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Nurse-Led Self-Care Interventions to Improve Quality of Life in Heart Failure Patients: A scoping review

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Abstract
Heart failure (HF) is a leading cause of morbidity and mortality, often resulting in repeated hospitalizations and reduced quality of life (QoL). This scoping review examined nurse-led self-care interventions aimed at improving QoL in HF patients. Seven databases were searched using terms related to self-care, HF, nursing interventions, and QoL. From 1,288 records, 15 studies met the inclusion criteria. Interventions such as transitional care, structured education, home visits, and telehealth follow-up improved self-care maintenance, symptom recognition, QoL, and reduced hospital readmissions. Despite positive effects, mixed psychological outcomes and heterogeneous study designs highlight the need for standardized interventions and evaluations.

Keywords: Self-care; Quality of life; Heart failure; Nurse's Role

DOI:

1.0 Introduction

Heart failure (HF) is a chronic and progressive condition that continues to be a major cause of morbidity, hospital readmissions, and reduced quality of life (QoL) worldwide (Hwang et al., 2022). Despite advances in pharmacological and device therapies, patients with HF continue to experience debilitating symptoms such as dyspnea, fatigue, and fluid retention, which limit daily functioning and impair psychological well-being (Sun et al., 2019). Given the complex nature of HF, effective disease management requires more than medical treatment alone, it depends heavily on patients' ability to engage in consistent self-care practices.

Self-care in HF encompasses daily behaviours such as medication adherence, monitoring of weight and symptoms, dietary modifications, and timely healthcare seeking when signs worsen (Koontalay et al., 2024). Effective self-care is linked to fewer hospitalizations and improved QoL (Jaarsma et al., 2021), yet adherence often remains suboptimal because of limited health literacy, psychological distress, and inadequate support systems. Nurses are well positioned to deliver patient-centered interventions such as transitional care programs, home visits, telehealth support, and structured education that strengthen self-care behaviors and reduce adverse outcomes (Koontalay et al., 2024). These approaches also reflect holistic nursing principles by addressing clinical stability alongside psychological and social needs. Although reviews have evaluated nurse-led interventions, evidence remains fragmented due

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to variations in study design, outcome measures, and intervention intensity, highlighting the need for a comprehensive synthesis explicitly focused on their impact on QoL (Sun et al., 2019).

This scoping review aims to map and analyze the existing literature on nurse-led self-care interventions for patients with HF, with a specific focus on their effectiveness in enhancing QoL and identifying research gaps to guide future practice and investigation.

2.0 Intervention Strategies for Improving Quality of Life in Heart Failure

HF management increasingly emphasizes patient self-care as a strategy to reduce hospital readmissions and improve QoL. Nurse-led interventions have gained prominence due to their patient-centred approach and potential to enhance self-care behaviours. This section synthesizes key scholarly evidence on the impact of nurse-led self-care interventions on QoL among patients with HF, identifies gaps, and explains how these findings inform the current scoping review. Multiple studies demonstrate that nurse-led programs significantly improve self-care maintenance, symptom monitoring, and QoL. Koontalay et al. (2024) conducted a meta-analysis of randomized controlled trials evaluating transitional care led by nurses, finding a 31% reduction in hospital readmissions and a 20% improvement in combined readmission and mortality rates compared to usual care. Their findings confirm that structured, post-discharge nurse follow-up supports early detection of worsening symptoms and timely interventions, thereby enhancing patient outcomes. Similarly, Longhini et al. (2025) conducted a systematic review and meta-analysis of home-based nursing interventions, reporting significant improvements in illness perception, self-efficacy, and self-care behaviours. Importantly, they noted that improved self-care behaviors were positively correlated with higher QoL scores. This highlights the importance of regular home visits and personalized education in promoting lifestyle modifications and medication adherence.

3.0 Methods

3.1 Scoping Review Methodology

In this study, a scoping review methodology is chosen to acquire an overview of the extant literature on nurse-led self-care interventions to improve QoL in HF. A scoping review is a type of literature review that is useful for mapping the applicable literature in a specific field of interest. The researchers carried out a scoping review based on the 5-step framework proposed by Arksey and O'Malley: (1) identifying the research objectives and search strategies; (2) identifying the relevant research studies; (3) study selection; (4) extracting and charting the data; and (5) collating, summarizing, and reporting all results. This review was conducted following the guidelines of the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for scoping review) (Tricco et al., 2018).

3.2 Search Strategy

The literature search was conducted by highlighting the main keywords relevant to the study and based on its objectives. Several databases were explored to search for articles related to self-care management, QoL and intervention programs among patients with HF. The search engines used for this purpose are electronic databases, including ScienceDirect, ProQuest, Scopus, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science (WOS), Wiley Online Library and Google Scholar. This review employed a blend of relevant keywords, such as "self-care" or "self-management", "heart failure" or "cardiac failure", "nurse-led" or "nursing interventions", and "quality of life" or "well-being". The search for relevant research was conducted exclusively in the English language.

3.3 Eligibility criteria

Articles that focused on nurse-led self-care interventions to improve QoL in HF with any design, setting, or duration were included in this study. Studies were excluded if they were not reported in the English language or did not include human subjects.

3.4 Study selection

Two reviewers independently screened all citations and full-text articles retrieved using the above literature search strategy to identify articles that met the eligibility criteria. Discrepancies between reviewers were resolved by consensus. Finally, two reviewers independently extracted data from the selected articles.

3.4 Data extraction

A standardized data-charting form was used to ensure consistency across studies. For each included article, key information was recorded: author(s), year of publication, country, study design, sample characteristics, QoL measurement tools, type and duration of the nurse-led self-care intervention, and primary outcomes. Two reviewers independently extracted the data and resolved discrepancies through discussion to enhance the reliability of the results. This process provided a comprehensive overview of intervention modalities and outcome measures relevant to QoL in patients with HF.

4.0 Results

4.1 Included studies

The study selection followed PRISMA-ScR guidelines. Database searches yielded 1,288 records; after removing duplicates, 1,263 titles and abstracts were screened, excluding 1,105 that lacked nurse-led interventions, self-care components, or QoL outcomes. Full texts of 158 articles were assessed, with 143 excluded for inadequate details or unsuitable design. Ultimately, 15 studies published between 2015 and 2025 met all inclusion criteria and were synthesized. The PRISMA-ScR flow diagram (Figure 1) and Table 1 summarize the selection process and study characteristics.

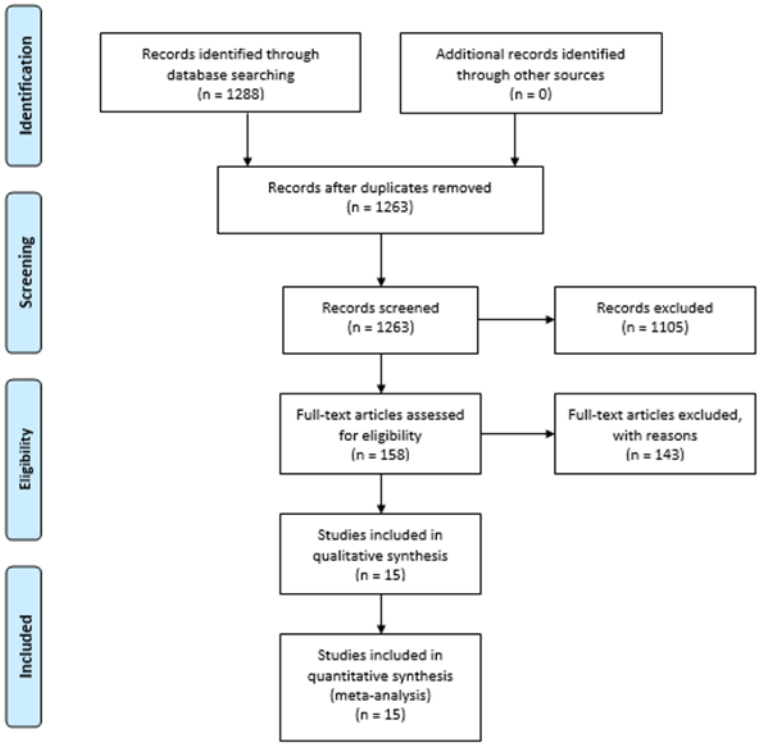

Figure 1: A Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMAScR) flow diagram.

Table 1: Characteristics of the studies included in the review

Author/Year	Country / Setting	Study Design	Sample (n)	Intervention Program	Measurement Tools	Primary Outcomes
Clark et al., 2015	USA, Home-based program	RCT	50	8 home modules + follow-up	SCHFI; KCCQ; GDS; HF Knowledge Test	Significant improvements in KCCQ QoL, HF knowledge, and SCHFI scores (p < .05).
Koberich et al., 2015	Germany, University Heart Centre	RCT	110	1 standardized education session + 4 structured calls over 12 weeks	G9-EHFScBS; Care Dependency Scale; KCCQ	Self-care improved (p < .05); however, there was no significant difference in QoL.
Evangelista et al., 2015	USA, University Medical Centre	Quasi-experimental	21	Remote Monitoring System with daily vitals + nurse teleconferencing	Patient Activation Measure; SCHFI; MLHFQ	Greater gains in activation, self-care, and MLHFQ emotional/overall QoL (p<.05).
Yu et al., 2015	Hong Kong. University-affiliated Hospital	RCT	178	Transitional care: predischarge visit + 2 home visits + nurse phone follow-ups (9 months)	SCHFI; Dutch HF Knowledge Scale; MLHFQ	Lower mortality, reduced hospital stay, improved self-care and HRQoL.
Cossette et al., 2016	Canada, Tertiary Cardiac Hospital	Pilot RCT	32 dyads	2 in-hospital + 3 follow-up calls	TSCS; SCHFI v6; PCS; FCCQ-P/F	Higher self-care and caregiver support in the intervention group.
Masterson Creber et al., 2016	USA, Urban hospital	RCT	67	Motivational interviewing: 1 home visit + 3–4 nurse phone calls	SCHFI v6.2; HF Somatic Perception Scale; KCCQ	Improved SCHFI self-care maintenance (p = .026), no between-group difference in KCCQ.
Hoover et al., 2017	USA, Midwestern Acute-care Hospital	Quasi-experimental	66	Coleman Care Transitions Intervention: pharmacist reconciliation + RN education, home visit, 3 follow-up calls	SCHFI	Lower readmission (24%-13 %), improved SCHFI scores (p<.02).
Chen et al., 2018	China, Tertiary teaching hospital	Single-blind RCT	62	Motivational interviewing: 4 in-hospital sessions + 3 phone calls	SCHFI	Significant improvement in all SCHFI subscales.
Moon et al., 2018	South Korea, Outpatient Clinic	Quasi-experimental	38	30-min face-to-face education + 4 weekly nurse phone consultations	EHFScB-9; CES-D; NT-proBNP	Improved self-care, LVEF, and reduced depression (p < .001).

Sadeghi Akbari et al., 2019	Iran, Rajaei Heart Centre	RCT	70	Illness-perception education + weekly nurse phone calls (8 weeks)	EHFScB; MLHFQ; IPQ	MLHFQ improved from 71.1 to 45.2; self-care was significantly higher ($p < .001$).
Jiang et al., 2019	Singapore, Acute Public Hospital	Pilot single-group	10	HOM-HEMP: 1 face-to-face + 3 biweekly RN home visits + mHealth app	SCHFI; Cardiac Self-Efficacy Scale; MLHFQ; HADS	Significant gains in self-care, cardiac self-efficacy, anxiety/depression, and HRQoL.
Sun et al., 2019	China, Hospital of Qiqihar Medical University	RCT	100	Full-course individualized health education with app/WeChat & calls (6 months)	SCHFI; SF-36	Significant improvements in all SCHFI domains and SF-36 subscales ($p < .05$).
Wonggom et al., 2020	Australia, 3 HF Outpatient Clinics	Multi-center RCT	36	Avatar-based HF education app with nurse guidance	DHFKS; SCHFI	Significant knowledge gain; no QoL change.
Ware et al., 2021	Canada, UHN Toronto	Pragmatic RCT	96	Mobile-phone telemonitoring with nurse decision support	SCHFI; SF-36	HF subgroup: improved self-care maintenance ($p = .036$) and physical QoL ($p = .046$).
Hwang et al., 2022	South Korea, University Hospital	RCT	122	1-hour nurse-led education with teach-back + 3 follow-up calls	HF Knowledge Scale, EHFScBS; MLHFQ	Improved HF knowledge, self-care ($p < .001$), and QoL ($p = .004$).

4.2 Study design

This scoping review analyzed 15 studies on nurse-led self-care interventions for HF. Ten randomized controlled trials were conducted across Asia, Europe, North America, and Australia (Chen et al., 2018; Hwang et al., 2022; Yu et al., 2015), providing strong evidence for the effectiveness of structured nurse-led programs. Four quasi-experimental studies offered practical insights into feasibility and implementation (Hoover et al., 2017; Moon et al., 2018), and one single-group pilot assessed a home-based mobile health program (Jiang et al., 2019). Despite varied methods, all interventions were nurse-led, patient-centered, and emphasized education, symptom monitoring, and follow-up via in-person, telephone, or digital platforms. With follow-up ranging from four weeks to twelve months, interventions consistently improved self-care behaviors and quality of life as measured by validated tools.

4.3 Tools used in the studies

A variety of validated instruments were used to evaluate self-care behaviors and QoL among patients with HF. The Minnesota Living with Heart Failure Questionnaire (MLHFQ), a 21-item disease-specific measure of physical, emotional, and social impact, was the most commonly used measure, appearing in seven studies (Hwang et al., 2022; Yu et al., 2015). The Kansas City Cardiomyopathy Questionnaire (KCCQ), a 23-item health status and QoL tool, was employed in three studies (Clark et al., 2015; Koberich et al., 2015). Two studies used the 36-Item Short Form Health Survey (SF-36) for generic health-related QoL (Sun et al., 2019; Ware et al., 2021). Eleven studies utilized the Self-Care of Heart Failure Index (SCHFI), a 29-item instrument that measures maintenance, management, and self-care confidence (Riegel et al., 2022). Additional tools included the European Heart Failure Self-Care Behaviour Scale (EHFScBS), the Dutch Heart Failure Knowledge Scale (DHFKS), the Hospital Anxiety and Depression Scale (HADS), and the Patient Health Questionnaire-9 (PHQ-9) for assessing knowledge and psychological status (Huang et al., 2024; Moon et al., 2018). Collectively, these disease-specific, generic, and psychosocial measures provided a comprehensive assessment of intervention outcomes and overall QoL.

4.4 Structure of the Intervention Programs

The included studies featured nurse-led programs that were patient-centered but varied in scope, intensity, and delivery. Education-focused interventions provided individualized instruction on symptom monitoring, medication use, diet, and action planning, reinforced by scheduled follow-up calls (Koberich et al., 2015; Hwang et al., 2022; Sun et al., 2019). Several trials incorporated motivational interviewing or self-determination coaching to strengthen self-efficacy (Chen et al., 2018; Masterson Creber et al., 2016; Cossette et al., 2016). Transitional-care models combined pre-discharge teaching with home visits and telephone surveillance to support early recognition of deterioration and adherence (Yu et al., 2015; Hoover et al., 2017). Technology-enabled programs utilized telemonitoring, smartphone or WeChat follow-ups, and decision-support alerts, sometimes in conjunction with avatar education apps (Evangelista et al., 2015; Ware et al., 2021; Wonggom et al., 2020). Interventions ranged from four weeks to twelve months, with longer, multi-component programs yielding more sustained improvements in self-care and quality of life (Yu et al., 2015; Hwang et al., 2022).

5.0 Discussion

The findings of this scoping review show that nurse-led self-care interventions, regardless of study design, play a pivotal role in improving outcomes for individuals with HF. The predominance of RCTs reinforces the reliability of these results and supports evidence that structured nurse-led programs enhance self-care and reduce HF-related hospitalizations. Across these RCTs, improvements were consistently observed in self-care maintenance, symptom recognition, and QoL (Jaarsma et al., 2021). Four quasi-experimental studies added real-world insights where strict randomization was not feasible, and one single-group pilot trial highlighted the feasibility of technology-assisted care models (Inglis et al., 2023). Despite methodological diversity, the convergence of positive outcomes across all designs strengthens confidence in the effectiveness and adaptability of nurse-led interventions. These findings underscore current recommendations to combine pragmatic RCTs with implementation-focused designs to support large-scale adoption of evidence-based nursing strategies in HF management (Sokoreli et al., 2022).

The diverse measurement tools used across the fifteen studies highlight both the strengths and limitations of current approaches to evaluating self-care and QoL in HF. The MLHFQ is the most common, reflecting its sensitivity to HF specific symptoms and functional limitations and continuing to be regarded as a gold standard for disease-specific QoL assessment (Jaarsma et al., 2021). The KCCQ, used in several studies, offers a broader assessment of physical limitation and social functioning and is recognized for its ability to predict hospitalization and mortality. Generic instruments such as the SF-36 enable comparison with other chronic conditions, an advantage highlighted in recent comparative reviews (Kessing et al., 2022). The frequent application of the SCHFI reflects growing recognition that self-care behaviors directly influence QoL outcomes (Sokoreli et al., 2022). Less frequently used tools, including the EHFScBS and the HADS, provided complementary insights into knowledge and emotional well-being. Collectively, these findings reinforce current recommendations for a core outcome set that integrates disease-specific, generic, and psychosocial measures to strengthen comparability and meta-analytic synthesis in HF self-care research (Inglis et al., 2023).

This review highlights a global move toward multifaceted, patient-centered strategies for HF management through diverse nurse-led interventions. Education-focused programs that combined individualized teaching with scheduled follow-ups align with evidence that structured education and reinforcement improve self-care and reduce readmissions (Kessing et al., 2022). Interventions using motivational interviewing or self-determination–based coaching support findings that behavioral counseling strengthens self-efficacy and treatment adherence. Transitional-care models blending predischarge education with home visits and phone surveillance reflect studies showing reduced 30-day readmissions and better quality of life (Inglis et al., 2023). Technology-enabled approaches, including telemonitoring, smartphone apps, and decision-support systems, are backed by meta-analyses demonstrating timely feedback and improved symptom recognition. Longer, multi-component programs with continuous monitoring and behavioral coaching provided the most sustained benefits, emphasizing the importance of duration and intensity (Sokoreli et al., 2022). Overall, these interventions demonstrate that nurses play a critical role in delivering adaptable, effective self-care support that bridges hospital and home care to enhance long-term outcomes.

6.0 Conclusion& Recommendations

This scoping review shows that nurse-led self-care interventions significantly improve outcomes for individuals with HF. Across fifteen studies including randomised controlled trials, quasi-experimental designs, and pilot studies, interventions consistently enhanced self-care maintenance, symptom recognition, and QoL. Programmes ranged from structured education and behavioural coaching to transitional care and technology-enabled approaches, highlighting the versatility of nurse-led self-care intervention in various healthcare settings. Validated instruments tracked important behavioural changes. Collectively, these findings emphasise the vital role of nurses as primary facilitators of patient education, ongoing monitoring, and early intervention, linking hospital and community care to achieve lasting benefits in HF management. Healthcare systems should incorporate standardised, multi-component nurse-led self-care programmes into routine HF management. However, this study has several limitations. As a scoping review, it focused on mapping and summarising published literature rather than conducting a detailed critical appraisal or meta-analysis. Despite a comprehensive search strategy, some relevant studies may have been missed due to inconsistent terminology or indexing across databases. Additionally, the inclusion of only English-language publications may have excluded relevant non-English studies, potentially limiting the generalisability of the findings. Future research ought to establish standardised protocols, adopt core outcome sets, and include longer follow-up to assess sustainability and support large-scale implementation of these evidence-based care models.

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Paper Contribution to the Related Field of Study

The findings of this scoping review highlight effective program designs, validated outcome measures, and practical implementation strategies, offering guidance for clinical practice and future research aimed at improving patient self-care and QoL.

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