hospital in 2023

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ABSTRACT

Objective: *Describe the change of quality of life among patients with heart failure after health education at Quang Ninh General Hospital in 2023.* ***Methods***: *Research on health education intervention with before and after comparison on 74 patients with heart failure from March to August 2023.* ***Results***: *The mean score about impact of heart failure on overall, physical and mental health was 79.3 ± 0.1, 30.6 ± 4.6 and 23.1 ± 2.2. After one month of intervention, the mean score decreased to 62.2 ± 9.17; 24.2 ± 3.9 and 17.2 ± 2.4 ($p<0.001$). After two months of intervention, the mean score continued reducing to 47.1 ± 8.9; 18.5 ± 3.7; 12.6 ± 2.6 ($p<0.001$). Patients' status of sleep difficulty, poor appetite, and thoughts of being their family's burden were improved after the intervention.* ***Conclusion***: *Hospitals should come up with a specific intervention program to improve this status for patients with heart failure, especially psychological counseling for patients to help them feel more comfortable, eat better, and sleep well.*

Keywords: *Quality of life, heart failure.*

INTRODUCTION

Heart failure is a common clinical syndrome [1] which is one of the leading causes of chronic, progressive conditions associated with significant morbidity, mortality, and healthcare costs [2]. Globally, 26 million people are living with heart failure, approximately 1.26%–6.7% of whom are in Asian countries. In neighboring countries of Vietnam as China and India, an estimated 4.2 million and 23 million people have heart failure, respectively. The rate of patients with heart failure dying within 1 year after hospitalization is 17 - 45% [3]. In Vietnam, although there has not been an official study, it is estimated that about 320,000 to 1.6 million people have heart failure [2]. Due to population aging, the incidence of heart failure is likely to continue to increase in the coming time [4].

Along with socio-economic development, the life expectancy of the population in many countries, including Vietnam, is increasing. A consequence of the aging of the population is an increase in the prevalence of chronic diseases, including cardiovascular disease. Because heart failure is a common consequence of many cardiovascular diseases, the rate of people with chronic heart failure increases in parallel with the life expectancy of the population. When treating chronic diseases, in addition to prolonging life, the current trend is to increasingly focus on improving patients' quality of life [5]. Health-related quality of life reflects patients' subjective

perception of their health status in daily life and is formed from the interpretation of their health status in comparison to what they wish to achieve. Assessing the quality of life of people with chronic diseases contributes significantly to a patient-centered approach and is also essential in evaluating the benefits of treatment measures [6].

Health education is the top task of nursing in taking care of patients in hospitals. Health education for patients with chronic heart failure has helped patients gain a significant understanding of heart failure and self-care in chronic heart failure, but most of the education programs emphasize knowledge of the disease and lack of information about how to manage symptoms or improve self-care [7].

At Quang Ninh General Hospital, according to statistics from the General Planning Department, in recent years the number of patients being treated at the Department of Cardiology for heart failure is quite high, in 2021 there were about 560 turns of patients; In 2022, there were about 675 turns of patients and often readmitted to the hospital many times. Currently, in Quang Ninh, research on heart failure patients often focuses on the field of treatment and there are many studies on the field of care. From a nurse's perspective, the study was conducted with the desire to improve the quality of life of patients with heart failure.

PARTICIPANTS AND METHODS

Participants: Patients were diagnosed with chronic heart failure and being treated at Cardiology Department of Quang Ninh General Hospital.

Inclusion criteria: The patients were competent to answer an interview, had not had major surgery within the past half year.

Exclusion criteria: Patients had severe acute illness or additional serious illnesses requiring intensive treatment. Patients did not participate in enough health education

intervention activities and assessments in the study. Patients had participated in an educational program with similar content.

Research time and location: The research was conducted at the medical examination department of Quang Ninh Provincial General Hospital from March 2023 to August 2023.

Research design: A pre-post interventional research design was employed.

Sample and sample selection method: The formula was applied to calculate sample size as follows:

$$n = \left(\frac{Z_{1-\alpha/2} + Z_{1-\beta}}{ES} \right)^2$$

$$ES = \frac{\mu_1 - \mu_0}{\sigma}$$

In which:

n was the number of participants

$Z_{(1-\alpha/2)}$ was the Z value obtained from the Z table corresponding to the α value. Sample force of 80% ($\beta = 0.2$), significance level 95% ($\alpha = 0.05$) was equivalent to $Z_{(1-\alpha/2)} = 1.96$ and $Z_{(1-\beta)=} 0.84$.

μ_0 was the mean value of quality of life before intervention (estimated 17.64) [8].

μ_1 was the mean value of quality of life after intervention (estimated 16.36) [8].

ES was the difference; was the standard deviation of 3.65

Substituting into the formula, n = 64 patients and margin of error was about 10% so the estimated sample size of the study was 70 patients. The entire samples of 74 participants was selected.

Measurement and data collection

Data collection measurements: Measurement to collect general information of the patients includes: age, gender, living situation, information about the disease.

The questionnaire to assess the quality of life of patients with heart failure (Minnesota

Living with Heart Failure Questionnaire (MLHFQ)) includes 21 items with 6 point Likert scale (0-5), corresponding to the impact level of heart failure on the quality of life of patients rangeing from not affected to very much affected.

The total score of 21 items is worth from 0 - 105 points, the higher the score is, the lower the quality of life is, in which, quality of life is divided into 3 contents: physical (C2-C7, C12, C13), mental (C17-C21), and overall (C1-C21). The questionnaire was translated, adapted, and used in research in Vietnam. In this study, the questionnaire edited by Tran Thi Hai Ly (2022) was utilized [9]. According to research by Tung Heng-Hsin et al., (2012) [7], the quality of life of patients was evaluated according to 3 levels: high QOL: <25 points; Average QOL: From 25 to 45 points; Low QOL: > 45 points or more.

The health education intervention: The participants of the study received a notebook to keep a self-management diary. They were trained about self-management and monitored to determine their compliance with the health education intervention. The Patient Self-Management Handbook was divided into four chapters:

(1) Chapter 1 as introduction included an overview of self-management and its benefits for health conditions. This chapter also described the nature of heart failure care at home. (2) Chapter 2 introduced self-management skills. (3) Chapter 3 addressed appropriate attitudes and confidence related to disease management. (4) Chapter 4 discussed the behaviors needed to manage symptoms and illness as well as improve treatment compliance and promote healthy lifestyles. The book included a medication diary, symptom management sheet, biological data sheet, and lifestyle modeling sheet (diet and exercise). Training took place in a quiet outpatient linic for 60 minutes with a group of 10-15 patients. The researcher conducted follow-up phone calls every two weeks after training.

Data collection:

Step 1: Got a list of patients, refer to medical records at the department, selected patients who met inclusion criteria.

Step 2: In the morning, in the patient room, before the interview, the participants were explained the purpose and meaning of the research and the content of the steps in which the patient participated.

Step 3 (T1): Assessed the quality of life of participants (the first assessment - T1) using the prepared questionnaire.

Step 4: Carried out health education intervention: While waiting for test results and medication, patients were invited to the Administrative Office of the Department of Cardiology to receive direct advice on the contents in Self-care for chronic heart failure (group of 10 - 15 people/session). The intervention included handouts for patients, illustrations, and leaflets. After the health education, the patients were asked if there were any remaining questions to answer.

Step 5 (T2): Re-assessed the quality of life of the patients 4 weeks after the intervention (the second assessment - T2) using the same knowledge assessment content as the pre-intervention assessment (T1). Interview duration was about 10 minutes. After the interview, if the patient still did not understand the quality of life correctly, the investigator would provide additional information and remind the patient.

Step 6 (T3): Re-assessed the quality of life of the participants after 8 weeks of intervention (3rd assessment - T3) using the same questionnaire as the first time. After interview, if the patient still understands incorrectly about quality of life, the investigator would supplement and remind the patient.

Data analysis: Data were coded and analyzed using SPSS 22.0 software. Method

for calculating frequency, percentage and mean value pre and post intervention, and tests comparing mean values and two proportions were used to analyze differences pre and post intervention.

Ethical issues: The study was approved by the Ethics Committee of Nam Dinh University of Nursing under Certificate No. 943/GCN-HDĐD dated April 21, 2023 and permitted for data collection by Quang Ninh General Hospital.

RESULTS

Table 1. Demographic characteristics

Demographic characteristics		n	%
Age	< 60 years old	38	51.4
	>= 60 years old	36	48.6
	The oldest	69	
	The youngest	28	
	Average (X ± SD)	57 ± 0.1	
Gender	Male	31	41.9
	Female	43	58.1
Living situation	Live with family	72	97.3
	Live alone	2	2.7

Among total of 74 participants with heart failure, 48.6% of them were aged 60 and above, with the percentage of women (58.1%) higher than the percentage of men (41.9%). Most patients live with their families (97.3%).

Table 2. Information about heart failure

		n	%
Duration of heart failure		8.15 ± 2.4 (Min: 4; Max: 15)	
Classification of heart failure according to NYHA	NYHA I	24	32.4
	NYHA II	50	67.6

The average duration of heart failure was 8.15 years, the majority of patients had NYHA II (67.6%).

Table 3. Quality of life of patients with heart failure pre and post intervention

Quality of life	Assessing time	Score			P (t-test)
		The lowest (Min)	The highest (Max)	Mean (Mean ± SD)	
Overall	T1	52	98	79.3 ± 0.1	
	T2	41	82	62.2 ± 9.17	$P_{2\text{-}1}$: 0.000
	T3	11	61	47.1 ± 8.9	$P_{3\text{-}1}$: 0.000
Physical	T1	16	38	30.6 ± 4.6	
	T2	14	31	24.2 ± 3.9	$P_{2\text{-}1}$: 0.000
	T3	6	26	18.5 ± 3.7	$P_{3\text{-}1}$: 0.000

Quality of life	Assessing time	Score			P (t-test)
		The lowest (Min)	The highest (Max)	Mean (Mean ± SD)	
Mental	T1	17	25	23.1 ± 2.2	
	T2	11	24	17.2 ± 2.4	$P_{2\text{-}1}$: 0.000
	T3	2	17	12.6 ± 2.6	$P_{3\text{-}1}$: 0.000

Before the intervention, the mean score of impact of heart failure on quality of life was 79.3 ± 0.1, one month after intervention it decreased to 62.2 ± 9.17 and continued to reduce to 62.2 ± 9.17. 47.1 ± 8.9 two months after intervention. Before the intervention, the mean score of impact of heart failure on the physical life was 30.6 ± 4.6, one month after intervention decreased to 24.2 ± 3.9 and continued to reduce to 18.5 ± 3.7 two months after intervention. Before the intervention, the mean score of impact of heart failure on the mental life was 23.1 ± 2.2, one month after intervention it decreased to 17.2 ± 2.4 and continued to reduce to 12.6 ± 2.6 two months after intervention.

Table 4. Classification of quality of life of patients with heart failure pre and post intervention

	Assessing time					
	T1		T2		T3	
	n	%	n	%	n	%
High (< 25 points)	0	0	0	0	2	2.7
Average (25 - 45 points)	0	0	5	6.8	18	24.3
Low (> 45 points)	74	100	69	93.2	54	73

Before the intervention, 100% of the patients had low quality of life, after the intervention the percantage decreased to 93.2% and continued to decrease to 73%.

Table 5. The greatest and least change in quality of life of patients with heart failure pre and post intervention

Overall	Assessing time		
	T1	T2	T3
	Mean ± SD	Mean ± SD	Mean ± SD
Eat poorly	4.8 ± 0.69	3.78 ± 0.58	2.81 ± 0.7
Discomfort due to side effects of heart failure drugs	2.26 ± 1.06	1.76 ± 0.96	1.28 ± 0.82
Physical			
Difficulty sleeping at night	4.58 ± 0.78	3.42 ± 0.72	2.75 ± 0.8
Difficulty breathing	3.43 ± 1.36	2.64 ± 1.1	2.04 ± 1.08
Spirit			
Thoughts of being a burden for the family	4.69 ± 0.7	3.66 ± 0.63	2.93 ± 0.75
A feeling of helplessness	4.62 ± 0.57	3.35 ± 0.69	2.3 ± 0.81

Before intervention, the effects of heart failure caused discomfort due to side effects of heart failure drugs, difficulty breathing, and a feeling of helplessness changed the most after the intervention. Poor eating, difficulty sleeping at night, and thoughts of being burdens for the family changed the least after the intervention.

DISCUSSION

A study on the quality of life among 74 people with heart failure at Quang Ninh general hospital was conducted. According to the results of Table 3, before intervention, the mean score of the impact of heart failure on quality of life was 79.3 ± 0.1, the mean score of the impact of heart failure on physical and mental health was 30.6 ± 4, 6 and 23.1 ± 2.2. These mean scores are much higher than the ones of the study by Sheka Shemsi Seid (2022) at Tagus Valley Regional Hospital, Portugal, of which the mean score of quality of life of heart failure patients was 44 ± 29.12 and the mean scores of physical and emotional health were 19.79 ± 12.81 and 10.08 ± 8.23, respectively [10]. In the research by Mohammed Assen Seid (2017) in Ethiopia, the overall mean score of quality of life of heart failure patients was 46.4 ± 22.4 and the mean scores of physical and emotional health were 20.2 ± 9.8 and 10.5 ± 6.8, respectively. [11]. Although the above studies all used the Minnesota Living with Heart Failure Questionnaire (MLHFQ), the average score of the impact of heart failure on quality of life in this study was higher. The explanation for this result may be that patients with heart failure may face many types of emotions, from fear and sadness to anxiety and depression, but Vietnamese people are often not proactive in dealing with anxiety when sick and often worry about the future, afraid of becoming dependent on their children meanwhile foreigners are often highly independent and have a better economic life.

In the study, health education intervention was used, which was direct consultation on content in self-care for chronic heart failure (group of 10 - 15 people/session). The intervention includes handouts for patients, illustrations, and leaflets. Then follow-up phone calls were made every two weeks after training. According to the results of Table 3, before the intervention, the mean score of the impact of heart failure on the overall, physical and mental quality of life was high, 1 month after the intervention it decreased and continued to reduce the level of impact after 2 months of intervention, the change was statistically significant with $p < 0.001$. This result is different from the study by Boyoung Hwang (2020), patients were selected randomly into one of three groups: usual care (control) or one of two intervention groups (Fluid Watchers LITE [LITE] or Fluid Watchers PLUS [PLUS]). Patients in the control group received usual medical care. All patients also received a diary to record their use of health care services (i.e., phone calls to doctors, medical appointments, examine at emergency department, and adminssion), these diaries were returned monthly to the research team. Patients in the two intervention groups received a direct educational session with a registered nurse, lasting approximately 50 minutes. The results were that there were no differences in health-related quality of life (HRQOL) amomg groups [12].

However, the results are similar to Akram Mansouri's (2019) study. In this randomized controlled research, 76 patients with heart failure were assigned to the intervention group or control group through the randomized block design. The intervention group received 4 weeks of oral and written educational programs. The Minnesota Quality of Life Questionnaire and the Roy Adaptive Model-Based Assessment Form were completed at the beginning of the study and one month after study completion. The results were that the mean score of all three aspects of quality of life and the total score of quality of life decreased significantly ($p < 0.05$) [13].

Before the intervention, 100% of patients had low quality of life, after the intervention the proportion decreased to

93.2% and continued to decrease to 73%. The results are different from the study by Sheka Shemsi Seid (2022) at Tagus Valley Regional Hospital, Portugal, of which there were 45.8% of patients with low quality of life, 20.8% of them with average quality of life, and 33.3% of patients with good quality of life.[10]. Research by Mohammed Assen Seid (2017) reported that the majority of the participants (51.8%) had a low quality of life [11]. In the research by Mandana Moradi (2018), general and specific tools used in this study indicated that the quality of life of heart failure patients were average and low [14]. Research by Tran Thi Hai Ly (2022) indicated that the majority of patients had a low quality of life with 89.9%, 10.1% had an average quality of life and 0% of patients had a high quality of life [9]. Thus, it can be seen that 100% of patients with a low quality of life is a problem that needs the hospital's attention. There was a significant change after the intervention and with such results, we may see the role of health education for heart failure patients in reducing the impact on quality of life.

The results of Table 5 indicated that the impact of heart failure on life, causing poor appetite, had the least improvement in the mean score after the intervention. Heart failure may change eating habits and needs, causing loss of appetite. If appetite is reduced for many days, it will lead to weight loss. Losing weight will make your body feel weak and tired. This may affect the quality of life and the ability to carry out usual activities. For people with heart failure, poor diet can affect the ability to respond to heart failure treatments [14]. Patients with thoughts of being a burden to their families improved the east after the intervention. The anxiety about illness of the patients impairs their social and occupational functioning or causes significant stress [9].

The study used the interventional research method to compare a group before and after, without a control group. Due to time limitation, funding and human resources, the research has not been able to conduct many communication methods with a large number of patients. This is also a limitation of the research. However, the study conducted health education consultation for patients with heart failure and achieved some results showing changes in the patients' quality of life. From there, provide more evidence about the effectiveness of intervention programs in health education for heart failure patients for hospitals.

CONCLUSION

The mean score of impact of heart failure on overall, physical and mental life was 79.3 ± 0.1; 30.6 ± 4.6 and 23.1 ± 2.2, respectively. The mean score of impact of heart failure on overall after one month of the intervention decreased to 62.2 ± 9.17 and continued to reduce to 47.1 ± 8.9 after two months of the intervention ($p < 0.001$). The mean score of impact of heart failure on physical life after one month of the intervention decreased to 24.2 ± 3.9 and continued to decrease to 18.5 ± 3.7 after two months of the intervention ($p < 0.001$). The mean score of the impact of heart failure on mental life after one month of the intervention decreased to 17.2 ± 2.4 and continued to reduce to 12.6 ± 2.6 after two months of the intervention ($p < 0.001$). The situation of poor appetite, difficulty sleeping at night, and thoughts of being a burden for the family of the patients improved the least after intervention.

RECOMMENDATIONS

The results presented that the situation of poor appetite, difficulty sleeping at night, and thoughts of being a burden for the family of the patients improved the least after intervention. Therefore, the hospital needs to coordinate with the patients and their family to come up with a specific intervention program to improve this content

for patients with heart failure, especially psychological counseling is necessary for patients to help the patient feel better, eat better, sleep better.

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