

IMPACT OF HEART FAILURE ON QUALITY OF LIFE: AN INVESTI- GATION INTO HOW HE- ART FAILURE AFFECTS PATIENTS' QUALITY OF LIFE, INCLUDING PHYSI- CAL, PSYCHOLOGICAL AND SOCIAL ASPECTS

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Abstract: **INTRODUCTION** Heart failure (HF) encompasses a broad range of symptoms and etiologies, including structural and functional abnormalities of the heart. Diagnosis involves a thorough clinical assessment combined with imaging studies and biomarker evaluations. Patients with HF often experience a significant decline in quality of life due to physical symptoms, psychological distress, and social challenges. Physical limitations such as reduced exercise tolerance and muscle weakness are common, compounded by psychological factors like depression and anxiety. Addressing these multifaceted aspects requires comprehensive management strategies focusing on optimizing medical therapy, promoting physical activity, and addressing psychosocial needs to enhance functional capacity and overall well-being in HF patients.

OBJETIVE: Analyze and describe the main aspects of the impact of HF on quality of life: an investigation into how heart failure affects patients' quality of life, including physical, psychological and social aspect in the last years.

METHODS: This is a narrative review, which has used descriptors such as "heart failure" AND "epidemiology" AND "quality of life" AND "psychological" in the last 10 years in MEDLINE – PubMed (National Library of Medicine, National Institutes of Health), COCHRANE, EMBASE and Google Scholar databases.

RESULTS AND DISCUSSION: potential targets for interventions to improve quality of life QoL in HF patients involves symptom management strategies, both pharmacological and non-pharmacological. Pharmacological interventions, such as guideline-directed medical therapies including ACEIs, beta-blockers, and diuretics, aim to improve symptom control and reduce hospitalizations. Non-pharmacological approaches like

exercise training, dietary modifications, and weight management play a vital role in enhancing physical function and QoL. Psychosocial support programs focusing on counseling, cognitive-behavioral therapy, and support groups address emotional distress and improve mental well-being. Healthcare delivery innovations, such as telemedicine, remote monitoring, and transitional care programs, enhance access to care and optimize medication adherence, ultimately improving QoL outcomes in HF patients. By integrating these comprehensive approaches, healthcare providers can effectively address the multifaceted challenges of HF and improve patient outcomes and overall well-being.

CONCLUSION: In summary, HF imposes significant challenges across physical, psychological, and social domains, profoundly affecting the quality of life of affected individuals. Physical limitations due to compromised exercise tolerance and activities of daily living, coupled with the psychological burden of depression, anxiety, and emotional distress, contribute to the multifaceted impact of HF. Moreover, HF disrupts social relationships, leading to caregiver stress, family dynamics alterations, and social isolation. Various determinants, including symptom burden, treatment adherence, socioeconomic status, and access to healthcare, influence quality of life outcomes, highlighting the need for tailored interventions.

Keywords: Heart failure; Quality of life; Cardiology; Social aspects.

INTRODUCTION

Heart failure (HF) is a complex clinical syndrome characterized by the inability of the heart to pump blood efficiently to meet the metabolic demands of the body or to do so only at elevated filling pressures¹. It encompasses a spectrum of signs and symptoms resulting from structural or functional abnormalities of

the heart. Common etiologies of HF include coronary artery disease, hypertension, valvular heart disease, and cardiomyopathies². HF can be classified based on ejection fraction into heart failure with reduced ejection fraction (HFrEF) and heart failure with preserved ejection fraction (HFpEF), although emerging evidence suggests the existence of an intermediate phenotype known as heart failure with mid-range ejection fraction (HFmrEF)³.

HF is diagnosed through a combination of clinical evaluation, imaging studies, and biomarker assessments⁴. The diagnosis typically involves a comprehensive medical history and physical examination to identify symptoms such as dyspnea, fatigue, orthopnea, paroxysmal nocturnal dyspnea, and peripheral edema⁵. Imaging modalities like echocardiography play a crucial role in assessing cardiac structure and function, identifying ventricular dysfunction, valvular abnormalities, and estimating ejection fraction⁶. Biomarkers such as natriuretic peptides, including brain natriuretic peptide (BNP) and N-terminal pro-B-type natriuretic peptide (NT-proBNP), are commonly measured to aid in diagnosis and prognosis, as elevated levels are indicative of myocardial stress and increased risk of adverse outcomes in HF patients⁷. Other diagnostic tests such as electrocardiography (ECG), chest X-ray, and cardiac magnetic resonance imaging (MRI) may also be utilized to provide further insights into the underlying pathology and severity of HF^{5,6,7}.

Patients with chronic diseases often experience a significant decline in their quality of life (QoL) due to various physical, psychological, and social challenges associated with their conditions⁸. Chronic diseases such as HF can lead to persistent symptoms, functional limitations, and decreased independence, all of which can profoundly impact multiple domains of QoL⁹.

Physical symptoms such as pain, fatigue, dyspnea, and gastrointestinal discomfort can impair daily activities and reduce overall well-being¹⁰. Psychological factors such as depression, anxiety, and emotional distress are also common in patients with chronic diseases and can further exacerbate QoL impairment¹¹. Moreover, social factors including social isolation, financial strain, and stigma may contribute to a decreased sense of social support and connectedness, further compromising QoL. Consequently, interventions aimed at improving QoL in patients with chronic diseases should adopt a holistic approach that addresses both the physical and psychosocial aspects of the patient experience^{9,10,11}.

Patients with HF often experience significant physical limitations due to the impaired cardiac function and associated symptoms¹². Common physical limitations include reduced exercise tolerance, exertional dyspnea, fatigue, and muscle weakness, which can greatly impact the ability to perform activities of daily living (ADLs) and engage in regular exercise¹³. The reduced cardiac output and impaired ventricular function in HF lead to inadequate tissue perfusion, resulting in fatigue and dyspnea even with minimal exertion¹⁴. Additionally, skeletal muscle abnormalities, including muscle wasting and reduced oxidative capacity, further contribute to exercise intolerance and physical weakness in HF patients¹⁴. These physical limitations not only affect the ability to perform routine tasks but also lead to a sedentary lifestyle, exacerbating deconditioning and further worsening overall physical function¹⁴. Therefore, comprehensive management strategies in HF should focus on optimizing medical therapy, promoting physical activity, and addressing skeletal muscle dysfunction to improve functional capacity and quality of life in affected patients¹⁵.

OBJETIVE

Analyze and describe the main aspects of the impact of HF on quality of life: an investigation into how heart failure affects patients' quality of life, including physical, psychological and social aspect in the last years.

SECUNDARY OBJETIVE

1. Evaluate the impact of HF on physical functioning by examining factors such as exercise tolerance, activities of daily living, and symptom severity.
2. Investigate the psychological effects of HF, including depression, anxiety, and overall emotional well-being, to understand the mental health challenges faced by patients.
3. Examine the influence of HF on social relationships, including family dynamics, social support networks, and social isolation, to elucidate the social impact of the condition.
4. Identify key determinants of quality of life in HF patients, such as symptom burden, treatment adherence, socioeconomic status, and access to healthcare resources.
5. Identify potential targets for interventions aimed at improving quality of life in HF patients, including symptom management strategies, psychosocial support programs, and healthcare delivery innovations.

METHODS

This is a narrative review, in which the main aspects of the impact of heart failure on quality of life: an investigation into how HF affects patients' quality of life, including physical, psychological and social aspect in the last years where analyzed. The beginning of the study was carried out with theoretical training using the following databases: PubMed, sciELO and Medline, using as descriptors: "heart failure" AND "epidemiology" AND

“quality of life” AND “psychological” in the last 10 years. As it is a narrative review, this study does not have any risks. Only studies in English and Portuguese were selected

Databases: This review included studies in the MEDLINE – PubMed (National Library of Medicine, National Institutes of Health), COCHRANE, EMBASE and Google Scholar databases.

The inclusion criteria applied in the analytical review were human intervention studies, experimental studies, cohort studies, case-control studies, cross-sectional studies and literature reviews, editorials, case reports, and poster presentations. Also, only studies writing in English and Portuguese were included.

RESULTS AND DISCUSSION

HF significantly impairs physical functioning due to its adverse effects on the cardiovascular system and overall health status of patients^{1,14}. Exercise tolerance, a key component of physical functioning, is notably compromised in individuals with HF, often leading to exercise intolerance and reduced capacity to perform physical activities^{1,14}. ADLs, such as walking, climbing stairs, and carrying out household chores, are frequently limited in HF patients due to symptoms like dyspnea, fatigue, and muscle weakness, which can hinder their ability to independently perform routine tasks¹⁵. Additionally, the severity of HF symptoms, including dyspnea, fatigue, and edema, further exacerbates physical limitations and functional decline, impacting the overall quality of life of affected individuals^{1,15}. Comprehensive assessment and management of HF should therefore encompass evaluation of exercise tolerance, ADLs, and symptom severity to optimize physical functioning and improve outcomes in affected patients^{14,15}.

HF not only affects physical health but also

has significant psychological implications, including depression, anxiety, and overall emotional well-being¹⁶. Patients with HF often experience a multitude of psychological symptoms, with depression being one of the most prevalent¹⁶. Studies have reported that up to 30% of HF patients suffer from clinical depression, which is associated with poorer quality of life, increased hospitalizations, and higher mortality rates¹⁷. Additionally, anxiety is commonly observed in HF patients, with approximately 20-40% of individuals experiencing symptoms of anxiety disorders. Anxiety can exacerbate HF symptoms, impairing self-care behaviors and worsening outcomes¹⁷. Overall emotional well-being is profoundly impacted by the burden of HF, as patients often grapple with feelings of fear, uncertainty, and loss of control over their health^{13,16}. Understanding the psychological effects of HF is crucial for providing comprehensive care and support to patients, addressing mental health challenges alongside medical management to improve overall well-being and outcomes¹⁷.

HF not only affects physical and psychological well-being but also has a profound impact on social relationships¹⁸. Family dynamics can be significantly influenced by the diagnosis of HF, as it often requires adjustments in roles, responsibilities, and emotional support within the family unit¹⁸. Studies have shown that caregivers of HF patients may experience increased stress, burden, and disruptions in their own social and occupational lives. Social support networks play a crucial role in coping with HF, with strong support systems linked to better outcomes and improved quality of life for patients¹⁹. Conversely, HF can lead to social isolation, as symptoms such as fatigue, dyspnea, and mobility limitations may restrict patients' ability to engage in social activities and maintain social connections¹⁹.

Understanding the influence of HF on social relationships is vital for healthcare providers to develop comprehensive care plans that address not only medical needs but also the social aspects of the condition, promoting patient well-being and enhancing overall quality of life^{18,19}.

QoL in HF patients is influenced by various determinants, including symptom burden, treatment adherence, socioeconomic status, and access to healthcare resources²¹. Symptom burden, encompassing dyspnea, fatigue, and reduced exercise tolerance, significantly impacts QoL by limiting physical functioning and overall well-being^{21,22}. Treatment adherence, including medication adherence and adherence to lifestyle modifications, is crucial for symptom management and disease control, with non-adherence associated with poorer outcomes and decreased QoL²². Socioeconomic status plays a significant role in determining QoL, as individuals with lower socioeconomic status may face barriers to accessing healthcare services, affording medications, and maintaining healthy lifestyles, thereby impacting their QoL negatively²¹. Access to healthcare resources, including specialized cardiac care, multidisciplinary support, and rehabilitation programs, is essential for optimizing QoL in HF patients by facilitating symptom management, promoting self-care behaviors, and addressing psychosocial needs²². Understanding the key determinants of QoL in HF patients is crucial for healthcare providers to develop tailored interventions aimed at improving patient outcomes and enhancing overall well-being²¹.

QoL outcomes in HF can vary across different classifications, such as HF with HFpEF versus HF with HFrEF, providing insights into potential variations in the impact of the condition based on clinical phenotype²³. Studies have suggested that

HFpEF patients may experience similar or even worse QoL compared to HFrEF patients, despite potentially better-preserved systolic function²⁴. This discrepancy may be attributed to the unique pathophysiological mechanisms, symptom profiles, and comorbidities associated with HFpEF, including higher rates of obesity, hypertension, and atrial fibrillation²³. Additionally, HFpEF patients often present with significant functional limitations and symptom burden, such as dyspnea and fatigue, which can adversely affect their QoL²⁵. Understanding these differences in QoL outcomes across HF classifications is essential for tailored management strategies and interventions aimed at addressing the specific needs and challenges faced by HF patients, regardless of their clinical phenotype^{23,24}.

Various treatments for HF, including medications, device therapies, and lifestyle interventions, have been evaluated for their effects on improving or maintaining QoL outcomes in affected patients^{1,25}. Pharmacological interventions such as angiotensin-converting enzyme inhibitors (ACEIs), angiotensin II receptor blockers (ARBs), beta-blockers, and mineralocorticoid receptor antagonists have been shown to reduce symptoms, hospitalizations, and mortality rates, thereby potentially enhancing QoL in HF patients^{3,26}. Device therapies such as cardiac resynchronization therapy (CRT) and implantable cardioverter-defibrillators (ICDs) have also demonstrated benefits in reducing symptoms, improving functional capacity, and enhancing QoL in selected HF patients, particularly those with reduced ejection fraction²⁷. Lifestyle interventions including exercise training, dietary modifications, and smoking cessation programs have shown promise in improving symptoms, exercise tolerance, and overall well-being, contributing to enhanced QoL in HF patients²⁸. However, the

effects of these treatments on QoL outcomes may vary depending on factors such as patient characteristics, disease severity, and treatment adherence, highlighting the importance of personalized and multidisciplinary approaches to HF management^{27, 28, 29}.

Research investigating potential gender and age disparities in QoL outcomes among HF patients has highlighted important considerations regarding symptom presentation, treatment responses, and psychosocial factors³⁰. Studies suggest that women with HF may experience worse QoL outcomes compared to men, with differences attributed to variations in symptom perception, healthcare-seeking behaviors, and response to treatment³¹. Additionally, age-related factors such as comorbidities, functional status, and socioeconomic status may further influence QoL outcomes in HF patients, with older individuals often facing greater challenges in symptom management and treatment adherence³². Psychosocial factors, including social support networks, coping mechanisms, and access to healthcare resources, also play a significant role in shaping QoL outcomes across different demographic groups³³. Understanding these potential disparities is crucial for tailoring interventions and improving overall outcomes in HF patients, promoting equitable access to care and support for individuals of all genders and ages^{32,33}.

HF imposes a significant economic burden on both patients and society, primarily due to increased healthcare utilization and associated costs³⁴. Patients with HF often require frequent hospitalizations, outpatient visits, and interventions, leading to elevated healthcare utilization rates³⁵. These utilization patterns contribute to substantial direct medical costs, including expenses related to hospital stays, medications, diagnostic tests, and procedures³⁴. Additionally, HF patients may

experience indirect costs stemming from lost productivity, caregiver burden, and reduced quality of life³⁵. From a societal perspective, the economic burden of HF extends beyond individual patient costs to encompass broader healthcare system expenditures and societal productivity losses³⁵. Several studies have highlighted the substantial economic impact of HF, emphasizing the need for effective management strategies to mitigate healthcare costs and optimize resource allocation^{34, 35}.

Assessing the QoL in HF patients requires the use of validated patient-reported outcome measures (PROMs) to capture the multifaceted nature of their subjective experiences³⁶. PROMs offer valuable insights into various domains of QoL, including physical, emotional, social, and functional well-being, providing a comprehensive understanding of the impact of HF on patients' lives³⁷. Commonly used PROMs in HF research include the Kansas City Cardiomyopathy Questionnaire (KCCQ), Minnesota Living with Heart Failure Questionnaire (MLHFQ), and the EuroQol-5 Dimension (EQ-5D), among others³⁶. These instruments assess different aspects of QoL, such as symptom burden, functional status, psychological well-being, and overall health perception, allowing clinicians and researchers to tailor interventions and monitor outcomes effectively³⁷. By utilizing validated PROMs, healthcare professionals can gain valuable insights into the patient's perspective, facilitating patient-centered care and optimizing treatment strategies to improve QoL outcomes in HF populations^{36,37}.

Identifying potential targets for aimed interventions aimed at improving quality of life QoL in HF patients is crucial for optimizing patient outcomes. Symptom management strategies, including pharmacological and non-pharmacological approaches, are essential for alleviating HF-related symptoms such as dyspnea, fatigue, and edema³. Pharmacological

interventions may involve optimizing guideline-directed medical therapies (GDMT) such as angiotensin-converting enzyme inhibitors (ACEIs), beta-blockers, and diuretics to improve symptom control and reduce hospitalizations⁴. Non-pharmacological interventions, such as exercise training, dietary modifications, and weight management, play a vital role in enhancing physical function and QoL⁵. Additionally, psychosocial support programs focusing on counseling, cognitive-behavioral therapy, and support groups can address emotional distress, depression, and anxiety commonly experienced by HF patients, thereby improving mental well-being and overall QoL^{3,5}. Furthermore, healthcare delivery innovations such as telemedicine, remote monitoring, and transitional care programs can enhance access to care, optimize medication adherence, and facilitate early detection of clinical deterioration, ultimately improving QoL outcomes in HF patients^{3,5}.

CONCLUSION

In conclusion, heart HF significantly impairs physical functioning, psychological well-being, and social relationships, ultimately impacting the overall quality of life of affected

individuals. Physical limitations stemming from compromised exercise tolerance and activities of daily living are exacerbated by the severity of HF symptoms. Psychological effects, including depression, anxiety, and emotional distress, further contribute to the burden of the condition, necessitating comprehensive care approaches that address both medical and psychological aspects. Moreover, HF affects social relationships, leading to caregiver stress, disruptions in family dynamics, and social isolation. Various determinants, such as symptom burden, treatment adherence, socioeconomic status, and access to healthcare resources, influence quality of life outcomes in HF patients across different clinical phenotypes. Tailored interventions targeting symptom management, psychosocial support, and healthcare delivery innovations are essential for optimizing patient outcomes and enhancing overall well-being. Validated patient-reported outcome measures play a crucial role in assessing quality of life and guiding personalized care strategies for HF patients. Therefore, a multifaceted approach is necessary to address the complex challenges posed by HF and improve the quality of life for individuals living with this condition.

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