



Self-Care Behaviours and Quality of Life Among Elderly Patients with Heart Failure

Eman Ibrahim Bayoumi ^{1*}, Eman Shokry Abd-Allah ², Reda Abdelrahman Ahmed ³

1 B.Sc. in Nursing, Faculty of Nursing, Zagazig University, Egypt.

2 Professor of Community Health Nursing and Gerontological Nursing, Faculty of Nursing, Zagazig University, Egypt.

3 Lecturer of Gerontological Nursing, Faculty of Nursing, Zagazig University, Egypt.

Corresponding Author: Eman Ibrahim Bayoumi

Received: 28 October 2024, **Accepted:** 17 November 2024, **Published:** 20 November 2024

Abstract

Background: Heart failure is one of the most common chronic cardiovascular diseases among older adults and a leading cause of hospital readmission, disability, and death. Its long-term control depends on the patient's own daily self-care, which in turn shapes quality of life. **Aim of the study:** To assess self-care behaviours and quality of life among elderly patients with heart failure. **Subjects and Methods: Research design:** A descriptive design was used. **Setting:** The study was conducted at the Cardiac Department, Cardiothoracic Building, Sednawy Hospital, Al-Sharqia Governorate, Egypt. **Subjects:** A purposive sample of 160 elderly patients with heart failure. **Tools of data collection:** A structured interview questionnaire (demographic characteristics and health profile), the European Heart Failure Self-Care Behaviour Scale, and the Minnesota Living with Heart Failure Questionnaire (MLHFQ). **Results:** Nearly two-thirds (63.1%) of the studied elderly patients had inadequate self-care behaviours, and 46.0% had a moderate quality of life. A highly statistically significant positive correlation was found between total self-care behaviours and total quality of life ($r = 0.389$, $p = 0.000$). **Conclusion:** The studied elderly patients had inadequate self-care behaviours and a predominantly moderate quality of life, and the two were positively and significantly correlated. **Recommendation:** Structured, simple, and culturally appropriate nurse-led education should be provided to strengthen daily self-care and improve quality of life among elderly patients with heart failure.

Keywords: Elderly, Heart failure, Quality of life, Self-care behaviours.



Introduction

The global population is undergoing a rapid ageing transition, with people aged 65 years and older representing about 10% of the world population in 2025, while older adults account for about 5% of Egypt's population. This demographic shift is clinically important because ageing is strongly associated with chronic cardiovascular diseases, particularly heart failure (**World Health Organization, 2025**).

Heart failure is considered one of the most common chronic cardiovascular diseases among elderly populations worldwide and represents a major public health concern (**Xue et al., 2025**). Globally, heart failure affects approximately 64 million individuals and is associated with high morbidity, mortality, recurrent hospitalisation, and healthcare costs (**Abdelhamid et al., 2025**). Its prevalence continues to rise because of population ageing and the increasing burden of cardiovascular risk factors such as hypertension, diabetes mellitus, obesity, and ischaemic heart disease, and it substantially impairs physical functioning and psychosocial well-being (**Ballena-Caicedo et al., 2026**).

In Egypt, older adults account for a substantial proportion of outpatient heart failure cases, and ischaemic heart disease remains the primary driver of the disease among elderly Egyptians. The management of this population is further complicated by widespread low health awareness and limited recognition of cardiovascular warning signs, which ultimately drive higher rates of hospitalisation (**Koreitam et al., 2025**).

Self-care behaviours are fundamental components in the management of heart failure among elderly patients. They include adherence to prescribed medications, monitoring body weight and symptoms, restricting sodium and fluid intake, engaging in physical activity, and seeking medical help when symptoms worsen (**Chen et al., 2026**). Effective self-care can reduce complications, prevent recurrent hospitalisation, and improve overall health status; however, elderly patients often face barriers such as cognitive decline, low educational level, multiple comorbidities, and insufficient disease-related knowledge that limit their ability to manage the disease effectively (**Feng et al., 2025**).

Quality of life is another critical aspect affected by heart failure among elderly patients, as the disease negatively influences the physical, psychological, emotional, and social dimensions of daily living. Symptoms such as fatigue, dyspnoea, sleep disturbance, anxiety, depression, and reduced functional capacity contribute substantially to impaired quality of life (**Abu Jasser et al., 2026**). Poor quality of life is strongly associated with increased healthcare utilisation, recurrent hospitalisation, and poor clinical outcomes, so improving it has become a major goal of heart failure management and elderly care (**Tian et al., 2026**).

Self-care behaviours and quality of life are closely interrelated among elderly patients with heart failure. Consistent self-care contributes to symptom control, fewer complications, improved functional status, and enhanced quality of life, whereas weak self-care leads to symptom deterioration and a decline in daily living (**Selvi Sarigül et al., 2024**).

Gerontological nurses play a vital role in supporting self-care among elderly patients with heart failure by providing clear, individualised, and age-appropriate education about medication adherence, diet, fluid restriction, daily weight monitoring, physical activity, and recognition of warning symptoms. Through assessment, simplified instruction, involvement of family caregivers, and reinforcement during follow-up, nurses empower elderly patients to manage their illness more effectively and improve their overall quality of life (**Salmanpour et al., 2025**).

Significance of the Study

Cardiovascular disease is a major cause of morbidity and mortality, and heart failure accounts for most of these deaths, especially in people over 65 years, posing a significant burden on health systems (**Seid et al., 2023**). Self-care behaviours are among the most important factors in controlling hospital readmission and improving outcomes among elderly patients, and heart failure in older adults is associated with cognitive decline, frailty, and malnutrition that can markedly reduce quality of life. Only a few studies worldwide have evaluated the relationship between self-care behaviours and quality of life among elderly patients with heart failure. Hence, the current study was conducted to assess self-care behaviours and quality of life among elderly patients with heart failure.

Aim of the Study

The current study aimed to assess self-care behaviours and quality of life among elderly patients with heart failure. This aim was fulfilled through the following objectives:

- Evaluate self-care behaviours among elderly patients with heart failure.
- Appraise the quality of life level among elderly patients with heart failure.

Research Questions

- What are the self-care behaviours among elderly patients with heart failure?
- What is the quality of life level among elderly patients with heart failure?

Subjects and Methods

Research design: A descriptive design was utilised to conduct the current study.

Setting: The study was conducted at the Cardiac Department, Cardiothoracic Building, Sednawy Hospital, located in Al-Sharqia Governorate, Egypt. The department serves patients from different rural and urban areas of the governorate and nearby districts and is one of the specialised settings providing medical and nursing care for patients with cardiovascular and cardiothoracic diseases.



Subjects: A purposive sample of 160 elderly patients, in addition to 16 elderly patients for the pilot study, was recruited from the above-mentioned setting according to the following criteria.

Inclusion criteria:

- Aged 60 years and older.
- Free from communication problems (speech and hearing problems).
- Agree to participate in the study.

Exclusion criteria:

- Elderly patients with mental or psychological diseases.
- Elderly patients with terminal illness.

Sample size calculation: Based on a previous assessment reporting that 20.3% of heart failure elderly patients had a fair level of self-care (Hassan & Al-fayyadh, 2023), and given that 432 heart failure elderly patients attended the department over six months, the sample was calculated at a 95% confidence level to be 160 elderly patients using Epi Info version 7.2.5.0.

Tools of data collection: Three tools were used to collect the required data.

Tool I: A structured interview questionnaire. It was developed by the researcher and consisted of two parts. **Part 1: Demographic characteristics** of the studied elderly patients, including age, sex, marital status, educational level, residence, occupation, living situation, and income. **Part 2: Health profile** of the studied elderly patients, including present medical history, medications used, self-perceived health, smoking habit, and measurement of weight and height.

Tool II: The European Heart Failure Self-Care Behaviour Scale. This scale was developed by Jaarsma et al. (2003) and was used to assess self-care behaviours among elderly patients with heart failure. It consists of 12 items covering medication adherence, symptom monitoring, weight control, fluid restriction, rest, physical activity, contacting healthcare providers when symptoms worsen, and compliance with medical advice.

Scoring system: Each item was rated on a three-level Likert scale as never (0), sometimes (1), and always (2). The total score ranged from 0 to 24 and was interpreted at three levels: inadequate self-care behaviours (0–8), moderate self-care behaviours (9–16), and adequate self-care behaviours (17–24). Higher scores indicated better self-care behaviours.

Tool III: The Minnesota Living with Heart Failure Questionnaire (MLHFQ). This questionnaire was developed by Cohn (1992) and was used to assess quality of life among elderly patients with heart failure. It consists of 20 items addressing the physical, psychological, emotional, social, and economic effects of heart failure.

Scoring system: Each item was rated on a three-level Likert scale as never (0), sometimes (1), and often (2). The total score ranged from 0 to 40; lower scores indicated a better quality of life, while higher scores indicated a poorer quality of life.

Validity: The tools were revised by a panel of three experts from the Community Health Nursing and Psychiatric Nursing Departments, Faculty of Nursing, Zagazig University, who reviewed the tools' content for relevance, clarity, comprehensiveness, and understandability, and all recommended modifications were applied.

Reliability: The reliability of the tools was tested by measuring their internal consistency using Cronbach's alpha, as shown in the following table.

Table (A): Cronbach's alpha coefficient of the study variables.

Scales	No. of items	Cronbach's Alpha
Self-care behaviours	12	0.749
Quality of life	20	0.737

Pilot study: A pilot study was carried out on 16 elderly patients (about 10% of the calculated sample), who were later excluded from the main study. It aimed to test the clarity and feasibility of the tools and to estimate the time needed for completion, which ranged from 20 to 30 minutes. The tools were finalised after the necessary modifications.

Fieldwork: After obtaining the required permissions, the researcher collected the data with the assistance of the head nurse. Eligible elderly patients were interviewed individually and privately after the aim of the study had been explained. Data collection took 20 to 30 minutes per patient. The researcher visited the department three days per week from 8 AM to 3 PM, and the fieldwork extended over six months, from the beginning of October 2024 to the end of March 2025.

Ethical considerations: The study proposal was approved by the Research Ethics Committee of the Faculty of Nursing, Zagazig University. The aim of the study and the right to refuse or withdraw at any time without giving reasons were explained to each patient, and informed verbal consent was obtained. Patients were assured that their data would remain confidential and be used only for research purposes.

Statistical analysis: Data were analysed using SPSS version 24. Descriptive statistics (frequencies, percentages, mean, and standard deviation) were used for data description. The chi-square test was used for associations between categorical variables, Pearson correlation for relationships between quantitative variables, and simple linear regression to identify predictors of the main outcomes. Significance was set at $p < 0.05$ (significant), $p < 0.01$ (highly significant), and $p \geq 0.05$ (non-significant).



Results

Table (1) shows that 65.6% of the studied elderly patients were aged between 60 and 69 years, with a mean age of 66.34 ± 5.06 years, and 91.3% and 90.6% of them were males and rural residents, respectively. Regarding marital status, 43.5% were married. Educational levels were generally low, with 43.1% illiterate and 31.3% having basic education. Furthermore, 94.4% did not work and 88.8% lived with their families. Concerning income, 78.1% reported insufficient monthly income, and pension was the main source of income for 88.1% of the participants.

Figure (1) portrays that 63.1% of the studied elderly patients had inadequate self-care behaviours and 22.0% had moderate self-care behaviours, while only 14.9% had adequate self-care behaviours.

Figure (2) illustrates that 46.0% of the studied elderly patients had a moderate quality of life and 31.0% had a good quality of life, while 23.0% had a poor quality of life.

Table (2) indicates that there was a highly statistically significant positive correlation between total self-care behaviours score and total quality of life score among the studied elderly patients ($r = 0.389$, $p = 0.000$).

Table (3) reveals that educational level, current occupation, and monthly income were the statistically significant independent positive predictors of the self-care behaviours score, while age and living situation were the statistically significant independent negative predictors. The model explained 69% of the variance in self-care behaviours ($R^2 = 0.69$, $p = 0.000$).

Table (4) demonstrates that age, marital status, educational level, living situation, and monthly income were the statistically significant independent positive predictors of the quality of life score, while current occupation was a statistically significant independent negative predictor. The model explained 79% of the variance in quality of life ($R^2 = 0.79$, $p = 0.000$).

Discussion

Heart failure is one of the most prevalent chronic cardiovascular diseases among older adults and remains a leading cause of hospital readmission, disability, and death. Its long-term management depends heavily on the patient's ability to translate disease knowledge into consistent daily self-care, and when self-care weakens, symptom control declines and quality of life deteriorates (Selvi Sarigül et al., 2024).

The present study aimed to assess self-care behaviours and quality of life among elderly patients with heart failure and to describe how these two variables relate to one another and to the characteristics of the studied elderly patients. The findings are discussed below against recently published work in the same field.

The present study found that more than two-thirds of the studied elderly patients were in the seventh decade of life, most were males, and the vast majority were rural residents with a low educational level and insufficient income. These findings are in agreement with Niriayo et al. (2024) in Ethiopia, who reported that a large proportion of heart failure patients attending a tertiary hospital were illiterate and identified illiteracy as an independent predictor of poor self-care behaviour ($p = 0.014$). These findings are also in agreement with Seid (2020) in Ethiopia, who reported that rural residence stood behind a poor health-related quality of life among heart failure patients.

The present study found that most of the studied elderly patients never weighed themselves daily and never exercised regularly, and that nearly two-thirds of them had inadequate self-care behaviours overall. This might be attributed to advanced age, limited disease-related knowledge, rural residence, and the complexity of heart failure management, which together weaken engagement in daily monitoring and physical activity. These findings are in agreement with Niriayo et al. (2024) in Ethiopia, who reported that most heart failure patients did not exercise regularly or monitor their weight daily and that nearly three-quarters showed poor overall self-care behaviour. These findings are also in agreement with Meraz et al. (2023) in the United States, who reported low adherence to several daily self-care behaviours among adults with heart failure. In contrast, the level of self-care in the present study was lower than that reported by Tapak et al. (2025) in Iran, who found that the majority of their heart failure patients had a moderate self-care level; the difference may be explained by the older age, rural background, and high illiteracy rate among the studied elderly patients.

The present study found that nearly half of the studied elderly patients had a moderate quality of life and nearly one-third had a good level, with the cost of treatment and drug side effects being the most burdensome dimensions. This might be attributed to the physical limitations imposed by heart failure, emotional distress, and the financial burden of treatment, while family support may help maintain a moderate level. These findings are in agreement with Tapak et al. (2025) in Iran, who reported that about two-thirds of heart failure patients had a moderate quality of life measured with the same questionnaire. These findings align with Seid (2020) in Ethiopia, who reported that the physical and emotional dimensions carried the heaviest weight on patients' quality of life. These findings are also in agreement with Seid et al. (2023) in a scoping review, which concluded that financial strain and treatment-related burden were repeatedly reported as major determinants of poor quality of life in heart failure.



The present study found a highly statistically significant positive correlation between total self-care behaviours and total quality of life ($p = 0.000$, $r = 0.389$), so that elderly patients who practised better self-care reported a better quality of life. This could be interpreted as patients who engage in consistent self-care experiencing fewer symptom exacerbations, fewer hospitalisations, and better physical and emotional functioning, all of which contribute to a better quality of life. These findings are in agreement with **Bakhshayesh et al. (2023)** in Iran, who found the correlation between self-care behaviours and quality of life to be the strongest in their sample and identified self-care as the strongest predictor of quality of life ($p = 0.001$). These findings align with **Seid et al. (2023)**, whose scoping review concluded that self-care is a major determinant of quality of life in heart failure patients. In contrast, these findings are not supported by **Tapak et al. (2025)** in Iran, who found no significant correlation between self-care and quality of life ($p = 0.916$) and explained this by the use of different measurement tools and by the greater severity of illness in their referral-hospital sample.

The present study found that educational level, current occupation, and monthly income were the independent positive predictors of self-care behaviours, while age and living situation were the negative predictors, with the model explaining most of the variance ($p = 0.000$). This might be due to higher education enhancing understanding of self-care instructions, sufficient income enabling the purchase of medications and healthy food, and continued occupation maintaining functional engagement, whereas advancing age and living alone reduce the capacity and support needed for consistent self-care. These findings are in agreement with **Niriayo et al. (2024)** in Ethiopia, who identified illiteracy and rural residence among the independent predictors of poor self-care behaviour ($p < 0.05$). These findings align with **Jo et al. (2020)** in South Korea, who concluded that self-care improved when programmes were built on the patient's level of understanding and social support. These findings are also in agreement with **Erünal and Mert (2020)** in Turkey, who demonstrated that patient-level factors significantly affect all dimensions of self-care among heart failure patients.

The present study found that age, marital status, educational level, living situation, and monthly income were the independent positive predictors of quality of life, while current occupation was a negative predictor, with the model explaining most of the variance ($p = 0.000$). This might be due to adequate income enabling access to healthcare and healthy living, marriage offering emotional support, higher education improving disease management, and living with family providing daily practical and emotional support. These findings align with **Bakhshayesh et al. (2023)** in Iran, who reported that self-care behaviours and demographic variables together explained a large proportion of the variance in quality of life ($p < 0.001$). These findings are also in agreement with **Santillan-Garcia et al. (2026)** in Spain, who reported that quality of life and self-care differed significantly with educational level and socioeconomic status.

Taken together, the present study found that self-care behaviours and quality of life move in the same direction among elderly patients with heart failure and that education, income, and living circumstances shape both of them. These findings are in agreement with **Selvi Sarigül et al. (2024)** in Turkey, who found that better self-care was accompanied by a better quality of life among elderly heart failure patients and their caregivers.

Conclusion

The current study concluded that the studied elderly patients had inadequate self-care behaviours and a predominantly moderate quality of life. There was a highly statistically significant positive correlation between total self-care behaviours score and total quality of life score among the studied elderly patients.

Recommendations

- Nurse-led education should be strengthened regarding daily weight monitoring, fluid and salt restriction, physical activity, medication adherence, and recognition of warning symptoms.
- Integrating structured health-education program into routine cardiac care for elderly patients with heart failure.
- Training sessions should be organised in cardiac departments and community settings to help elderly patients practise self-care confidently.
- Future studies on larger samples in different geographic regions of Egypt are recommended to obtain more comprehensive data on self-care behaviours and quality of life among elderly patients with heart failure.

Acknowledgment

The authors express their gratitude to all the elderly patients who took part in this study and generously gave their time to enrich this work.

Author's Contributions

All authors contributed to the study's conception and design, data collection, analysis and interpretation, and the drafting and critical revision of the manuscript. All authors read and approved the final manuscript.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

**Table (1):** Frequency distribution of the studied elderly patients according to their demographic characteristics (n = 160).

Demographic characteristics	No.	%
Age		
60 – 69 years	105	65.6
≥ 70 years	55	34.4
Min – Max: 60 – 74 Mean ± SD: 66.34 ± 5.06		
Gender		
Male	146	91.3
Female	14	8.8
Place of residence		
Rural	145	90.6
Urban	15	9.4
Marital status		
Single	23	14.3
Married	70	43.5
Divorced	10	6.2
Widowed	57	35.4
Educational level		
Illiterate	69	43.1
Literate	18	11.3
Basic education (primary/preparatory)	50	31.3
Secondary education	13	8.1
University/postgraduate education	10	6.3
Current occupation		
Does not work	151	94.4
Works	9	5.6
Living situation		
With family	142	88.8
Alone	18	11.2
Monthly income		
Insufficient	125	78.1
Sufficient	27	16.9
Sufficient with savings	8	5
Current source of income		
Pension	141	88.1
Support from children	7	4.4
Ministry of Solidarity and Social Justice	9	5.6
Property rental	3	1.9

SD: Standard deviation.

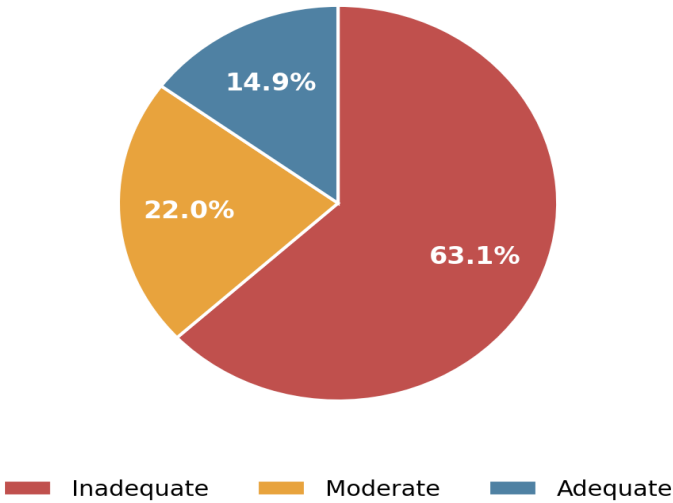


Figure (1): Percentage distribution of the studied elderly patients according to their total self-care behaviours (n = 160).
Figure (2): Percentage distribution of the studied elderly patients according to their total quality of life (n = 160).

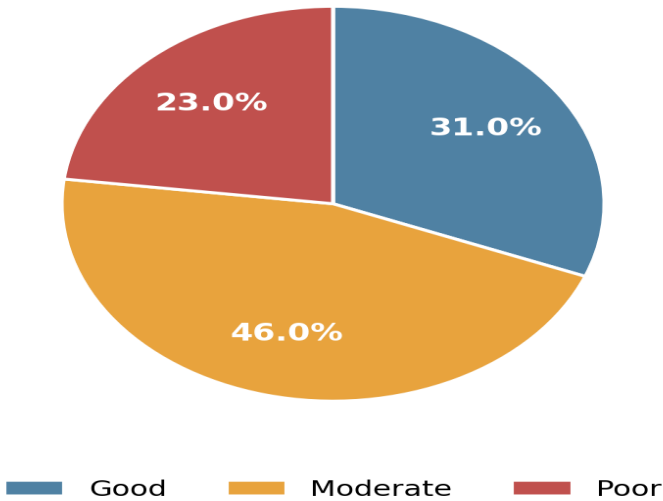


Table (2): Correlation between total self-care behaviours score and total quality of life score among the studied elderly patients (n = 160).

Variables	Total self-care behaviours score	Total quality of life score
Total self-care behaviours score	1	r = 0.389 p = 0.000**
Total quality of life score	r = 0.389 p = 0.000**	1

r = Pearson correlation coefficient. **Highly statistically significant at p < 0.01.**

**Table (3):** Multiple linear regression model for total self-care behaviours (n = 160).

Items	B	Std. Error	Beta	t	Sig.
(Constant)	71.924	11.917	—	12.047	0.000**
Age	-0.973	1.914	-0.674	-9.047	0.000**
Gender	-5.471	0.574	-0.473	-1.054	0.142
Place of residence	3.064	1.024	0.814	0.784	0.498
Marital status	-0.817	2.047	-0.711	-1.164	0.135
Educational level	3.781	0.748	0.347	8.934	0.000**
Current occupation	4.657	0.914	0.584	3.781	0.037*
Living situation	-0.754	1.387	-0.496	-2.978	0.006*
Monthly income	0.741	0.814	0.847	8.348	0.000**
R-squared					0.69

Dependent variable: Total self-care behaviours score. **B** = Unstandardized coefficients; **Beta** = Standardized coefficients; **t** = t-test; **R²** = Coefficient of determination. * $p < 0.05$, **p** < **0.01**.

Table (4): Multiple linear regression model for total quality of life (n = 160).

Items	B	Std. Error	Beta	t	Sig.
(Constant)	71.799	12.249	—	12.355	0.000**
Age	1.424	1.626	0.630	8.852	0.000**
Gender	-5.703	0.256	-0.758	-0.652	0.547
Place of residence	3.163	0.707	0.514	0.968	0.354
Marital status	0.473	1.851	0.725	1.104	0.034*
Educational level	3.437	0.773	0.439	8.556	0.000**
Current occupation	-4.215	0.846	-0.130	-3.776	0.047*
Living situation	1.120	1.178	0.604	2.512	0.042*
Monthly income	0.842	0.926	0.518	8.757	0.000**
R-squared					0.79

Dependent variable: Total quality of life score. **B** = Unstandardized coefficients; **Beta** = Standardized coefficients; **t** = t-test; **R²** = Coefficient of determination. * $p < 0.05$, **p** < **0.01**.

References

- Abdelhamid, M., Salem, A. Z., Kabil, H., Ragy, H., Hasan-Ali, H., & Elnoamany, M. (2025). Heart failure with preserved ejection fraction in Egypt: An expert opinion. *Global Heart*, 20(1), 31. <https://doi.org/10.5334/gh.1411>
- Abu Jasser, N. F., Hayajneh, F. A., & Abdalrahim, M. S. (2026). The effect of educational programs on self-care behaviors among patients with heart failure: An integrative literature review. *SAGE Open Nursing*, 12, 23779608251410981. <https://doi.org/10.1177/23779608251410981>
- Bakhshayesh, M., Hojatansari, M., & Rabie Siahkali, S. (2023). Investigating the relationship of electronic health literacy and self-care behaviors with life quality in patients with heart failure. *Preventive Care in Nursing and Midwifery Journal*, 13(4), 30–40. <https://doi.org/10.61186/pcnm.13.4.30>
- Ballena-Caicedo, J., Zuzunaga-Montoya, F. E., Valladolid-Sandoval, L. A. M., Bautista Zuta, J. C., Valladares-Garrido, M. J., & Gutierrez De Carrillo, C. I. (2026). Global heart failure incidence rate: An updated systematic review and meta-analysis. *Frontiers in Cardiovascular Medicine*, 13, 1714070. <https://doi.org/10.3389/fcvm.2026.1714070>
- Chen, Y., Lin, Y., Dong, X., Xue, Y., & Wu, D. (2026). Dynamic trends and influencing factors of self-care behaviours among Chinese older adults with chronic heart failure during the vulnerable period: A longitudinal study. *European Journal of Cardiovascular Nursing*, 25(2), zvaf197. <https://doi.org/10.1093/eurjcn/zvaf197>
- Erünal, M., & Mert, H. (2020). Does health literacy affect self-care in patients with heart failure? *The Journal for Nurse Practitioners*, 16(9), 699–702. <https://doi.org/10.1016/j.nurpra.2020.07.016>
- Feng, Z.-F., Cheng, F., Shen, W.-J., Salvador, J. T., De Ala, M. B., & Nery, M. A. C. (2025). Construction and



application of a self-care behavior intervention scheme for chronic heart failure patients based on the interaction model of client health behavior. *Scientific Reports*, 15, 31119. <https://doi.org/10.1038/s41598-025-17169-w>

Jo, A., Seo, E. J., & Son, Y.-J. (2020). The roles of health literacy and social support in improving adherence to self-care behaviours among older adults with heart failure. *Nursing Open*, 7(6), 2039–2046. <https://doi.org/10.1002/nop2.599>

Koreitam, M., El Kholly, D., Salah, E. T., & Sadaka, M. (2025). Prognosis and outcome for elderly patients with acute decompensated heart failure. *The Medical Journal of Cairo University*, 93(6), 541–556. <https://doi.org/10.21608/mjcu.2025.443859>

Meraz, R., Caldwell, E. P., & McGee, J. S. (2023). The relationships among health literacy, patient activation, and self-care behaviors in adults with heart failure: A cross-sectional study. *SAGE Open*, 13(2), 1–11. <https://doi.org/10.1177/21582440231163779>

Niriayo, Y. L., Yemane, B., Asgedom, S. W., Teklay, G., & Gidey, K. (2024). Prevalence and predictors of poor self-care behaviors in patients with chronic heart failure. *Scientific Reports*, 14(1), 1984. <https://doi.org/10.1038/s41598-024-52611-5>

Salmanpour, N., Salehi, A., Nemati, S., Rahmanian, M., Zakeri, A., & Drissi, H. B. (2025). The effect of self-care, self-efficacy, and health literacy on health-related quality of life in patients with hypertension: A cross-sectional study. *BMC Public Health*, 25, 2630. <https://doi.org/10.1186/s12889-025-23914-7>

Santillan-Garcia, A., Gea-Caballero, V., Frutos-Bernal, E., Juárez-Vela, R., Martínez-Sabater, A., Castro-Sánchez, E., & Cabellos-Garcia, A. C. (2026). Health literacy and self-care in patients with heart failure: A cross-sectional study. *Frontiers in Public Health*, 13, 1657807. <https://doi.org/10.3389/fpubh.2025.1657807>

Seid, M. A. (2020). Health-related quality of life and extent of self-care practice among heart failure patients in Ethiopia. *Health and Quality of Life Outcomes*, 18, 27. <https://doi.org/10.1186/s12955-020-1290-1>

Seid, S. S., Amendoeira, J., & Ferreira, M. R. (2023). Self-care and quality of life among adult patients with heart failure: Scoping review. *SAGE Open Nursing*, 9, 1–15. <https://doi.org/10.1177/23779608231218170>

Selvi Sarigül, S., Ürek, D., & Uğurluoğlu, Ö. (2024). The effect of caregivers' health literacy levels on the quality of life and self-care of patients with heart failure. *Geriatric Nursing*, 60, 491–496. <https://doi.org/10.1016/j.gerinurse.2024.10.029>

Tapak, L., Amini, P., Parami, S., Hamidi, O., Ramezani-Doroh, V., & Azizi, A. (2025). Investigating the correlation of self-care and quality of life in patients with heart failure. *BMC Cardiovascular Disorders*, 25(1), 538. <https://doi.org/10.1186/s12872-025-04613-0>

Tian, F., Chen, S., Lan, X., Zhang, R., Zhu, C., & Chen, Y. (2026). Factors influencing self-care behaviours in patients with heart failure: A mixed-methods systematic review. *Heart & Lung*, 75, 304–312. <https://doi.org/10.1016/j.hrtlng.2025.10.010>

World Health Organization. (2025). Ageing and health. <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>

Xue, P., Lin, L., Li, P., Cheng, S., Chen, D., & Fan, M. (2025). Global, regional, and national epidemiology of ischemic heart disease among individuals aged 55 and above from 1990 to 2021: A cross-sectional study. *BMC Public Health*, 25, 985. <https://doi.org/10.1186/s12889-025-22193-6>