REVIEW ARTICLE

SELF-CARE IN HEART FAILURE

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DOI: 10.5281/zenodo.18074635

Cite as: Tsami, A. (2024). SELF-CARE IN HEART FAILURE. Perioperative Nursing Journal (GORNA) (T. 13, Τεύχος 3, σσ. 213–221). Zenodo. https://doi.org/10.5281/zenodo.18074635

Abstract

Introduction: The clinical syndrome of heart failure (HF) consists a global health issue. Self-care is an essential component in HF management. The aim of the present study was to review literature regarding self-care in HF patients. **Methodology:** A literature review was conducted using studies published in the electronic databases PubMed and Scopus. The literature search was performed in English mainly during the five last years. The keywords used were "Self-care, heart failure, theories, determinants." **Results:** According to the literature review, the most prevalent theories are: (a) the Self-Care of Heart Failure Theory and (b) the Social Learning/Social Cognitive Theory. Self-care in HF involves three key dimensions: maintenance, monitoring, and management. Maintenance includes adherence to treatments and lifestyle changes, such as medication compliance, dietary restrictions, and physical activity, to maintain stability. Monitoring requires patients to observe symptoms and indicators like daily weight to detect early signs of worsening condition. Management refers to the patient's response to symptom changes, including behavioral adjustments and seeking medical help. Various factors are held to be responsible for self-care in HF. Demographic factors such as age, financial status, health literacy, place of residence as well as clinicals such as comorbidities, disease severity, duration of symptoms, cognitive impairment are associated with self-care. Furthermore, psychosocial factors such emotional disturbance (anxiety, depression) and perceived social support are equally involved in self-care behavior. **Conclusions**: Given the complex nature of HF, healthcare providers must prioritize patient education and support systems that enhance self-care capabilities across the three dimensions.

Keywords: Self-care, heart failure, theories, determinants.

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Introduction

The concept of self-care in chronic disease management emerged in the 1960s, shifting the focus of healthcare from acute treatment to the long-term management of chronic conditions. As chronic illnesses became prevalent, health professionals assumed roles as educators and collaborators, while responsibility for disease management increasingly shifted to patients and their caregivers. As self-care are defined the actions that individuals undertake to maintain or restore health, prevent disease, and manage symptoms. It is a key element of nursing science, which is linked to patient empowerment.[1-3]

In the field of heart failure (HF), self-care is crucial for improving health outcomes, and empowering individuals to actively participate in managing their chronic conditions. Contrariwise, non-adherence to therapy recommendations can lead to episodes of decompensation, including onset of symptoms such as dyspnea, lower limb edema, and fatigue. Moreover, non-pharmacological therapy at home includes lifestyle measures such as daily monitoring of body weight, reduced intake of sodium, fluids, coffee alcohol, remain physical activity, and vaccination. HF complexity and the lack of self-care justify the high hospital readmissions. [1,4,5]

The aim of the study was to review theories about self-care in HF and the associated factors.

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HF self-care theories

Within HF context, theoretical models have been developed to interpret and systematize how individuals engage in self-care. Two theories are prevalent: (a) the Self-Care of Heart Failure Theory [5,6,7] and (b) the Social Learning/Social Cognitive Theory.[8]

The Self-Care of Heart Failure Theory recognizes the interaction between an individual's health problem and the environment as determinants for self-care. Initially, it was developed by Barbara Riegel and colleagues[5] around 2008. In 2016, it was updated and incorporated into research findings, emphasizing the dynamic nature of self-care and the interaction of personal, behavioral, and environmental factors.[6] This theory defines self-care as a natural decision-making process in which patients select behaviors that maintain stability and respond to symptoms as soon as they arise. The original version described self-care in HF as situation-specific dependent process, influenced by specific health conditions, personal and environmental factors. The theory posits four central components: (a) the symptom recognition which is critical for optimal self-care management; (b) self-care ability which is enhanced in individuals with high levels of knowledge, skills, experience, and values aligned with self-care practices; (c) self-confidence which acts as a mediating mechanism between self-care and health outcomes; and (d) interaction between individual, social, and cultural factors that affects the effectiveness of self-care practices.

The most recent revision of the theory was conducted in 2022 adding new propositions focused on the interaction between the individual's health problem and the environment. [8] This update acknowledges the importance of comorbidities, such as diabetes mellitus, dementia, and sleep disorders, which influence patients' capacity to manage

their condition. The 2022 version differs from the 2016 edition primarily by strengthening the interaction between patient and environment, placing greater emphasis on environmental factors such as social support, access to healthcare services, and the use of technological tools for condition monitoring. It incorporates the impact of comorbidities, which may limit or alter patients' self-care abilities, and emphasizes the personalization of self-care strategies, recognizing their adaptation to individual values, needs, and preferences. It highlights the need for more research on environmental factors affecting self-care and promotes the use of technology while encouraging further research regarding self-care across diverse settings and populations.[8]

Self-care is structured into three main dimensions. More in detail, the first is self-care maintenance which includes daily habits that help to sustain clinical stability, such as medication adherence, dietary sodium or fluid restriction, physical exercise, and monitoring of body weight and symptoms. The second dimension is referred to self-care monitoring/symptom perception which included recognition and interpretation of symptoms. The third component is self-care management, which involves actions undertaken in response to worsening symptoms, such as seeking medical assistance. Self-management requires both behavioral application and decision-making skills, the former is involving knowledge and education for specific interventions, and the latter relating to adapting self-care practices based on experience and supportive environments. Self-confidence is an important factor influencing selfcare. These dimensions constitute the Self-Care of Heart Failure Index (SCHFI).[1,5,6,7]

According to Riegel's theory of self-care in HF, the process of symptom perception and management begins with the recognition of change. Initially, the patient must observe any deviation from stable health level. Careful observation and bodily awareness are crucial, as without these, the process cannot be activated. The second stage involves cognitive evaluation of the change. The HF patient has to decide whether the observed change is significant to their health trajectory and warrants action. This decision relies on the judgment of the change's impact on HF status and a cost-benefit analysis of potential actions. Failure to act may result from lack of knowledge, underestimation of severity, fear of intervention consequences, or belief that no therapeutic option exists. The patient engages in decision-making and appropriate management only when the change is considered significant. The third stage concerns managing the change, which entails implementing an action aimed at addressing symptoms and restoring health balance. After symptom recognition and evaluation, the patient chooses an action such as medication adjustment, dietary related modification, contacting a healthcare provider, or seeking hospital care. This decision is not purely automatic but is influenced by personal knowledge, experience, confidence in self-care, and support from family and social networks. Patients with high self-confidence and adequate education are more likely to take timely and effective action, whereas those lacking knowledges or uncertain may delay or ineffectively respond. Self-care is an adaptive process that varies with the health status of HF patients. [1,5,6,7]

In challenging situations marked by unclear objectives, time pressure, and uncertainty, the experience is essential for decision making. Experienced decision-makers recognize recurring patterns, which enhances the efficacy of future decisions. Intuitive judgments are decisions based on experience allowing faster and often effective responses to complex or uncertain situations. When

reference points are inconsistent, as often occurs with symptom onset, patients may make different decisions in seemingly similar circumstances. When rapid automatic processes yield a potential solution, slower and analytical mental simulation is used to evaluate the possible decision. [1,5,6,7,9,10]

To better understand the theory of Riegel and colleagues[5,6,7], it is useful to refer to the following practical example. In the clinical care of HF patients, the implementation of the Self-Care Theory can be achieved through a personalized and structured education where patients are encouraged to actively participate in managing their health through the three main components of this theory. In self-maintenance, patients are trained to systematically monitor body weight, recognize edema, adhere to dietary and medication instructions and follow regular physical activity. Patients are educated on long-term adherence to therapeutic guidelines. Successful self-care requires both patient compliance and decision-making. As previously articulated, it involves recognition of symptom exacerbation (e.g., edema, dyspnea) and actions to maintain clinical stability. For example, in case of dyspnea or edema, additional diuretic dosage adjustments, salt intake restriction, supplemental oxygen, and appropriate positioning are necessary. Afterwards, is important for patients to evaluate the effects of their actions on health status, such as whether the increased diuretic dose achieved the desired urine output, if the causes of edema were identified, and whether healthcare professionals were contacted. Documentation of both symptoms and actions in a diary or specific form is essential. Between maintenance and management, complex factors influence the process, including disease severity, cognitive decline and environmental support.[1]

Furthermore, Bandura's Social Cognitive Theory (1986) is a widely known behavior change theory applied in chronic disease management. It emphasizes self-regulation as a source of behavioral change, which involves self-monitoring, self-judgment and self-evaluation. [8] The theory is based on the concept of self-efficacy, the belief that a person may successfully perform a specific behavior. This is different from general confidence and relates directly to how an individual is approaching a particular situation. [8]

Self-efficacy influences effort, persistence in difficulties, and coping strategies. People with high self-efficacy tend to persist more, tolerate failures better, and finally perceive obstacles as valuable opportunities for growth.[8,11,12] Self-efficacy influences patient's ability to perform self-care while observational learning occurs when patients acquire new self-care skills and behaviors. Reciprocal determinism emphasizes the interaction between the individual and the environment, suggesting that each continuously shapes and influences the other. Supportive environments are enhancing HF patients' motivation. Reinforcement plays a critical role in sustaining these behaviors; positive feedback, recognition, and rewards strengthen patients' confidence and increase the likelihood that appropriate self-care practices will be maintained over time. Together, these mechanisms highlight how environmental influences and behavioral consequences contribute to the adoption of self-care. Application of the theory in practice involves the following: a) education: patients learn to monitor symptoms, manage medications and modify lifestyle, b) guidance: healthcare professionals demonstrate skills, like weight measurement, c) confidence improvement: daily and minor successes in self-care boost self-efficacy, and d) addressing barriers: the theory provides a framework

to identify practical or psychological obstacles like fear, ignorance, or lack of support.

Increasing self-efficacy boosts a person's ability to engage in self-care behaviors. Interventions targeting self-efficacy enhancement are considered important in modern clinical practice and HF prognosis. For instance, patient empowerment through gradual goal achievement and educational programs providing psychological support. [13,14]

Self-care confidence refers to the general belief in one's abilities and acts as a mediator between self-care and outcomes. It is a broad concept linked to the "Situation-Specific Theory of Heart Failure Self-Care" by Riegel et al.[5,6,7] Confidence influences how knowledge and support translate into self-care practices. Patients believing in their capacity to manage their health perform better self-care regardless of knowledge level or support received. Enhancing self-care confidence should be a primary goal of interventions to improve HF management. Factors like experience, values, and skills affect severely self-care by increasing or decreasing confidence. Self-care confidence plays a more decisive role than cognitive abilities in adopting effective self-care behaviors in HF patients. Conversely, low confidence undermines effective behaviors even with good cognitive function. Therefore, interventions that aim to increase confidence have greater clinical value as catalysts for active patient participation in self-care. [13-15]

All theories emphasize the active role of the patient. Similarly, Dorothea Orem's Self-Care Deficit Nursing Theory, developed between 1959 and 2001, underlines self-care as a key nursing dimension. When individuals are not able to meet their self-care needs, a self-care deficit arises, further necessitating nursing interventions to restore or support patient autonomy. [16,17]

Factors Associated with Self-Care

Various factors affect self-care behavior in HF patients, such as social, clinical and demographic factors, as well as factors related to healthcare services. [1]

However, female gender, older age, unemployment, advanced New York Heart Association (NYHA) Functional Classification, adequate knowledge, comorbidities, good financial status, improved self-efficacy, physical functioning, perceived social support are strongly associated with adherence to self-care behaviors. Factors that hinder self-care include lack of knowledge about diet restriction, misconceptions about HF, advanced-stage symptoms, psychological burden, complexity of treatment, functional and cognitive impairment and reduced access to healthcare services.[1,18,19]Additionally, the role of habit, resilience, culture (values, beliefs, lifestyle), and the influence of family and professional environments are emphasized in the effectiveness of self-care.[1]

In terms of demographic factors, women with chronic HF are less likely to

follow guidelines for pharmacotherapy and adhere to long-term medication regimens. Male gender is a negative predictor for practicing self-care, possibly because men are more likely to be economically active, work longer hours, and dedicate less time to educating themselves about diseases. Younger women experience greater fatigue and emotional distress, while older patients delay seeking for medical help. Many elderly patients struggle to recognize symptoms because they have either become accustomed to them or confuse them with aging changes.

Geographic location affects access to healthcare and appropriate nutrition. Ethnic minorities show higher mortality and morbidity due to low adherence.[1,20]

Health literacy influences self-care. The term "health literacy" is defined as the set of knowledge, skills, and experiences related to patients' health that enable them to recognize their health status and effectively manage their health care. Health literacy is a demographic factor linking reduced self-care abilities to patients' insufficient knowledge. Approximately 39% of HF patients have low health literacy, which limits their access to written materials and disease related information as well as their ability to evaluate such information. In HF field, low health literacy is associated with increased risk of hypertension, higher HbA1c levels and greater risk of hospitalization and mortality. High health literacy promotes medication adherence, healthy dietary choices, and integration of regular physical exercise into daily routines. Furthermore, it fosters cooperation with healthcare professionals. In short, low health literacy is linked to poor self-care through various mechanisms such as limited access to healthcare services, communication difficulties, problems in recalling information, and barriers in learning new or complex self-care skills. Creating personalized management protocols can improve self-care among HF patients. From a policy perspective, increasing resources and improving access to affordable, healthy food is necessary, as economic limitations affect the ability to maintain healthy dietary habits.[1,21,22,23]

Self-care levels in patients show geographic variations associated with country's healthcare system. Elevated healthcare costs including medications, routine tests, and specialist visits burden both individuals and national systems. Economic burden significantly impacts patients' ability to follow treatment recommendations, especially regarding diet. Special dietary requirements, such as low-sodium or healthy diets, often increase living costs. Medication costs, frequent visits, and diagnostic tests strain family budgets. Understanding and addressing financial barriers is essential for improving self-care and health system functioning. Countries with higher socioeconomic levels have managed to reduce the HF economic burden due to improved healthcare systems. Self-care becomes critical for patients living in areas with limited access to healthcare. Remote monitoring can improve self-care of HF patients. Understanding the multiple challenges faced by patients in hard-to-reach areas and developing strategies to address them are key goals in clinical care and public health. [1,24,25,26]

Beyond demographic factors, clinical factors influence self-care. Nakon et al.,[23] identified comorbidities as factor associated with poor health outcomes in HF patients. Those with low healthcare access have a high Charlson Comorbidity Index (CCI), meaning higher rates of coexisting diseases. HF patients often struggle with self-care due to age-related sensory impairments, cognitive decline, and functional limitations. Vision and hearing loss frequently make difficult the medication management. Comorbidities (diabetes mellitus, renal failure) add to treatment complexity and may create conflicting care requirements, though they prompt close monitoring. Cognitive impairment, prevalent in 25–80% of HF patients, stems from reduced brain perfusion and the related neurological changes, resulting in impairments in memory, attention, decision-making, and other limitations. Additionally, functional limitations restrict the ability to perform daily activities or tasks, to attend scheduled appointments, and respond effectively to symptoms.[1]

The relationship between HF and frailty syndrome is noteworthy, as HF coexists with several other diseases. Frailty is common in elderly HF patients, affecting over 70% of those admitted with

acute HF. Frail patients are at high risk for falls, frequent hospitalizations, and death. Interestingly, frailty is linked to a 1.5-fold increased risk of mortality and hospitalization in HF patients.[27,28,29]

Psychosocial factors such as depression, anxiety, perceived control, and social support influence self-care in HF patients. Patients with depression are three times more likely to be non-adherent to treatment. Improvement in depression relates to better long-term self-care.[1,30] Anxiety and depression are common in HF due to physical limits and illness-related stress. These conditions can worsen symptoms, reduce treatment adherence, and limit self-care. There is a significant bidirectional relationship: HF can increase psychological distress, and that distress can negatively affect HF outcomes.[30] Anxiety and depression in cardiac patients are often overlooked and, remain insufficiently treated.[31]

Perceived social support, one's sense of being cared for, valued, and connected to others, is recognized as an important factor in managing chronic diseases. Evidence shows that perceived social support helps promote healthy behaviors and influences physical and mental health, life satisfaction, quality of life, and the ability to cope with stressful conditions. Social support is classified as emotional or practical. Emotional social support enhances self-worth perception, while practical social support provides tangible goods such as transportation, navigation to health care services and financial resources. Social support has structural and functional dimensions. More in detail, structural support refers to evaluation of social connections while functional support is measured using validated research tools assessing social support.[32,33,34] On the other hand, social isolation adversely affects HF outcomes by increasing psychological distress, reducing self-care and limiting timely access to support and medical attention. Social isolation is more common among women as well as in HF patients with severe symptoms, high stress, nighttime breathing difficulties, swelling in legs, polypharmacy, changes in body image, and not adhering to dietary restrictions. Fatigue, is also linked to feelings of social isolation. [35]

Guidelines strongly recommend a multidisciplinary team approach for managing HF. [36] The success of self-care depends on the healthcare providers' ability to comprehend and integrate patients' perspectives, experiences, and challenges into their care plans. When clinicians fail to recognize the patient's viewpoint recommendations may be impractical, misunderstood, or poorly followed. This disconnect can lead to frustration, decreased motivation, and suboptimal health outcomes By fostering a collaborative relationship that values the patient's voice, clinicians can support meaningful and sustainable self-care behaviors.[1,37]

Improving treatment outcomes requires understanding the factors that influence self-care and patients' ability to manage their condition. Enhancing self-care awareness enables patients to gain control over daily life, maintain social functioning, and improve their quality of life.[34]

Conclusion

HF patients play a vital role in managing their health status while self-care is essential for improving health outcomes. Empowering HF patients with necessary

knowledge for self-care encourages active participation in their treatment, and ultimately leads to more positive long-term health results.

References

1. Polikandrioti, M. *Monograph.* Kallipos, Open Academic Editions, 2023.
2. Inamdar AA, Inamdar AC. Heart Failure: Diagnosis, Management and Utilization. *J Clin Med.* 2016;5(7):62.
3. Pobrotyn P, Mazur G, Kałużna-Oleksy M, Uchmanowicz B, Lomper K. The Level of Self-Care among Patients with Chronic Heart Failure. Healthcare (Basel). 2021;9(9):1179.
4. Cunha DCPTD, Rossi LA, Dessote CAM, Bolela F, Dantas RAS. Evolution of self-care in patients with heart failure at the first outpatient return and three months after hospital discharge. Rev Lat Am Enfermagem. 2021; 29: e3440.
5. Riegel B, Dickson VV. A situation-specific theory of heart failure self-care. J Cardiovasc Nurs. 2008;(3):190-196.
6. Riegel B, Dickson VV, Faulkner KM. The Situation-Specific Theory of Heart Failure Self-Care: Revised and Updated. J Cardiovasc Nurs. 2016;31(3):226-235.
7. Riegel B, Dickson VV, Vellone E. The Situation-Specific Theory of Heart Failure Self-care: An Update on the Problem, Person, and Environmental Factors Influencing Heart Failure Self-care. J Cardiovasc Nurs. 2022;37(6):515-552
8. Bandura A, Psychological Review Self-efficacy: Toward a Unifying Theory of Behavioral Change 1977; 84 (2):191-215.
9. Jaarsma T, Westland H, Vellone E, Freedland K.E, Schröder C, Trappenburg J.C.A, Strömberg A, Riegel B. Status of Theory Use in Self-Care Research. Int. J. Environ. Res. Public Health 2020; 17, 9480.
10. Song HJ, Kim HY, Park S, Lee SH. Factors influencing self-care behaviour in patients with heart failure: Grit as a behavioural support factor. Int J Nurs Pract. 2024 ;(2): e13151.
11. Kim J, An M. Validity and Reliability of the Korean Version of the Self-Care Self-Efficacy Scale for Patients With Heart Failure: A Psychometric Evaluation. Int J Nurs Pract. 2025;31(5) :e70045.
12. Massouh A, Massouh A, Skouri H, Cook P, Huijer HAS, Khoury M, Meek P. Self-care confidence mediates self-care maintenance and management in patients with heart failure. Heart Lung. 2020;49(1):30-35.
13. Vellone E, Pancani L, Greco A, Steca P, Riegel B. Self-care confidence may be more important than cognition to influence self-care behaviors in adults with heart failure: Testing a mediation model. Int J Nurs Stud. 2016;60:191-199.
14. Vellone E, Fida R, D'Agostino F, Mottola A, Juarez-Vela R, Alvaro R, Riegel B. Self-care confidence may be the key: A cross-sectional study on the association between cognition and self-care behaviors in adults with heart failure. Int J Nurs Stud. 2015;52(11):1705-1713.
15. Hashimoto S, Kitakata H, Kohsaka S, Fujisawa D, Shiraishi Y, Nakano N, Sekine O, Kishino Y, Katsumata Y, Yuasa S, Fukuda K, Kohno T. Confidence in self-care after heart failure hospitalization. J Cardiol. 2023;81(1):42-48.
16. Khademian Z, Kazemi Ara F, Gholamzadeh S. The Effect of Self Care Education Based on Orem's Nursing Theory on Quality of Life and Self-Efficacy in Patients with Hypertension: A Quasi-Experimental Study. Int J Community Based Nurs Midwifery. 2020;8(2):140-149.
17. Yip JYC. Theory-Based Advanced Nursing Practice: A Practice Update on the Application of Orem's Self-Care Deficit Nursing Theory. SAGE Open Nurs. 2021;7:23779608211011993.
18. D'Souza PJ, Lewis MS, Paramasivam G, Noronha JA, Kusumavathi P, Devasia T, George LS. Factors associated with self-care behavior among heart failure patients in India: A systematic review. J Educ Health Promot. 2025; 14:344.
19. Jaarsma T, Hill L, Bayes-Genis A, La Rocca HB, Castiello T, Čelutkienė J, Marques-Sule E, Plymen CM, Piper SE, Riegel B, Rutten FH, Ben Gal T, Bauersachs J, Coats AJS, Chioncel O, Lopatin Y, Lund LH, Lainscak M, Moura B, Mullens W, Piepoli MF, Rosano G, Seferovic P, Strömberg A. Self-care of heart failure patients: practical management recommendations from the Heart Failure Association of the European Society of Cardiology. Eur J Heart Fail. 2021;23(1):157-174.
20. Kleman C, Turrise S, Winslow H, Alzaghari O, Lutz BJ. Individual and systems-related factors associated with heart failure self-care: a systematic review. BMC Nurs. 2024;23(1):110.
21. Sørensen K, Pleasant A. Understanding the Conceptual Importance of the Differences Among Health Literacy Definitions. Stud Health Technol Inform. 2017;240:3-14.
22. Ionescu R, Allen LA, Breathett K, Fowler BK, Jackson EA, Kundrick J, Ogunniyi MO, Magnani JW. Health Literacy in Heart Failure: A Review of the Gaps and Challenges. JACC Adv.2025;4(3:101608.

23. Nakon O, Utriyaprasit K, Wanitkun N, Sindhu S, Viwatwongkasem C, Tankumpuan T. The Effect of Health Literacy on Health Status in Patients with Heart Failure: A Path Analysis. J Multidiscip Healthc. 2024 ;17:4143-4153.
24. Sav A, King MA, Kelly F, McMillan SS, Kendall E, Whitty JA, Wheeler AJ. Self-management of chronic conditions in a rural and remote context. Aust J Prim Health. 2015;21(1):90-95.
25. Lee KS, Moser DK, Pelter MM, Nesbitt T, Dracup K. Self-care in rural residents with heart failure: What we are missing. Eur J Cardiovasc Nurs. 2017;16(4): 326-333.
26. Agarwal A, Davies D, Goenka S, Prabhakaran D, Huffan M.D, Mohanan P.P. Facilitators and barriers of heart failure care in Kerala, India: A qualitative analysis of health-care providers and administrators. Indian Heart Journal. 2019;71(3):235-241.
27. Uchmanowicz H Uchmanowicz I, Wleklik M, Gobbens RJ. Frailty syndrome and self-care ability in elderly patients with heart failure. Clin Interv Aging. 2015;10:871-877.
28. Díez-Villanueva P, Salamanca J, Ariza-Solé A, Formiga F, Martín-Sánchez FJ, Bonanad Lozano C, Vidán MT, Martínez-Sellés M, Terres B, Jiménez Méndez C, Bueno H, Alfonso F. Impact of frailty and other geriatric syndromes on the clinical management and prognosis of elderly ambulatory patients with heart failure. A prospective and multicentre study. Rev Esp Geriatr Gerontol. 2020;55(1):29-33.
29. Talha KM, Pandey A, Fudim M, Butler J, Anker SD, Khan MS. Frailty and heart failure: State-of-the-art review. J Cachexia Sarcopenia Muscle. 2023;14(5):1959-1972.
30. Rashid S, Qureshi AG, Noor TA, Yaseen K, Sheikh MAA, Malik M, Malik J. Anxiety and Depression in Heart Failure: An Updated Review. Curr Probl Cardiol. 2023; 48(11):101987.
31. Alexandri A, Georgiadi E, Mattheou P, Polikandrioti M. Factors associated with anxiety and depression in hospitalized patients with first episode of acute myocardial infarction. Arch Med Sci Atheroscler Dis. 2017;2:e90-e99. do
32. Wenn P Wenn P, Meshoyrer D, Barber M, Ghaffar A, Razka M, Jose S, Zeltser R, Makaryus AN. Perceived Social Support and its Effects on Treatment Compliance and Quality of Life in Cardiac Patients. J Patient Exp. 2022; 9:23743735221074170.
33. Irani E Irani E, Moore SE, Hickman RL, Dolansky MA, Josephson RA, Hughes JW. The Contribution of Living Arrangements, Social Support, and Self-efficacy to Self-management Behaviors Among Individuals With Heart Failure: A Path Analysis. J Cardiovasc Nurs. 2019;34(4):319-326.
34. Amini M, Gheibizadeh M, Kalboland MM, Sharhani A. Investigating the predictive role of spiritual health, social support, and quality of life in self-care behaviors among heart failure patients. J Educ Health Promot. 2024;12:438.
35. Polikandrioti M. Perceived Social Isolation in Heart Failure. J Innov Card Rhythm Manag. 2022;13(6):5041-5047.
36. Sokos G, Kido K, Panjrath G, Benton E, Page R 2nd, Patel J, Smith PJ, Korous S, Guglin M. Multidisciplinary Care in Heart Failure Services. J Card Fail. 2023;29(6):943-958.
37. Polikandrioti M. Patient Perceptions and Quality of Life in Pacemaker Recipients. J Innov Card Rhythm Manag. 2021;12(11):4769-477