ORIGINAL RESEARCH

International Journal of Nursing Education
Volume 14 No. 4, October-December 2022

Relationship between NYHA degrees and Self-efficacy with Quality of Life in Heart Failure Patients: A Cross-Sectional Study

Halfiah [1], Marlina [2], Cut Husna [3]

[1]Master Program of Nursing Science, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh-Indonesia, [2,3]Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh-Indonesia

How to cite this article: Halfiah, Marlina, Husna C. Relationship between NYHA degrees and Self-efficacy with Quality of Life in Heart Failure Patients: A Cross-Sectional Study. 2022;14(4):39-44 .

ABSTRACT

Heart failure causes functional limitations that result in fatigue and dyspnea, thereby reducing the quality of life. Various factors related to the quality of life of heart failure patients include NYHA degree and self-efficacy. An increase in the number of heart failure patients treated at the Aceh Government Hospital occurred in 2021, patients also often experienced repeated hospitalizations. This study aims to determine the relationship between patient NYHA degree and self-efficacy with the quality of life of patients with heart failure. This type of research is quantitative with a cross-sectional study on 154 heart failure patients. Instruments to measure self-efficacy using Cardiac Self-Efficacy (CSE) and quality of life with the Minnesota Living with Heart Failure (MLHF) questionnaire. Bivariate analysis using chi-square and multivariate analysis with logistic regression. The results showed a significant relationship between NYHA degree and self-efficacy with quality of life ($p<0.05$). The results of the multivariate analysis found that the degree of NYHA was the most dominant factor associated with the quality of life of heart failure patients with an Odds Ratio (OR) of 17.438. The quality of life of heart failure patients is strongly influenced by the degree of NYHA, lowering the degree of NYHA is the best step to prevent a decrease in the quality of life of patients with heart failure.

Keywords*:* Degree of NYHA, Heart failure, Quality of life, Self-efficacy.

INTRODUCTION

In general, the global incidence of heart failure ranges from 100 to 900 cases per 100,000 people each year. It is estimated that 915,000 new cases of heart failure occurred in the United States in 2012 [1]. Heart failure is still a health problem in the world due to high rates of mortality, morbidity, hospitalization, and disability [2].

Heart failure causes a mortality burden and an unabated hospitalization rate although significant sustained efforts to treat and manage cardiac failure have been made.[3] Heart failure is a complex clinical symptom that occurs due to functional or structural disorders of the heart, causing a decrease in the ability of the ventricles to fill and pump blood throughout the body. This condition will cause the main symptoms of the patient including fluid retention which can lead to pulmonary congestion or peripheral edema as well as dyspnea and fatigue which causes limitations in activity [4, 5] States that Heart failure causes a significant decrease in the physical and psychological abilities of the patient, causing the patient's quality of life to decrease.

Corresponding author: Dr. Marlina, Faculty of Nursing, Universitas Syiah Kuala

Email: nersmarlina@unsyiah.ac.id

The quality of life of heart failure is influenced by the functional degree of heart failure according to the New York Heart Association (NYHA) [6,7]. In addition, self-efficacy is a predictor of the quality of life of heart failure patients [8]. Data on heart failure patients treated at the Aceh Government Hospital are still high, heart failure patient also often experiences repeated hospitalizations.

Based on this description, the researchers wanted to see the relationship between the degree of NYHA and self-efficacy with the quality of life of patients with heart failure.

MATERIALS AND METHODS

Design

This type of quantitative research with a cross-sectional approach is a study that aims to see the relationship between the degree of NYHA, self-efficacy, and quality of life of heart failure patients.

Participants

This research was conducted at the Zainoel Abidin Hospital in Banda Aceh, Indonesia. A total of 154 heart failure patients who went to Polyclinic participated in this study. The sampling criteria included: (1) patients with a diagnosis of heart failure for more than 1 month, (2) stable condition (not in a state of shortness of breath), and (3) NYHA I, NYHA II, and NYHA III patients.

Data Collections

Data collection was carried out from July 14 to July 31, 2022. The instruments used were the Cardiac Self-Efficacy (CSE) and the Minnesota Living with Heart Failure (MLHF) questionnaire.

CSE is a research questionnaire developed by [9] to assess the self-efficacy of patients with heart disease. The questionnaire used to measure Self-efficacy (CSE) in this study is the CSE questionnaire which has been modified by [10] with a Cronbach alpha of 0.926. While the MLHF is a questionnaire developed by [11] to measure the quality of life of patients with heart failure. The MLHFQ questionnaire consists of two domains, namely the physical domain and the emotional domain, which is designed to describe two aspects of quality of life. The MLHFQ questionnaire is a standard questionnaire that has been tested for validity and reliability by the Rector, with the Cronbach alpha coefficient between 0.87 to 0.95 [12].

The following is the NYHA form used to assess the NYHA degrees of patients to be sampled for research, these NYHA guidelines are created by adapting the NYHA classification mentioned by [4]. This NYHA guideline form is filled out before the patient is given the CSE and MLHF questionnaires, by marking the checklist in the "Yes" column on the NYHA degree that best suits the patient's condition and complaints. If the patient is included as having a functional degree of NYHA I, II, and III then the patient is included in the study sample, while NYHA IV is not included in the study sample because the patient with NYHA IV is in a condition of shortness of breath so it is not suitable to be involved in the study, NYHA IV patients are also rarely found to be treated at the Polyclinic.

To overcome the belief the researcher set inclusion criteria, made a detailed description of the research setting and used a standardized questionnaire that had been tested for validity and reliability.

Ethical Considerations

The ethical license was obtained from the Ethics Committee of the Zainoel Abidin hospital in Banda Aceh, Indonesia.

Data Analysis

The data that has been collected was analyzed using univariate analysis, bivariate analysis, and multivariate analysis. Univariate analysis in this study was conducted to obtain the results of the frequency distribution of each independent variable, namely the degree of NYHA and self-efficacy, and to see

Tabel 1. Form of New York Heart Association (NYHA) degree Trustworthiness

NYHA	*Patient complaints*	*Yes*	*No*
I	The absence of limited physical activity, daily physical activity does not give rise to symptoms of shortness of breath, fatigue and palpitations.		
II	Limitation of physical activity is mild, symptoms do not appear at rest, but in physical activity it causes shortness of breath, fatigue and palpitations, such as climbing stairs		
III	Meaningful activity restrictions were found, there were no complaints at rest, but complaints of shortness of breath, palpitations and fatigue appeared when doing light physical activity, such as walking a few meters		
IV	Unable to carry out physical activity without complaints, at rest complaints are found, such complaints increase when performing activities.		
Notes: Give a checklist in the column that corresponds to the patient's NYHA			

the frequency distribution of the dependent variable, namely the quality of life. Bivariate analysis using the Chi-square test to see the relationship between the independent variable and the dependent variable. While the multivariate test uses logistic regression to see the independent variables that are most related to the quality of life of patients with heart failure.

RESULT

The results of the data analysis in the study can be seen in the table 2:

Univariate Analysis Result

Table 2. Characteristics of patients

	Characteristics of Respondents	*Frequency*	*Percentage*
1	Age		
	26-35	4	2.6
	36-45	17	11.0
	46-55	38	24.7
	56-65	52	33.8
	>65	43	27.9
2	Gender		
	Male	103	66.9
	Female	51	33.1
3	Level of education		
	Basic education	40	26.0
	Middle education	50	32.5
	Higher education	64	41.6
4	Occupation		
	Working	98	63.6
	Unemployed	56	36.4
5	Marital Status		
	Marry	128	83.1
	Unmarried	1	0.6
	Widow/Widower	25	16.2
6	NYHA degrees		
	NYHA I	20	13.0
	NYHA II	85	55.2
	NYHA III	49	31.8

Table 3. Self-efficacy of Heart Failure Patients

Self-efficacy	*Frequency*	*Percentage*
High	88	57.1
Middle	36	23.4
Low	30	19.5

Table 4. Quality of Life of Heart Failure Patients

Quality of Life	*Frequency*	*Percentage*
Good	103	66.9
Poor	51	33.1

Table 3 shows that out of 154 heart failure patients who went to the hospital, 88 people (57,1%) have high self-efficacy.

Table 4 shows that out of 154 heart failure patients who went to the hospital, 103 patients (66, 9 %) have a good quality of life, while the quality of life is less than as many as 51 patients (33.1%).

Bivariate Analysis Result

Table 5. Relationship of NYHA Degree with Quality of Life of Heart Failure Patients

No	NYHA degrees	Quality of Life				Total		a	p-value
		Good		Poor					
		f	%	F	%	f	%		
1	NYHA I	20	100	0	0	20	100	0,05	<0,001
2	NYHA II	76	89,4	9	10,6	85	100		
3	NYHA III	7	14,3	42	85,7	49	100		
Total		103	66,9	51	33.1	154	100		

Table 6. Relationship between Self-Efficacy and Quality of Life in Heart Failure Patients

No	Self-efficacy	Quality of Life				Total		a	p-value
		Good		Poor					
		f	%	f	%	f	%		
1	High	74	84.1	14	15.9	88	100	0.05	<0.001
2	Middle	22	61.1	14	38.9	36	100		
3	Low	7	23.3	23	76.7	30	100		
	Total	103	66.9	51	33.1	154	100		

Table 5 shows that the p-value is < 0.001, these results indicate a significance value of <0.05, so there is a relationship between the degree of NYHA and the quality of life of heart failure patients.

Table 6 show the *p-value* **< 0.00 1, these results indicate a significance value of <0.05. So that there is a relationship between self-efficacy** and the quality of life of heart failure patients.

Multivariate Analysis Results

Based on multivariate analysis with a logistic regression test, it was found that the degree of NYHA was the most dominant predictor related to the quality of life of heart failure patients with Odds Ratio (OR: 17.438).

DISCUSSION

NYHA's Degree of Relationship with Quality of Life of Heart Failure Patients

The study shows that among patients with NYHA III degree of which 42 people (85.7%) experienced a decrease in their quality of life. This study is in line with what was stated by 13 stated that in addition to age, the degree of NYHA also greatly affects the quality of life of heart failure patients. NYHA II has the highest percentage of 55.8% compared to NYHA I. This study is also following the opinion conveyed by 14 in stating that heart failure patients will experience a decrease in quality of life caused by the worsening NYHA functional class, the worse the NYHA class or the NYHA degree of heart failure patients, the better the quality of life. The patient's life will also decrease. This opinion is following the results found in this study that the quality of life of heart failure patients decreased with increasing NYHA.

Another supportive study [15] stated there was a significant relationship between the functional class of NYHA and the quality of life of heart failure patients. The degree of NYHA was assessed as a predictor that affected the quality of life. The worse the degree of NYHA patients, the patient's quality of life will also decrease.

Patients high degree of NYHA often complain of weakness and tiredness easily, especially when doing activities outside the home, causing the patient to have difficulty carrying out daily activities and social

activities. Heart failure patients who seek treatment at the Zainoel Abidin Hospital is generally accompanied by their family, especially patients with NYHA III degree. Reducing the patient's NYHA degree is the best step to prevent a decrease in quality of life in heart failure patients.

Relationship of Self-efficacy with Quality of Life of Heart Failure Patients

The results of data analysis in this study indicate the relationship between self-efficacy and the quality of life of heart failure patients. The higher the self-efficacy of the heart failure patient, the better the patient's quality of life, and vice versa, the lower the self-efficacy of the heart failure patient, the lower the patient's quality of life. Previous research stated that a lower level *of* self-efficacy can predict a poor quality of life, thus health care facilities must pay attention to factors related to self-efficacy when improving the patient's quality of life. [16]

Self-efficacy has positive and negative impacts, high self-efficacy affects a better quality of life, when self-efficacy is low it will be a barrier to self-care, so it will affect the patient's quality of life [17].

Another study also wrote that self-efficacy is a predictor of quality of life, low self-efficacy and depression experienced by patients will worsen the quality of life of patients with heart failure, and a high level of self-efficacy can predict the better quality of life. These results indicate that the perceived confidence in managing symptoms and maintaining function is a better indicator of improving the quality of life of heart failure patients [8].

This study shows that heart failure patients have high self-efficacy. This finding can be influenced because of the strong culture and spirituality of the Acehnese people, the Acehnese are famous for their adherence to religion and highly uphold their culture and customs. This condition can also be influenced by coping mechanisms and patients can accept the disease, patients also have the ability and confidence in themselves that patients must seek treatment according to a predetermined visit schedule.

These findings indicate that patients with low self-efficacy are unable to control their disease, especially in a state of chest pain and shortness of breath. This situation can be influenced by the severity of the symptoms of the disease. Severe clinical symptoms felt by the patient will cause the patient to be unable to carry out social activities as usual and do light exercise to improve heart function. Meanwhile, patients with high self-efficacy can control the disease so that their quality of life does not decrease.

RESEARCH LIMITATIONS

This study was limited to heart failure patients with NYHA I, NYHA II, and NYHA III.

CONCLUSION

This study found a significant relationship between the degree of NYHA, self-efficacy, and quality of life of patients with heart failure. The degree of NYHA is the predictor that most influences the quality of life of patients with heart failure. The quality of life can be improved by reducing the patient's NYHA degree and increasing the self-efficacy of heart failure patients.

Source of funding

There is no financial support for this research project.

Conflict of interest

There is no competing interest carried out by the author.

REFERENCES

1. Ziaeian B, Fonarow GC. Epidemiology and aetiology of heart failure. Nat Rev Cardiol. 2016;13(6):368–78.
2. Philip A.Ades M, Steven J. Keteyian P, Gary J Balady M, Nancy Houston-Miller B, Dalane W. Kitzman M, Donna M. Mancini M, et al. Card Rehab Exercise and Self Care for Chronic Heart failure. Elsevier [Internet]. 2014;23. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3624763/pdf/nihms412728.pdf

3. Roger VL. Epidemiology of Heart Failure: A Contemporary Perspective. Circ Res. 2021;1421–34.

4. Yancy CW, Jessup M, Bozkurt B, Butler J, Casey DE, Drazner MH, et al. 2013 ACCF/AHA guideline for the management of heart failure: A report of the american college of cardiology foundation/ american heart association task force on practice guidelines. Circulation. 2013;128(16).

5. Fotos., Giakoumidakis K, Kollia Z, Galanis P, Copanitsanou P, Pananoudaki E, et al. Health-related quality of life of patients with severe heart failure: A cross-sectional multicentre study. Scand J Caring Sci. 2012;27(3):686–94.

6. Akhmad AN. Kualitas hidup pasien Gagal Jantung Kongestif (GJK) Berdasarkan karakteristik Demografi. J Keperawatan Soedirman. 2018;11(1):27.

7. Saida S, Haryati, Rangki. Kualitas Hidup Penderita Gagal Jantung Kongestif Berdasarkan Derajat Kemampuan Fisik dan Durasi Penyakit. Faletehan Heal J. 2020;7(02):70–6.

8. Loo DWY, Jiang Y, Koh KWL, Lim FP, Wang W. Self-efficacy and depression predicting the health-related quality of life of outpatients with chronic heart failure in Singapore. Appl Nurs Res [Internet]. 2016;32:148–55. Available from: http://dx.doi.org/10.1016/j.apnr.2016.07.007

9. Sullivan, Lacroix AZ, Russo J, Katon WJ. Self-efficacy and self-reported functional status in coronary heart disease: A six-month prospective study. Psychosom Med. 1998;60(4):473–8.

10. Zhang X, Zhan Y, Liu J, Chai S, Xu L, Lei M, et al. Chinese translation and psychometric testing of the cardiac self-efficacy scale in patients with coronary heart disease in mainland China. Health Qual Life Outcomes. 2018;16(1):1–8.

11. Rector TS, Cohn JN. Assessment of patient outcome with the Minnesota Living with Heart Failure questionnaire: Reliability and validity during a randomized, double-blind, placebo-controlled trial of pimobendan. Am Heart J. 1992;124(4):1017–25.

12. Mogle J, Buck H, Zambroski C, Alvaro R, Vellone E. Cross-Validation of the Minnesota Living With Heart Failure Questionnaire. J Nurs Scholarsh. 2017;49(5):513–20.

13. Yeh HF, Shao JH. Quality of Life and Associated Factors in Older Adults With Heart Failure. J Nurs Res. 2021;29(5):e166.

14. Scottish Intercollegiate Guidelines Network (SIGN). Management of chronic heart failure. Vol. 16, Edinburgh: SIGN. 2016. 17–41 p.

15. Comín-Colet J, Anguita M, Formiga F, Almenar L, Crespo-Leiro MG, Manzano L, et al. Health-related Quality of Life of Patients With Chronic Systolic Heart Failure in Spain: Results of the VIDA-IC Study. Rev Española Cardiol (English Ed. 2015;69(3):256–71.

16. Barham A, Ibraheem R, Zyoud SH. Cardiac self-efficacy and quality of life in patients with coronary heart disease: A cross-sectional study from Palestine. BMC Cardiovasc Disord. 2019;19(1):1–12.

17. Buck HG, Dickson VV, Fida R, Riegel B, D'Agostino F, Alvaro R, et al. Predictors of hospitalization and quality of life in heart failure: A model of comorbidity, self-efficacy and self-care. Int J Nurs Stud [Internet]. 2015;52(11):1714–22. Available from: http://dx.doi.org/10.1016/j.ijnurstu.2015.06.018