Non-Pharmacological Interventions for Anxiety in Heart Failure: A Review

Review

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Abstract

Introduction. Anxiety is common among patients with heart failure (HF) and may contribute to adverse health outcomes, yet treatment approaches remain underexplored. The purpose of this narrative literature review is to evaluate and synthesize the current evidence on non-pharmacological interventions for anxiety in individuals with HF, with particular attention to the methodological quality and consistency of findings across studies.

Methods. This review synthesized 13 studies between 2015 and 2025 evaluating non-pharmacological interventions for managing anxiety in individuals with HF. Studies were retrieved from the CINAHL Complete (EBSCO host) database. The search strategy used keywords including anxiety, heart failure, treatment, intervention, therapy, management, and rehabilitation. Results were limited to peer-reviewed studies published in the English language.

Results. Most of the interventions for anxiety in patients with HF incorporated cognitive-behavioral strategies (n = 4) or exercise (n = 4). Findings suggest that cognitive-behavioral therapy, structured physical exercise, palliative care, education, and music therapy show promise in reducing anxiety symptoms; however, effects vary depending on intervention type, design, duration, delivery format, and patient characteristics.

Conclusions. The results underscore the need for more high-quality research, including randomized controlled trials with larger sample sizes, to better evaluate the effectiveness of interventions for individuals with HF. Additionally, greater standardization in HF classification and anxiety measurement is essential to enhance comparability across studies and to identify the most effective and feasible interventions for anxiety among HF patients.

Key Words: Cognitive behavioral therapy, physical activity, palliative care

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Introduction

Heart failure (HF) is a clinical syndrome that occurs when the heart cannot maintain adequate cardiac output to the body.[1,2] During HF, structural and/or functional abnormalities of the heart can lead to somatic symptoms and elevated intracardiac pressure at rest or during stress.[2] HF is accompanied by symptoms that include dyspnea, cough, wheezing, lower extremity edema, ascites, and fatigue.[1] Many patients with HF also experience anxiety and depression.[3] Currently, there is a lack of clarity about current interventions to address anxiety in patients with HF.

According to the Centers for Disease Control and the American Heart Association, there are approximately 6.7 million United States adults living with HF, which is expected to increase by 48% by 2030.[4,5,6] HF has likely been the cause of

13.9% of all deaths in the United States in 2022 and despite new forms of treatment, hospitalization rates of those with HF have not decreased.[6,7]

Researchers and clinicians have described HF using the measurement of left ventricular ejection fraction (LVEF), which reflects how much blood is pumped out of the left ventricle with each contraction.[8,2] Additionally, the New York Heart Association (NYHA) created a functional classification system to describe the severity of symptoms and activity tolerance of those living with HF.[9,2] The classifications range from Class I, indicating no functional limitations, to Class IV, which involves severe limitations, with symptoms present even at rest and worsening with any physical activity.[9] Although symptoms can differ between HF classifications, researchers have found anxiety to be present among many patients with symptomatic HF (NYHA class II-IV).[3] Yet, there is limited evidence supporting routine anxiety interventions among this population.

Anxiety is an adaptive response to a threat that can lead to physical, behavioral, and emotional symptoms.[10] It is characterized by tension, worry, and physical responses, such as increased blood pressure.[11] However, when the magnitude or persistence of anxiety leads to disruption in function or negative symptoms, it is considered maladaptive.[12] Some of those negative symptoms can include fatigue, insomnia, chronic pain, chest pain, flushing, palpitations, dyspnea, gastrointestinal symptoms, dizziness, and headache.[10] Although anxiety can range from normal to pathological, researchers have suggested that clinical anxiety and subclinical anxiety are comparable cognitively, neurobiologically, and behaviorally.[12]

Anxiety is prevalent among individuals with HF, with some researchers estimating that 13% of individuals with HF meet diagnostic criteria for a formal anxiety diagnosis, and approximately 30% of individuals with HF report clinically significant levels of anxiety.[13,14] Individuals with HF and anxiety may have greater difficulty maintaining their self-care.[15] Also, anxiety among those with HF has been associated with an increased risk of adverse outcomes, like hospital readmission and deaths, regardless of demographic and clinical variables.[16] Some researchers have found that anxiety may predict hospitalizations in individuals with chronic HF.[17] While the connection between anxiety and poor outcomes in HF is well-documented, less is known about how to address anxiety in HF through non-pharmacological approaches effectively.

Researchers have found that mental health treatment, such as psychotherapy, can address issues like anxiety and significantly reduce the risk of hospital readmission among individuals with HF.[6] Despite evidence supporting the relationship between anxiety treatment for HF patients and positive health outcomes, research is limited and unclear about specific non-pharmacological interventions for anxiety in HF patients. The purpose of this literature review is to examine and synthesize current evidence on non-pharmacological interventions used to treat anxiety in individuals with HF.

Scientific Methods

This review included research retrieved from the CINAHL Complete (EBSCO host) database, including sub-databases such as Academic Search Premier, Biomedical Reference Collection, and MEDLINE. The search strategy used keywords including anxiety, heart failure, treatment, intervention, therapy, management, and rehabilitation. Results were limited to peer-reviewed studies published in the English language between 2015 and 2025, and those involving participants aged 19 years and older.

An initial screening of the titles and abstracts identified 24 studies that appeared to match the review's purpose. These studies were then screened in full using predefined inclusion and exclusion criteria to minimize selection bias. All reasons for exclusion were documented in the citation management tool EndNote.

The inclusion criteria for this review were intentionally broad to capture the range of interventions addressing anxiety in adults with HF. Studies were included if they involved participants with a clinical diagnosis of HF, without restrictions on HF type (e.g., reduced or preserved left ventricular ejection fraction), NYHA classification, gender, or disease duration. Studies were eligible if they included individuals experiencing any form of anxiety, whether formally diagnosed or self-reported. To ensure relevance to intervention research, only studies that evaluated a treatment or therapeutic approach aimed at managing anxiety among individuals with HF were considered. Additionally, this review followed an integrative approach, systematically identifying, screening, and synthesizing empirical studies on non-pharmacological interventions for anxiety in individuals with HF. Study quality was assessed during full-text review by evaluating methodological rigor, including study design, sample characteristics, clarity of intervention procedures,

validity of outcome measures, and reported efforts to reduce bias. No limitations were placed on the type, format, or duration of the intervention. Both qualitative and quantitative study designs were included if anxiety was addressed as either a primary or secondary outcome.

Studies were excluded if they did not investigate the effects of an intervention on anxiety among HF patients. This included studies that discussed anxiety in this population without testing a treatment approach, as well as those focused solely on prevalence, risk factors, or correlations of anxiety. Also excluded were non-original research publications such as literature reviews, study protocols, conference presentations, editorials, and abstracts. Studies involving populations without HF, or those in which data specific to individuals with HF could not be extracted, were also excluded.

Results

A review of 13 recent studies revealed a range of non-pharmacological and multimodal interventions currently used to treat anxiety in individuals with HF. Most (60%) of the interventions for anxiety were cognitive-behavioral strategies or exercise-based. Four studies explored cognitive-behavioral strategies for managing anxiety in HF patients.[18-21] Four studies evaluated the effects of structured exercise-based interventions on anxiety symptoms in HF.[22-25] Two of the included studies examined palliative care interventions tailored to individuals with HF and their effects on anxiety.[26,27] Two additional studies in the review examined the impact of educational interventions: one involving multimedia education and another involving HF nurse consultations and education.[28,29] Finally, the study by Yu et al.[30] examined a hybrid music therapy intervention on stress relief among patients with HF. The interventions varied in delivery format, intensity, and duration, with most researchers reporting reductions in anxiety symptoms among participants.

Most of the included studies (n = 8) were randomized controlled trials (RCTs).[19,21,22,23,24,26,27,29] In addition to the RCTs, two studies were quasi-experimental in design;[18,25] one was a non-randomized repeated measures study;[28] and one was a mixed-methods design.[30] Notably, only one study was a longitudinal design that evaluated the longer-term effects of interventions on anxiety in HF patients.[20] Table 1 provides a summary of the randomized controlled trials included in the review.

Table 1. Summary of randomized controlled trials.

Author	Title	Aim	Sample and HF Classification	Anxiety Measurement Tool	Interventions for Anxiety	Year	Outcomes
Hägglund et al.[22]	Yoga vs. hydrotherapy in HF	Compare the effects of yoga and hydrotherapy on quality of life, exercise capacity, and anxiety in HF patients.	Total participants: 30 Mean age: 65 years old NYHA classes I-III	Hospital Anxiety and Depression Scale (HADS) EQ-5D: Includes mobility, self-care, daily activities, pain/discomfort, anxiety and depression	Intervention A: Yoga Duration and Frequency: 60 minutes, twice weekly for 12 weeks Intervention B: Hydrotherapy Duration and Frequency: 45 minutes, twice weekly for 12 weeks	2017	Yoga and hydrotherapy had an equal impact on quality of life, exercise capacity, clinical outcomes, and symptoms of anxiety and depression. Within both groups, exercise capacity significantly improved, and

							symptoms of anxiety decreased.
Hsiu-Chin et al. [23]	Walking with breathing in HF	Assess effects of walking with controlled breathing on anxiety, depression, and physical tolerance	Total participants: 44 Mean age: 51 years old NYHA classes I-III	Hospital Anxiety and Depression Scale (HADS) EQ-5D: Includes mobility, self-care, daily activities, pain/discomfort, anxiety and depression	Intervention: Walking with controlled breathing Duration and Frequency: 20 minutes, twice daily for 12 weeks	2018	Participants who participated in the intervention showed an overall improvement in anxiety levels.
Mohammadi et al.[29]	Multimedia education and teach-back for cardiac anxiety	Test multimedia and teach-back on cardiac anxiety and quality of life in HF patients.	Total participants: 120 Mean age: 49 years old NYHA classes I-III	Cardiac Anxiety Questionnaire (CAQ)	Intervention A: Educational videos about heart failure (signs and symptoms, prevention methods, drug consumption, diet regimen, and relaxation techniques) Duration and Frequency: A: 45 minutes over four sessions Intervention B: Educational videos with teach-back methods (discussion, reflections, and question and answer sessions) Duration and Frequency: 75 minutes over four sessions.	2021	Both multimedia education and multimedia education combined with teach-back methods were effective in reducing cardiac anxiety and promoting quality of life in patients with HF.

Nahlén Bose et al.[19]	Coping effectiveness training in HF	Evaluate a nurse-led CET group intervention for patients with chronic HF.	Total participants: 129 Mean ages: 69 and 72 years old NYHA classes II-III	Hospital Anxiety and Depression Scale (HADS)	Intervention: CET focused on skills to appraise stress and techniques to cope with stress adaptively Duration and Frequency: 90 minutes, once weekly for seven weeks	2016 b	There were no statistically significant differences in negative affect, anxiety, and depression between the control group and intervention group.
Norman et al.[24]	HEART Camp intervention in HF	Evaluate HEART Camp's impact on anxiety and clinical outcomes	Total participants: 204 Mean age: 60 years old NYHA classes I-IV (most were class II-III)	PROMIS-29: Includes physical function, anxiety, depression, fatigue, social functioning, sleep disturbance, and pain	Intervention: HEART Camp which included ongoing individualized instruction and goal setting with a trained exercise professional Duration and Frequency: Weekly meetings spanning 18 months total	2020	Coaching and individualized strategy combined with group education for exercise training were effective in improving psychological outcomes such as depression and anxiety in patients with HF.
Piamjariyakul et al.[26]	Palliative care for HF patients and caregivers	Assess the impact of palliative care on anxiety and depression.	Total participants: 39 Mean age: 65 years old NYHA classes III-IV	Patient Health Questionnaire (PHQ-4)	Intervention: Five telephone coaching sessions on palliative symptom management and advanced directive discussions with a clinician nurse and a manual with step-by-step guides and visual illustrations	2024	Compared to the control group, patients in the intervention group had significantly lower depression and anxiety scores at six months.

					for managing HF Duration and Frequency: 60-90 minutes per session for 5 sessions		
Rogers et al.[27]	The PAL-HF randomized controlled clinical trial.	Test palliative care plus standard HF care on quality of life and anxiety	Total participants: 150 Mean age: 71 years old NYHA classes III-IV	Hospital Anxiety and Depression Scale (HADS)	Intervention: Interdisciplinary palliative care intervention involving management of physical symptoms, psychosocial and spiritual concerns, and advanced care planning Duration and Frequency: Frequency not specified, intervention occurred over 6 months	2017	An interdisciplinary palliative care intervention in advanced HF patients improved quality of life, anxiety, depression, and spiritual well-being compared with standard care for HF alone.
Westas et al.[21]	iCBT for depression and anxiety in cardiovascular disease.	Analyze the effects of iCBT for depression on anxiety symptoms in cardiovascular disease patients	Total participants: 144 Mean age: 63 years old NYHA classes I–III	The Generalized Anxiety Disorder Questionnaire-7 Item Scale (GAD-7) The Cardiac Anxiety Questionnaire (CAQ)	Intervention: Internet-based cognitive behavioral therapy program Duration and Frequency: Bi-weekly modules over a span of 9 weeks	2024	Of the 144 participants, 38 were diagnosed with HF. There was a statistically significant reduction in distress disorder following the iCBT depression program.

HF, Heart Failure
NYHA, New York Heart Association
CET, Coping Effectiveness Training
HEART Camp, The Heart Failure Exercise and Resistance Training Camp
PAL-HF, Palliative Care in Heart Failure
iCBT, Internet Cognitive Behavioral Therapy

Anxiety and Heart Failure Measurement

Across studies, researchers used a variety of measurement tools to assess anxiety levels, which may limit the comparability of results. The Hospital Anxiety and Depression Scale (HADS)[31] was the most used outcome measure for anxiety, as 42.8% of the studies included it in their methodology. In contrast, 14.2% of studies used the Cardiac Anxiety Questionnaire (CAQ).[32] Other studies employed a range of alternative tools, including the Patient Health Questionnaire,[33] the Zung Self-Rating Anxiety Scale,[34] the Templer Death Anxiety Scale,[35] the Generalized Anxiety Disorder Scale (GAD),[36] the Perceived Stress Scale (PSS-4),[37] and Patient Reported Outcome Measures (PROMIS-29).[38] There was no clear standard for measuring anxiety among patients with HF throughout the included studies. This heterogeneity poses challenges for synthesis because each scale captures different dimensions of anxiety (e.g. somatic symptoms, cognitive worry, or stress-related affect), uses distinct scoring thresholds, and varies in sensitivity to HF-related physiological symptoms. As a result, differences in observed anxiety levels across studies may reflect measurement variability rather than true differences in patient experiences. This reduces the precision and validity of cross-study comparisons and complicates the interpretation of pooled findings.

Regarding HF severity, most studies (n = 11) incorporated the New York Heart Association (NYHA) classification system to characterize the severity of HF among participants. Meanwhile, five other studies[21,24,26,28,29] reported participants' NYHA class within their results or baseline profiles, typically ranging from class I to IV. However, classification was not always a central component of their methodological approach. For instance, Piamjariyakul et al.[26] included participants between NYHA class III to IV, and Lucas et al.[28] used the European Society of Cardiology criteria for inclusion criteria while also reporting NYHA class post hoc. In contrast, the remaining studies did not use NYHA classification, and instead used alternative staging frameworks, such as the American Heart Association systems, or clinical diagnoses to define HF.[18,20,25]

Cognitive Behavioral Therapy and Coping Training

Several researchers explored cognitive behavioral therapy (CBT) strategies for managing anxiety in HF patients. CBT is a psychological treatment used to treat problems such as depression, anxiety, alcohol and drug use, eating disorders, and severe mental illness.[39] CBT typically involves activities and discussions to change thinking and behavior patterns.[39] One study in the review tested the short- and long-term effects of an internet-based CBT program on symptoms of distress and fear disorder in cardiovascular disease patients, including those with HF.[21] The researchers found that the internet-based CBT program designed for depression significantly reduced generalized anxiety symptoms, but had only modest effects on cardiac-specific fear and avoidance behaviors.[21] Another study found that in-person CBT interventions, including relaxation training and cognitive restructuring, effectively reduced death anxiety among patients with HF.[18] Tully et al.[20] conducted a longitudinal study. They found that CBT, exercise, and psychotropic medications had distinct effects on reducing anxiety symptoms over time in individuals with chronic HF and comorbid major depression and generalized anxiety disorder.[20] Taken together, these findings suggest that CBT can reliably reduce broad anxiety symptoms, but its impact on HF-specific fears may depend on how directly the intervention targets cardiac-related cognitions. Across the CBT studies, the target of the intervention (e.g., depression, anxiety, death anxiety) mattered for effect size. For example, Moradi et al[18] found that CBT that targets death anxiety produced an apparent reduction. In contrast, Westas et al[21] found that iCBT designed for depression strongly reduced distress but was less effective for fear disorder and cardiac anxiety. This pattern indicates that interventions aligned with the primary source of distress, such as existential fears versus generalized anxiety, produce more robust and clinically meaningful improvements.

One study evaluated a nurse-led Coping Effectiveness Training (CET) program to determine the effects of the intervention on affect, anxiety, and depression in patients with chronic HF.[19] CET is like CBT because it targets coping styles and promotes the use of adaptive, rather than maladaptive, strategies to manage stress. However, CBT focuses on identifying, challenging, and modifying maladaptive thoughts and beliefs. While CET strengthens coping skills and resourcefulness, CBT works by altering cognitive patterns and underlying thoughts that contribute to anxiety symptoms, providing a deeper examination of internal processing rather than skills training alone. The researchers did not find a statistically significant difference in anxiety between the intervention and control groups.[19] While participants in the CET intervention felt they had increased control over their illness compared to the control group, there was no significant difference in stress reactions.[19] When considered alongside the CBT studies, the CET findings highlight that enhancing coping skills alone may not be sufficient to reduce anxiety in HF without explicit focus on the cognitive drivers of fear and distress. The differences in mechanisms and therapeutic depth between CBT and CET could explain the differing outcomes.

Exercise and Physical Activity

Multiple studies evaluated the effects of structured physical activity on anxiety symptoms. Hsiu-Chin et al.[23] found that walking with controlled breathing, when practiced twice daily over 12 weeks, led to significant improvements in anxiety levels among individuals with HF. The walking and breathing intervention improved exercise tolerance and oxygen saturation, promoted interoceptive awareness, and was linked to improvements in anxiety and quality of life.[23] Another study investigated the effects of walking on anxiety in patients with HF and found that participating in the six-minute walk test according to the American Thoracic Society guidelines was significant in reducing anxiety among participants after a month of participation.[23]

While the 6-minute walk test, which involved walking for 6 minutes on a 30-meter track, demonstrated positive effects on reducing self-rated anxiety[23], the walking with controlled breathing intervention had broader effects, including improvements in oxygen saturation, interoceptive awareness, and quality of life, in addition to reduced anxiety.[23] The addition of controlled breathing exercises with walking may provide evidence for more comprehensive HF care that addresses aspects beyond the physical.

Walking was not the only exercise intervention with positive effects on anxiety. A study in which the researchers compared the effects of yoga versus hydrotherapy found both interventions equally effective in reducing anxiety symptoms, with significant within-group improvements.[22] In addition to positive mental health outcomes, both yoga and hydrotherapy improved exercise capacity.

Taken together, these findings suggest that although various forms of exercise reduce anxiety, interventions that integrate mind–body components (e.g., controlled breathing or yoga) may yield broader physiological and psychological benefits than activity alone. Across studies, the degree of structure and intentional regulation of bodily states, whether through breathing exercises, guided movement, or group-based coaching, appears to influence not only anxiety reduction but also improvements in exercise tolerance and quality of life.

Exercise, when combined with guidance and coaching, may be effective in promoting adherence and reducing anxiety. For instance, researchers sought to identify components of the Heart Failure Exercise and Resistance Training Camp (HEART Camp) that contributed to psychological symptoms, such as depression and anxiety.[24] The researchers found that combining coaching and individualized strategies with group education for exercise training was effective in improving anxiety and promoting behavioral changes.[24] In the study by Tully et al.[20] researchers found that a guided exercise program may have helped reduce anxiety sensitivity through mimicking somatic symptoms among the participants with HF, generalized anxiety disorder, and depression.

Palliative and End-of Life Care

Two studies in the review focused on the effects of palliative care interventions on patient outcomes, specifically emotional and spiritual well-being. Rogers et al.[27] sought to determine whether an interdisciplinary palliative care intervention (PAL-HF) in addition to standard HF care improved quality of life, reduced hospital re-admissions, and enhanced symptom management. PAL-HF is an interdisciplinary, guideline-driven, multicomponent palliative care intervention with goals to manage multiple domains of quality of life in patients with HF, such as physical symptoms, psychosocial and spiritual needs, and advanced care planning.[27] The PAL-HF team consisted of a certified palliative care nurse practitioner in addition to a hospice and palliative medicine board-certified physician who collaborated with the patient's inpatient cardiology team and continued to support the patient in the outpatient community.[27] The researchers anticipated improvements in depression and anxiety, as well as spiritual well-being.[27] The RCT found that the intervention improved quality of life, anxiety, depression, and spiritual well-being among patients with advanced HF (NYHA class III and IV).[27]

The second study investigated whether a family-focused palliative and end-of-life care intervention improved patient and caregiver outcomes.[26] The family home palliative care (FamPALcare) aimed to provide family caregivers with practical skills for managing patient symptoms and deterioration of the patient's HF status.[26] The team included a clinician nurse who coached patients and their family caregivers on HF palliative symptom management and guided advanced directives discussions.[26] The coaching involved a visually illustrated materials manual and five telephone coaching sessions with follow-up calls to reinforce the discussions and provide advanced directive guidance. [26] The researchers anticipated improvements in caregiving burden and reductions in depression and anxiety symptoms among caregivers and patients.[26] Compared to the control group, patients in the intervention group had significantly lower depression and anxiety scores at six months.[26]

Education

Education was a notable treatment; however, in some studies, improvements in anxiety were not significant. Researchers from one study sought to determine the effect of multimedia education using a teach-back method on the quality of life and cardiac anxiety in patients with HF.[29] The education intervention included videos about HF (signs and symptoms, methods of prevention, drug consumption, diet regimen, and relaxation techniques), accompanied by a combination of teach-back methods that included discussion, reflection, and question-and-answer sessions.[29] Both multimedia education and multimedia education combined with teach-back methods were effective in reducing cardiac anxiety and promoting quality of life in patients with HF.[29] Another study aimed to explore the effects of contact with an HF nurse after discharge on patients' illness beliefs, mood, and quality of life.[28] The researchers found that contact with an HF nurse did not make a statistically significant difference to the change in level of anxiety at six months.[28]

Music Therapy

One study in the review investigated the effects of a music therapy intervention on anxiety management in HF patients.[30] The researchers of this study piloted a hybrid model of in-person and virtual music therapy sessions for patients with HF and chronic obstructive pulmonary disease.[30] Although the findings were primarily qualitative in this pilot study with a small sample size, participants reported that the music therapy intervention had an immediate effect in reducing their stress and promoting relaxation.[30] The intervention also provided the participants with new skills for managing stress and anxiety in their lives outside of the intervention.[30]

Discussion

This integrative review synthesized findings from 13 recent studies exploring non-pharmacological and multimodal interventions for treating anxiety in individuals with HF. The collective evidence indicates that several intervention strategies, such as cognitive-behavioral therapy (CBT), structured physical activity, palliative care, and selected educational and music therapy approaches, may help reduce anxiety symptoms among HF patients.

CBT emerged as an effective intervention across several studies. Findings demonstrated statistically significant reductions in anxiety across large samples ($n = 70$, $n = 29$, $n = 144$).[18,20,21] In particular, one study found that CBT focused on depression symptoms versus CBT focused on anxiety symptoms improved anxiety and depression symptoms similarly, suggesting that CBT may benefit both domains regardless of its primary target.[20] However, the authors did find that CBT focused on generalized anxiety symptoms in individuals with HF reduced cardiac readmissions at a 6-month follow-up ($p = 0.05$).[20] This may indicate potential long-term clinical benefits, although additional studies are needed. Treating generalized anxiety disorder with CBT, exercise, and medications may improve both anxiety and depression.[20]

Internet-based CBT helped reduce distress symptoms and activity avoidance in the short-term ($p = 0.01$), but did not strongly shift cardiac-specific fears ($p = 0.71$), suggesting that addressing the complexities of fear may require more anxiety-focused CBT techniques.[21] However, these findings are based on a sample of individuals with a variety of cardiovascular diseases, including a small sample of individuals with HF, and individuals with different cardiovascular diagnoses may experience different types of anxiety disorders.[21] Thus, generalizability to HF-specific anxiety is limited.

In-person CBT may be particularly suited to address death-related distress, while internet-based CBT may offer solutions for reducing general emotional burden. Additionally, the chronic nature of HF often limits mobility and access to care, and virtual CBT delivery represents a practical and valuable solution to improve accessibility. The digital format can also promote continuity of care post-discharge. Additionally, the comparison of CBT studies with CET findings suggests that interventions may need to address HF-related anxiety mechanisms to achieve meaningful symptom reduction. CBT, in combination with exercise and psychotropic medication, produced distinct reductions in anxiety and somatic symptoms over time.[20] Additionally, incorporating multimodal approaches with CBT has potential implications for reducing hospital readmissions.[20] These multimodal approaches may hold promise, though more work is needed to determine their optimal integration.

In comparison, CET has been explored as an approach to target maladaptive coping styles that contribute to anxiety. However, CET may be less effective than CBT in achieving significant outcomes as it may not offer the same degree of cognitive restructuring and behavior change. CET may lack specific strategies to prevent stress reactions.[19] It may also lack the ability to help individuals with HF use new skills in coping learned during the intervention.[19] The effectiveness of coping interventions like CET can vary depending on the intervention design, delivery format, and individual patient characteristics. Accordingly, further research is warranted to clarify when and for whom CET is most

effective. Hybrid or integrated approaches that combine the cognitive restructuring elements of CBT with the strengths-based framework of CET could be explored as a promising avenue.

Structured physical activity was another recurring and potentially effective modality for anxiety management in HF patients. Walking interventions, particularly those that incorporated breathing techniques or were delivered through structured protocols such as the 6-minute walk test, were associated with meaningful reductions in anxiety symptoms ($p = 0.03$; $p = 0.001$).[23,25] While the Heart Camp showed meaningful reductions in anxiety symptoms over time, the changes were not significant ($p = 0.059$)[24] However, significant improvements were notable in physical function, depression, and fatigue.[24] Researchers hypothesized that the ongoing individualized coaching strategy may have been a practical component of the Heart Camp intervention that led to the positive differences in anxiety, depression, and fatigue.[24]

These findings suggest that exercise-based interventions may address not only physical deconditioning common in HF but also support emotional well-being and regulation. Interventions that foster mind-body integration, such as breath control while walking or yoga, may be especially beneficial for reducing anxiety sensitivity, a known contributor to anxiety in HF. Although evidence remains limited, combining psychosocial and cognitive components, such as mindfulness, coaching, and group support, with exercise modalities may enhance therapeutic impact.

Multiple physical interventions were effective in reducing anxiety, highlighting the flexibility of physical activity interventions to suit patient preferences and capacities. However, the level of engagement in exercise programs matters; therefore, exercise programs should include elements that promote interoceptive awareness, along with meaningful activities tailored to the patient's goals and function. Further standardization of intervention components will be important for future research.

The results of the palliative care studies suggest the relevance of palliative care interventions specifically for advanced or end-stage HF (NYHA class III and IV), as they also addressed spiritual well-being and existential distress. However, palliative care can also play a critical role in improving mental health and emotional well-being, beyond end-of-life management, even when delivered through different approaches. The in-person palliative care program (PAL-HF) yielded significant reductions in anxiety on the HADS ($p = 0.048$) with sustained benefits observed after 3 months, suggesting the potential value in a structured, relationship-centered model.[27] These findings were drawn from a single center, which limits the strength of the results compared to studies of larger and multiple centers.[27] In contrast, palliative telephone coaching can be effective in rural contexts, potentially increasing accessibility in areas where in-person palliative care is limited.[26] A telephone consultative format may be best suited to address HF-specific symptom management, while an in-person palliative program may better address quality of life, existential domains, and spiritual well-being. Additionally, addressing the dyadic needs of the patient and caregiver, such as in the FamPALcare study,[26] may be especially effective in supporting positive mental health outcomes in HF management. Overall, these findings point to a potentially important role for palliative care within comprehensive HF management, though more robust evidence is needed.

Palliative care may reduce anxiety because, rather than focusing on reducing mortality and hospitalizations, the primary focus is to guide relief of suffering and assistance with end-of-life planning, which are common goals among patients with incurable advanced diseases.[27] Palliative care's focus on patient-centered outcomes could be a key component explaining the reductions in negative psychosocial symptoms. Palliative care's effectiveness in reducing anxiety could also be related to the individualized guidance on preparing for challenges associated with a deteriorating condition. Support focused on relieving common physical and psychological symptoms of HF, with guided discussions on care options, could alleviate worry and fear of suffering, leading to a reduction in anxiety symptoms.[26]

Palliative interventions for anxiety in HF should be sensitive to the stage and severity of the syndrome, as patients in later stages (III and IV) may have needs associated with spiritual and existential domains. There are potential benefits to integrating palliative care approaches at earlier stages to support emotional adjustment, future planning, and spiritual resilience. However, implementing palliative care interventions requires specialized training or clinicians familiar with palliative interventions. This may reduce the feasibility of implementing palliative care in a clinical setting without adequate training or support. Future research should evaluate the feasibility and resource implications of broader implementation.

Educational interventions demonstrated mixed results. Multimedia and teach-back education were more effective than standard HF nurse consultations in reducing anxiety.[28] This contrast may suggest that the mode and depth of engagement with educational content are key determinants of effectiveness. Standard education and advice that is protocol-driven without exploration of the patient's goals and priorities could have contributed to the lack of significant improvements in anxiety outcomes.[28] Education combined with interactive teach-back components, rather than education through follow-up contact alone, may be a more promising approach to improve anxiety levels in individuals with HF, as findings yielded significant reductions in cardiac anxiety immediately after and at one and three months follow-up ($p < 0.05$).[29] The differences in findings between education alone and education with teach-back components may relate to opportunities for personalized discussion, potentially increasing self-efficacy and improving symptom comprehension.[29] Future studies should employ a standardized delivery of educational components and include interactive elements, like teach-back methods, to determine the effectiveness of reducing anxiety among individuals with HF.

Music therapy, explored in one pilot study, demonstrated the practical feasibility of a hybrid music therapy model for HF patients. [30] Music therapy has the potential to be a scalable, patient-friendly psychological treatment in HF care. While these findings are promising, they come from a small pilot study. More rigorous trials are needed to test sustained outcomes and the generalizability of both education interventions and music therapy.

The included studies varied in design, intervention format, duration, and outcome measurement tools. Although randomized controlled trials comprised the majority, the inclusion of quasi-experimental, cross-sectional, longitudinal, and mixed methods designs added depth to the evidence base. The New York Heart Association (NYHA) classification was the most used system for characterizing HF severity. Still, its application varied across studies, with some using it for stratification and others reporting it descriptively. The diversity of anxiety measurement tools reflects the lack of standardized approaches to measuring anxiety in HF patients. This variability may affect comparability across studies, and there is a need for standardized anxiety and HF metrics across trials to improve synthesis in future research and clarify the interpretation of intervention effects.

For occupational therapy and cardiac rehabilitation, these findings suggest potential value in integrating anxiety screening and tailored interventions, such as relaxation training, coaching, CBT-informed coping strategies, and therapeutic exercise, into routine practice. Occupational therapists may be able to support patients' anxiety management by incorporating approaches like teach-back techniques during educational sessions, mindful breathing during exercise, cognitive framing around cardiac-related fears, and individualized coaching when developing individualized care plans. Emerging literature also indicates that occupational therapy could contribute to palliative-oriented support for individuals with HF, including values-based activity planning and guidance on symptom management and activity modification. Strengthening interdisciplinary collaboration to incorporate such approaches into HF care thoughtfully may help address emotional well-being and functional needs. However, further research is needed to determine their impact on long-term outcomes.

Limitations

There are several limitations of this review. First, because there are few studies about specific treatments for anxiety among HF patients, this review was not a meta-analysis or systematic review. While efforts were made to present most of the treatment interventions for this population, some may have been missed. Second, the included articles were limited to those written in English, potentially excluding valuable intervention studies published in other languages. Third, most studies had small sample sizes, and few examined the long-term effects of interventions on anxiety. Fourth, the heterogeneity in study design, intervention components, and anxiety outcome measures may limit the generalizability of the findings. A fifth limitation is potential publication bias due to the inclusion of mostly peer-reviewed articles with positive findings. Lastly, the absence of standardized diagnostic criteria for anxiety and consistency in HF classification may influence the interpretation of intervention outcomes. It is also important to note the challenge posed by varying HF classification systems across studies, underscoring the need for a standardized method for classifying the syndrome in clinical and research settings to ensure consistency and validity.

Conclusions

This review summarizes the emerging evidence on non-pharmacological approaches, including CBT, structured exercise, palliative care, music therapy, and multimedia education, for addressing anxiety in individuals with HF. Although additional rigorous, standardized studies are needed, current findings indicate that several of these approaches may offer benefits for psychological well-being and, in some cases, for physical functioning. Integrating

anxiety management into HF care may contribute to improvements in symptoms, anxiety levels, and quality of life, but the extent of these effects remains to be clarified. Overall, the evidence reviewed highlights the potential of incorporating non-pharmacological, evidence-informed strategies into multidisciplinary HF care, while reinforcing the need for continued research to determine their effectiveness and implementation across diverse clinical settings.

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