

Original Article

Health Literacy and Self-Efficacy in Patients with Heart Failure: Insights from a Cross-Sectional Study

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ABSTRACT

Introduction: Heart failure is a progressive chronic condition that requires patients to actively engage in self-efficacy behaviors. Health literacy plays a critical role in enabling patients to understand health information, make informed decisions, and effectively manage their condition, which may enhance self-efficacy. This study aimed to examine the association between health literacy and self-efficacy among patients with heart failure.

Methods: This cross-sectional study was conducted among 217 patients with heart failure recruited by convenience sampling from two referral hospitals in Fars Province, Iran, in 2024. Data were collected using the Cardiac Self-Efficacy Questionnaire and a heart failure-specific health literacy scale. Descriptive statistics, Pearson's correlation coefficient, and multiple linear regression analyses were performed using SPSS version 26.

Results: Overall, 63.4 % of participants demonstrated moderate levels of self-efficacy. Functional health literacy had the highest mean score (8.33 ± 3.67), whereas critical health literacy had the lowest (3.71 ± 2.79). Health literacy was positively correlated with self-efficacy ($r = 0.269$, $P < 0.001$). Multiple linear regression analysis identified increasing age as an independent predictor of Health literacy ($\beta = 0.305$, $P = 0.001$). These findings indicate that patients with higher health literacy tended to report greater confidence in managing their condition. Multiple linear regression analysis identified increasing EF ($\beta = 0.192$, $P = 0.05$) and Hospitalization ($\beta = -0.108$, $P = 0.05$) as an independent predictor of self-efficacy.

Conclusion: Health literacy was significantly associated with self-efficacy among patients with heart failure. The findings highlight the importance of integrating health literacy assessment into routine heart failure care and implementing tailored educational interventions to strengthen patients' self-efficacy and support effective self-management.

Keywords: Health Literacy; Self-Efficacy; Heart Failure

Introduction

Heart failure, a chronic cardiovascular condition, is characterized by the heart's diminished capacity to pump blood effectively, leading to an inability to meet the metabolic demands of the body's tissues (1). It commonly develops as a result of structural or functional cardiac damage and is frequently associated with conditions such as coronary artery disease, myocardial infarction, hypertension, diabetes mellitus, and other underlying cardiovascular disorders (2). Patients with heart failure often experience symptoms such as dyspnea, dizziness, fatigue, edema, and ascites, which impair physical functioning, limit social participation, reduce quality of life, and impose substantial economic burdens on patients, families, and healthcare systems (3). Notably, in Iran, the incidence of heart failure is estimated to be approximately 8 % higher than the global average, and the disease accounts for 1–2 % of total healthcare expenditures due to its high hospitalization costs (4, 5).

Many risk factors of cardiovascular diseases are closely associated with individuals' knowledge and awareness. Accordingly, health literacy is recognized as an important determinant of chronic disease management, including heart failure (7). It refers to an individual's ability to obtain, understand, evaluate, and apply health-related information to make appropriate health decisions (8). According to the World Health Organization, health literacy encompasses the cognitive and social skills that enable individuals to access, comprehend, and effectively use health information to maintain and improve personal and community health. In this sense, health literacy is not only an individual attribute but also a key factor in promoting and sustaining public health (6).

Health literacy is associated with the health status of patients with cardiovascular diseases (7). As reported by the study of Kanejima et al., 32.8 % of cardiac sufferers had low health literacy (8). Besides, according to another research, only 28.1 % of the participants had adequate health literacy and 56.6 % had inadequate health literacy (9). Patients with higher levels of health literacy perform better in doing complex health-related tasks, and consequently, they enjoy a higher quality of life. They also have lower rates of hospitalization and hospital services; thus, they undergo lower healthcare costs (10, 11).

However, studies have shown that health literacy is often limited among patients with heart

failure, with prevalence estimates ranging from 27 % to 54 % (12, 13). Limited health literacy may hinder patients' ability to understand medical information, follow treatment recommendations, and perform complex self-care activities, thereby increasing the risk of adverse clinical outcomes (14).

In addition to health literacy, self-efficacy plays a significant role in the management of patients with heart failure. Low health literacy and a lack of disease-relevant information can impact patients' self-confidence and self-efficacy (15). Self-efficacy is defined as an individual's confidence in their ability to perform behaviors necessary to achieve desired health outcomes (19). In patients suffering from heart failure, self-efficacy plays a crucial role in accepting the treatment regimen, managing disease symptoms, and engaging in self-care behaviors (16). Higher self-efficacy has been associated with better treatment adherence, more effective symptom management, improved self-care behaviors, fewer hospital readmissions, and better quality of life (17). Although both health literacy and self-efficacy are recognized as important determinants of health outcomes, the relationship between these two constructs in patients with heart failure remains insufficiently understood.

Although the association between health literacy and self-efficacy has been investigated in several chronic disease populations, evidence among patients with heart failure remains limited. To date, only one study has specifically examined this relationship in heart failure patients and reported no significant association (18). Moreover, no previous study has explored this relationship in Iran, where cultural characteristics, healthcare delivery, and health literacy levels may differ from those reported in other countries. Addressing this knowledge gap is important for developing culturally appropriate educational interventions and self-management strategies for patients with heart failure. Therefore, the present study aimed to investigate the association between health literacy and self-efficacy among patients with heart failure attending medical and educational centers in Fars Province, Iran. By providing evidence from an understudied population, this study seeks to expand the current literature and inform the development of culturally appropriate interventions to enhance self-management among patients with heart failure.

Methods

Study Design

The present descriptive cross-sectional study was conducted to examine the relationship between

health literacy and self-efficacy in patients with heart failure from September to November 2024, across

multiple medical and educational centers located in Fars province, Iran.

Participants

We calculated the sample size using the formula used in a previous study of Farghadani et al. (19) ($\alpha = 0.05$, correlation coefficient: $r = 0.2$). The sample size was estimated 193 patients. Due to the possibility of incomplete completion of questionnaires by the study participants, we considered more samples. A total of 217 patients were selected using convenience sampling.

$$N = \frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2}{\left(\frac{1}{2} \ln \frac{1+\rho}{1-\rho}\right)} + 3$$

The current study was conducted in cardiac intensive care units (CCUs and Post-CCUs) of Al-Zahra and Vali-e-Asr Hospitals in Fars province. The inclusion criteria considered in this study were being over 18 years old, having a cardiac ejection fraction (EF) of less than 40 % (according to patient records based on echocardiography), having class I or II heart failure (based on the New York Heart Association Functional Classification), having been definitively diagnosed with the disease for more than 6 months, and signing informed consent to participate in the study. The exclusion criteria were unwillingness to participate in the study for any reason, failure to complete more than 50 % of the questionnaires, and certain mental illnesses or malignancies.

Data Collection Method

After obtaining approval from the Research Deputy of Fasa University of Medical Sciences and permission from the relevant Hospitals, the necessary authorization was secured to conduct the study. Eligible patients were identified by reviewing hospital admission records and medical files in collaboration with the nursing staff of the cardiac intensive care units. Patients who met the inclusion criteria were approached consecutively during the study period and invited to participate. The study objectives and procedures were explained individually, and written informed consent was obtained before enrollment. Convenience sampling was continued until the required sample size was achieved. Data collection was carried out over a three-week period (excluding holidays) in cardiac intensive care units.

The researcher reviewed each questionnaire immediately after completion to ensure that all items had been answered. If any responses were missing, participants were politely asked to complete the omitted items whenever possible.

Data Collection Instruments

Data were collected using a demographics questionnaire, the Cardiac Self-Efficacy Scale, and the Health Literacy Questionnaire (HLQ). The demographic checklist included questions on age, gender, marital status, number of hospitalizations due to heart failure, ejection fraction (EF), and risk factors for heart disease such as diabetes, hypertension, high blood lipids, smoking, and body mass index (BMI).

To measure self-efficacy, we utilized the 16-item Cardiac Self-Efficacy Scale developed by Sullivan et al. (1998). This instrument uses a 5-point Likert scale (0-4) to assess patients' confidence in managing their heart failure and adhering to treatment regimens. The total score of the questionnaire is 80, and the self-efficacy score is converted to a scale of 0 to 100. The scores are then categorized as follows: 0-33 (poor), 34-66 (moderate), and 67-100 (strong) (20, 21). The validity and reliability of this questionnaire have been confirmed through studies conducted both domestically and internationally. To assess reliability, Cronbach's alpha was found to be 0.93, and the intraclass correlation coefficient was 0.79 using the test-retest method (22).

The Health Literacy Questionnaire aims to evaluate health literacy among patients with heart failure. It consists of 12 items that measure three dimensions: functional (items 1-4), communicative (items 5-8), and critical (items 9-12) health literacy in patients with heart failure. The items utilize a 4-option Likert scale, with each item scored between 1 and 4, resulting in a total scale score of 36. Higher scores indicate a greater level of health literacy. In a study conducted by Karami et al. (2020), the questionnaire demonstrated a reliability estimate of 0.72 (27).

Data Analysis

The data were analyzed using SPSS version 26.0. Descriptive statistics, including mean, standard deviation, and frequency, were used to summarize participant characteristics. The relationship between health literacy and self-efficacy was assessed using Pearson correlation. The comparison of health literacy and self-efficacy scores by demographic variables was evaluated using an independent t-test and one-way analysis of variance (ANOVA). Potential confounders were controlled using multiple linear regression analyses. P values < 0.05 were considered as the level of significance.

Ethical Considerations

This study was approved by the Institutional Research Ethics Committee of Fasa University of Medical Sciences, Fasa, Iran (ethical code: IR.FUMS.REC.1402.118). Written informed consent was obtained from all participants. Confidentiality of the data was ensured, and participation was entirely

voluntary. Participants were free to withdraw from the study at any stage without any consequences. All procedures were performed in accordance with the

principles of the Declaration of Helsinki and the guidelines of the Committee on Publication Ethics (COPE).

Results

Characteristics of the study population

Of the 217 eligible heart failure patients who participated in this study; 84 (38.7 %) were female. The age of the largest percentage (79.7%) of participants was in the age range of 60-85%. Most of the participants were married 186 (85.7 %) with Primary education level

72 (33.17 %). Regarding past medical history, nearly one-thirds of the participants had a history of diabetes (36.2 %), more than half (59.6 %) had hypertension, and about one-third (29.5 %) had hyperlipidemia. Also, 44 % of them were smoker. The baseline characteristics are presented in Table 1.

Table 1. Demographic characteristics of the participants

Characteristics	Frequency	Percent
Gender	Female	84
	Male	133
Age	39-20	6
	40-59	38
	60-85	173
Marrietal Status	Single	31
	Married	186
EF %	≤ 30	96
	30-40	97
Educational level	Completed high school or less	168
	Completed more than high school	25
BMI	Underweight	6
	Normal	124
	Overweight	47
	Class I obesity	5
	Class II obesity	11
Number of hospitalizations	0	27
	1-3	136
	≥ 4	54
Risk factor	HTN	115
	DM	70
	HLP	56
	Smoking	44

BMI, body mass index; DM, diabetes mellitus; EF, ejection fraction; HLP, hyperlipidemia; HTN, hypertension; SD, standard deviation.

Descriptive Statistics Of Self-Efficacy And Health Literacy

In this study, the total mean score $\pm$ SD of the patients' self-efficacy was found to be 46.29 ± 11.31 . Based on the classification, 31.6 % of the heart failure patients revealed to strong, 63.4 % had moderate, and only 5.6 % had a poor level of self-efficacy. Also, the

total mean score $\pm$ SD of their health literacy was 18.44 ± 4.54 . The sub-domains were reported in Table 2.

Table 2. The scores of Health Literacy and Self-Efficacy

Variable	Min	Max	Mean	SD
Functional Health Literacy	0	12	8.33	3.67
Communicative Health Literacy	2	12	6.39	1.97
Critical Health Literacy	0	11	3.71	2.79
Total Health Literacy	8	31	18.44	4.54
Self-Efficacy	14	64	46.29	11.31

SD: Standard Deviation

Correlation Between Self-Efficacy and Health Literacy

A statistically significant positive correlation was found between self-efficacy and health literacy (R

= 0.269, $P < 0.001$), so that the higher the level of health literacy correlated with the stronger level of self-efficacy. Moreover, all health literacy subscales showed a significant relationship with self-efficacy (Table 3).

Table 3. The Association Between Health Literacy Subscales and Self-Efficacy

Subscale	Total Self-Efficacy
Functional Health Literacy	$r = 0.192$ $p = 0.002$
Communicative Health Literacy	$r = 0.208$ $p = 0.004$
Critical Health Literacy	$r = 0.27$ $p < 0.001$
Total Health Literacy	$r = 0.269$ $P < 0.001$

Correlation Of Self-Efficacy And Health Literacy In Demographic Variables

Table 4 indicates the results of role of demographic characteristics and health literacy on self-efficacy. The results revealed a significant positive relationship between age and health literacy ($r = -0.270$, $p < 0.001$). A significant relationship between gender

and health literacy was supported by t-test ($P = 0.034$), while no significant relationship was found between gender and self-efficacy. Also The results showed a significant positive relationship between education level and health literacy ($r = 0.26$, $p < 0.04$), while borderline significant relationship was found between education level and self-efficacy (0.52 , $P = 0.052$).

Table 4 Correlations of Health Literacy and Self-Efficacy in Demographic Variables

Demographic Variables	Health Literacy	Self-Efficacy	Test
Age	$r = -0.27$ $P = 0.001^{**}$	$r = -0.134$ $P = 0.064$	Person
Gender	$T = 4/576$ $P = 0.034^*$	$T = 0.004$ $P = 0.949$	T test
Marital Status	$T = -1.583$ $P = 0.115$	$T = 1.393$ $P = 0.166$	T test
EF	$r = -0.117$ $P = 0.104$	$r = 0.072$ $P = 0.318$	Person
Education Level	$r = 0.26$ $P = 0.04^*$	$r = 0.52$ $P = 0.052^*$	Person
BMI	$r = 0.039$ $P = 0.587$	$r = 0.002$ $P = 0.182$	Person
Number of hospitalizations	$r = -0.043$ $P = 0.551$	$r = 0.062$ $P = 0.391$	Person
HTN	$T = -0.994$ $P = 0.322$	$T = 0.009$ $P = 0.993$	T test
HLP	$T = -1/745$	$T = 2.582$	T test

Demographic Variables	Health Literacy	Self-Efficacy	Test
	P= 0.083	P = 0.071	
DM	T= 0.519 P =0.584	T = 0.771 P = 0.442	T test
Smoking	T = 0.345 P = 0.73	T = - 0.722 P = 0.471	T test

BMI, body mass index; DM, diabetes mellitus; EF, ejection fraction; HLP, hyperlipidemia; HTN, hypertension; SD, standard deviation.

* $p < 0.05$, ** $p < 0.01$

Two separate multiple linear regression analyses were conducted. The multiple linear regression model predicting health literacy was statistically significant and explained 13.1% of the variance in health literacy scores ($R^2 = 0.131$, Adjusted $R^2 = 0.079$). Among the examined predictors, age was the only independent variable significantly associated with health literacy scores ($B = 1.710$, $SE = 0.418$, $\beta = 0.305$, $t = 4.092$, $p < 0.001$). This finding indicates that age was an independent predictor of health literacy scores after adjusting for other demographic and clinical

variables. Other variables, including gender, BMI, EF, DM, HTN, HL, smoking status, hospitalization, marital status, and number of children, were not significantly associated with health literacy scores (all $p > 0.05$). (Table 5).

Table 5: Multiple Linear Regression Analysis Predicting Health Literacy

Predictor	B	SE B	β	t	p
Age	1.710	0.418	.305	4.092	< .001***
Gender	0.557	0.873	.050	0.638	.524
Body Mass Index (BMI)	0.048	0.135	.027	0.358	.721
Ejection Fraction (EF)	-1.007	0.858	-.093	-1.174	.242
Diabetes Mellitus (DM)	-1.033	0.870	-.093	-1.187	.237
Hypertension (HTN)	0.811	0.871	.075	0.930	.354
Hyperlipidemia (HL)	1.169	0.989	.100	1.182	.239
Smoking Status	-0.733	0.945	-.061	-0.775	.439
Hospitalization	-0.428	0.309	-.116	-1.383	.168
Marital Status	-1.141	0.690	-.127	-1.654	.100
Number of Children	0.114	0.535	.016	0.213	.832

Model summary: $R^2 = .131$, Adjusted $R^2 = .079$

Note. B = unstandardized regression coefficient; SE B = standard error; β = standardized regression coefficient.

* $p < .05$, ** $p < .01$, *** $p < .001$.

The second multiple linear regression model examined predictors of self-efficacy scores. The model explained 12.1% of the variance in self-efficacy ($R^2 = 0.121$, Adjusted $R^2 = 0.068$). In this model, ejection fraction (EF) was a significant independent predictor of self-efficacy scores ($B = 4.341$, $SE = 1.797$, $\beta = 0.192$, $t = 2.416$, $p = 0.01$). In addition, hospitalization was significantly associated with self-efficacy scores ($B = 1.390$, $SE = 0.648$, $\beta = .181$, $t = 2.147$, $p = 0.03$). Age showed a borderline association with self-efficacy scores ($B = -1.706$, $SE = 0.875$, $\beta = -.146$, $t = -1.949$, $p = 0.053$), while the remaining predictors, including gender, BMI, DM, HTN, HL, smoking status, marital status, and number of children, were not statistically significant (all $p >$

0.05). Overall, the findings suggest that age was the primary independent predictor of health literacy, whereas EF and hospitalization were independent predictors of self-efficacy scores (Table 6).

Table 6: Multiple Linear Regression Analysis Predicting Self-efficacy

Predictor	B	SE B	β	t	p
Age	-1.706	0.875	-.146	-1.949	.053
Gender	2.480	1.828	.107	1.357	.177
Body Mass Index (BMI)	0.094	0.283	.026	0.332	.740
Ejection Fraction (EF)	4.341	1.797	.192	2.416	.017*
Diabetes Mellitus (DM)	-0.338	1.822	-.015	-0.185	.853
Hypertension (HTN)	2.291	1.825	.102	1.256	.211
Hyperlipidemia (HL)	-2.623	2.071	-.108	-1.266	.207
Smoking Status	0.403	1.979	.016	0.204	.839
Hospitalization	1.390	0.648	.181	2.147	.033*
Marital Status	0.700	1.445	.037	0.484	.629
Number of Children	1.261	1.121	.084	1.125	.262

Model summary: $R^2 = .121$, Adjusted $R^2 = .068$

Note. B = unstandardized regression coefficient; SE B = standard error; β = standardized regression coefficient.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Discussion

The present study aimed to examine the relationship between health literacy and self-efficacy in patients with heart failure. The findings indicated a significant positive association between health literacy and self-efficacy. This relationship suggests that health literacy increase patients' ability to read and understand health information; it may also enhance their confidence in managing complex self-care behaviors required for heart failure (23). Patients with greater health literacy are more likely to interpret symptoms appropriately, adhere to treatment recommendations, communicate effectively with healthcare providers, and make informed decisions regarding their care. Consequently, improving health literacy may strengthen patients' self-efficacy, which may facilitate more effective self-management and potentially improve clinical outcomes and quality of life (24).

Consistent with the findings of the present study, several studies worldwide have confirmed the positive relationship between health literacy and self-efficacy in patients with chronic diseases. These findings are in line with Bandura's social cognitive theory, which suggests that knowledge provides the cognitive foundation for behavioral confidence. In patients with heart failure, understanding disease processes, medications, dietary restrictions, and symptom monitoring may reduce uncertainty and increase patients' confidence in their ability to successfully perform self-care behaviors. This mechanism may explain the positive association observed in the present study (25, 26).

The study conducted by Dennison et al. (2011) on patients with heart failure reported that individuals

with adequate health literacy not only had greater knowledge about their disease, but also had more confidence and self-efficacy in performing self-care behaviors. The authors of this study emphasized the role of health literacy as a strong predictor of self-efficacy and concluded that health literacy assessment should become a standard part of nursing assessments for these patients. (15). Similarly, the study by Chen et al. (2014) conducted a study among patients with heart failure. They initially found no significant direct association between health literacy and adherence to self-care. However, after controlling other variables, they demonstrated that Health literacy was indirectly associated with treatment adherence through self-efficacy. The findings of both Chen et al. and the present study indicate that simply providing health information may not be sufficient to improve patient outcomes. Educational interventions should also focus on increasing patients' confidence in applying that knowledge to everyday disease management. Therefore, interventions targeting both health literacy and self-efficacy may be more effective than knowledge-based education alone (18).

In Iran, the research conducted by Hemmatipour et al. (2024) regarding the correlation between health literacy and overall health in patients with heart failure yielded consistent results. They found that higher levels of health literacy were linked to a better comprehension of one's health status and more positive health-related behaviors, ultimately resulting in improved self-efficacy (11). The study conducted by Farghadani et al. directly indicated a positive, tangible relationship between health literacy and self-care

behaviors in heart failure patients. The study reported that self-care also requires a level of self-efficacy (19).

Moreover, the findings of the study by Mansoreyeh et al. investigating the factors influencing self-care in heart failure patients supported the central importance of self-efficacy. Their study results revealed that self-efficacy is not only directly associated with improved self-care behaviors but also acts as a strong mediator, facilitating the positive effects of training and social support on treatment adherence. The study concluded that patients who had stronger beliefs about their capacity to manage their disease significantly experienced fewer long-term readmissions and cardiovascular complications. self-efficacy may represent an important prognostic indicator and a priority target for nursing interventions in the heart failure population (27).

On the other hand, as demonstrated by analyzing health literacy dimensions in the current research, the patients were stronger in the functional domain (perceiving and practicing basic instructions), while critical health literacy (analyzing, evaluating, and making decisions based on health information) was poor. This pattern has also been observed in studies worldwide, including that of van der Vaart et al. (2014) (28). These findings may indicate a gap in the healthcare system. Patients may have the ability to read brochures or follow basic instructions, but they may struggle to critically assess conflicting information, apply it to their unique personal situations, or make decisions in unexpected situations. This relationship suggests that individuals with higher health literacy may be better able to read and understand health information and may have greater confidence in managing the complex self-care behaviors required for heart failure, as the true difficulties of managing a chronic illness frequently demand strong health literacy skills.

Accordingly, the results showed a significant negative relationship between age and self-efficacy. This finding aligns with the results of Morrow et al. , which identified age-related declines in cognitive and physical capacities as significant barriers to effective self-care (13). Additionally, a positive relationship was observed between education and self-efficacy. This correlation is logical as higher education is typically linked to increased access to information resources and improved information processing skills. It is noteworthy that gender was only found to be associated with health literacy, showing that women had a higher total mean score. This may be attributed to women's traditional role as family health managers and their increased engagement with health information, as noted in the study of Javadzade and colleagues (6).

The findings of this study have several important implications for clinical practice. Routine assessment of health literacy may be beneficial in the care of patients with heart failure to identify individuals who may require additional educational support. Nurses and other healthcare professionals should tailor educational interventions according to patients' literacy levels and focus not only on increasing knowledge but also on strengthening self-efficacy through goal setting, motivational interviewing, skills training, and individualized counseling. Integrating health literacy assessment with self-management education may improve treatment adherence, promote effective self-care behaviors, reduce preventable hospital readmissions, and enhance patients' quality of life. These findings support the implementation of evidence-based educational interventions as an integral component of comprehensive heart failure management.

In summary, the findings of this study demonstrate that health literacy is significantly associated with self-efficacy among patients with heart failure. Beyond improving patients' understanding of health information, health literacy appears to be associated with greater confidence in managing their condition effectively. These findings emphasize that health literacy is a modifiable factor that can be targeted through evidence-based educational interventions. Integrating routine health literacy assessment with individualized patient education and self-efficacy-enhancing strategies into heart failure care may improve self-management, treatment adherence, clinical outcomes, and quality of life. Future longitudinal and intervention studies are needed to confirm these relationships and evaluate the effectiveness of such interventions.

Strengths and Limitations

One of the primary strengths of this study lies in its novelty. This is the first study in Iran that was carried out to determine how patients health literacy correlates with self-efficacy among heart failure patients. Also, the use of validated and specific questionnaires to measure both individual health literacy and self-efficacy strengthens the internal validity of the study and allows meaningful comparisons with existing literature. Furthermore, the inclusion of patients from two referral hospitals enhances the diversity of the study population and increases the relevance of the findings to routine clinical practice.

Several limitations should also be acknowledged. First, the study population was limited to heart failure patients in Fars province, southern Iran. Therefore, it is recommended that larger, multi-center

studies be designed and conducted in other regions of Iran. Second, the data collection relied on self-reported measures, the participants' responses may not have been truthful, so social desirability bias or acquiescence bias could have been present. Third, the study utilized

a convenience sampling method, which may introduce bias into the sample selection process. To enhance generalizability, consider employing random or stratified sampling methods in future studies.

Conclusion

The results of this study indicated that the health literacy of patients with heart failure was positively and significantly correlated with their self-efficacy. These findings underscore the importance of promoting health literacy to support patients' confidence in managing their condition. Integrating health literacy-focused education into routine heart failure care may enhance self-management. Further longitudinal studies are needed to determine whether improving health literacy leads to sustained improvements in self-efficacy and clinical outcomes.

Recommendations

Healthcare providers, particularly nurses and patient educators, should implement patient-centered

educational interventions to improve health literacy among patients with heart failure, with a particular focus on strengthening critical health literacy skills to support informed self-care decisions. Educational materials should be simple, culturally appropriate, and tailored to the needs of older adults, who may have lower self-efficacy. Future research should evaluate the effectiveness of health literacy interventions in improving self-efficacy and clinical outcomes through longitudinal and interventional studies involving larger and more diverse populations.

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