

IMPLEMENTATION OF THE KANSAS CITY CARDIOMYOPATHY QUESTIONNAIRE
(KCCQ-12) IN HOME BASED PROGRAM FOR HEART FAILURE VETERANS

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Abstract

Purpose: To implement the Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) within a home-based acute care program to standardize the assessment of heart failure (HF) symptoms, enhance symptom management, and improve health-related quality of life (HRQoL).

Background and Significance: Heart failure is a leading cause of hospitalization among older adults, with 30-day readmission rates as high as 26.9% (Nair et al., 2020). Currently, the program lacks a validated tool for evaluating HF symptoms, potentially leading to inconsistent assessments and missed opportunities for timely intervention (Albarrati et al., 2023).

Intervention and Implementation Plan: The KCCQ-12 was administered at admission by the project manager and at discharge by Registered Nurses (RNs). Staff received training to ensure consistency in administration, and scores were documented using existing Computerized Patient Record System (CPRS) note structures to support accurate and reliable data collection.

Results and Implications: The results demonstrated a consistent improvement in KCCQ-12 scores from admission to discharge, indicating enhanced symptom management and health-related quality of life (HRQoL) among participants. Final outcomes supported the value of implementing the KCCQ-12 as a standardized tool in home-based geriatric care, reinforcing its potential to guide clinical decision-making and improve patient-centered outcomes. These findings may support broader adoption of structured assessment tools in similar care settings to optimize care delivery and reduce healthcare burden.

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Chapter 1

Introduction to the Project

Problem

A home-based acute care services provider offers geriatric veterans an alternative to traditional hospitalizations by delivering acute care management in their homes. While this program successfully manages various conditions, such as heart failure (HF), chronic obstructive pulmonary disease (COPD), community-acquired pneumonia (CAP), and cellulitis, it currently lacks a standardized tool to assess and monitor heart failure symptoms. In the absence of such a tool, symptom assessment relies on clinician judgment, patient self-reports, and general observation, which may not capture detailed insights into health-related quality of life (HRQoL) or symptom burden.

Given the rising prevalence of heart failure among the geriatric population and its significant impact on patient outcomes (Bozkurt et al., 2024; Sandhu et al., 2022), it became evident that there was a critical need for a standardized assessment tool to enhance heart failure management in this setting. This clinical inquiry led to the question: Can a standardized tool improve heart failure management, decrease hospital admissions, and support the home-based acute care management of this particular population?

Significance

Heart failure (HF) is a significant public health concern, especially among geriatric populations. Globally, approximately 64.3 million people are affected by HF (Bozkurt et al., 2024). In the United States, nearly 6.7 million adults aged 20 years or older have HF, with projections suggesting this number will rise to 8.7 million by 2030, 10.3 million by 2040, and 11.4 million by 2050 (Bozkurt et al., 2024). In Hawaii, 21.1% of the population is aged 65 or

older, and 8.5% of the state's residents are veterans, both figures exceeding national averages (Hawaii Health Matters, 2024). Veterans aged 65 and older are particularly vulnerable, managing multiple chronic conditions such as diabetes and COPD, which further complicate care (Pelizzari et al., 2022). Recent studies report that the proportion of individuals with HF experiencing three or more comorbidities increased from 68% in 2002–2004 to 87% in 2012–2014 (Sandhu et al., 2022). Additionally, research by Pelizzari et al. (2022) identified an upward trend in age-adjusted HF admission rates within a Federally Funded Healthcare System. Their analysis of 304,374 HF hospital admissions between 2007 and 2017 revealed that while 30-day readmission rates declined, mortality rates remained stable, highlighting ongoing challenges in HF management among veterans. Similarly, Brownell et al. (2023) noted that HF is a leading cause of hospitalization within the Federally Funded Healthcare System, with age-adjusted HF admission rates continuing to rise. These findings highlight the pressing need for targeted interventions and management strategies tailored to the unique needs of the veteran population.

Purpose and Aim

The purpose of this Doctor of Nursing Practice (DNP) project was to implement the Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) within a home-based acute care program to standardize the assessment of heart failure (HF) symptoms. The overall aim of the project was to enhance symptom management and improve health-related quality of life (HRQoL) in geriatric veterans with heart failure.

Operational Definitions

The following terms were used throughout the project and operationally defined as follows:

Heart Failure (HF): A chronic, progressive condition in which the heart is unable to pump sufficient blood to meet the body's needs.

Health-Related Quality of Life (HRQoL): A patient's perceived physical and mental health over time as influenced by medical conditions and treatments.

Home-Based Acute Care Services Program: A healthcare delivery model providing hospital-level care in the patient's home, including skilled nursing, IV therapy, and disease management.

Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12): A 12-item validated patient-reported outcome measure that assesses physical limitation, symptom frequency, quality of life, and social limitation in individuals with HF. A copy of the KCCQ-12 is provided in Appendix A.

Background

National Heart Failure Statistics

Heart failure is a growing burden on healthcare systems globally and nationally, with significant increases projected over the next few decades. This makes standardization of assessment practices more urgent than ever (Bozkurt et al., 2024).

Veteran Population and Heart Failure Burden

Veterans are disproportionately affected by HF due to age, comorbidities, and service-related health challenges. HF remains a leading cause of hospitalizations in this population (Brownell et al., 2023; Pelizzari et al., 2022).

Lack of Standardized Assessment

The absence of a standardized tool in the current program contributes to variability in clinical evaluations, potentially leading to missed or delayed interventions. Subjective assessments may overlook nuanced aspects of symptom burden and HRQoL.

Value of the KCCQ-12

The KCCQ-12 is a validated tool recommended by national guidelines. It allows for structured evaluation of HF symptoms and supports evidence-based, individualized patient care (Spertus et al., 2020).

Clinical Questions

Based on the identified gap in standardized HF assessment, this project posed the following clinical question: In geriatric patients with heart failure, what is the impact of implementing the Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) compared to the current practice on symptom management and health status within 8–10 weeks?

Summary

Chapter 1 introduced the clinical issue of lacking a standardized assessment tool for heart failure within a home-based acute care program serving geriatric veterans. Although the program effectively addresses a range of acute conditions, the absence of a consistent method for evaluating heart failure symptoms has led to variability in care and limited insight into patients' health-related quality of life (HRQoL). The chapter highlighted the increasing burden of heart failure among older veterans, the challenges posed by multiple chronic comorbidities, and the growing demand for high-quality, community-based care models. In response to this gap, the project focused on implementing the Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) as a validated, structured tool to enhance symptom assessment and guide individualized care.

The purpose and aim of the project were defined, operational terms were clarified, and the guiding clinical question was introduced. Together, these elements established the rationale for integrating the KCCQ-12 into routine practice to strengthen heart failure management in a vulnerable population.

Chapter 2

Literature Review

Introduction

Heart failure (HF) is a leading cause of morbidity and mortality in older adults, particularly among geriatric patients who often experience multiple comorbidities, such as chronic obstructive pulmonary disease (COPD) and diabetes (Bozkurt et al., 2024). Effective management of HF requires comprehensive assessment tools to monitor symptoms, evaluate health status, and guide treatment. Within a home-based acute care services program, geriatric veterans receive acute care management in their homes, providing an alternative to traditional hospitalizations. However, this program currently lacks a standardized tool to assess and monitor HF symptoms comprehensively. This gap in care limits the ability to effectively track patients' health-related quality of life (HRQoL) and symptom burden, potentially compromising the quality of care provided.

The Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) has emerged as a validated, patient-reported health status instrument, offering a reliable method for assessing heart failure symptoms and health-related quality of life (HRQoL). Recommended by the American College of Cardiology (ACC) and the American Heart Association (AHA) in their 2022 clinical practice guidelines, the KCCQ-12 supports evidence-based practice goals by enhancing chronic disease management through patient-centered care (Heidenreich et al., 2022). Furthermore, the Centers for Medicare & Medicaid Services (CMS) have incorporated heart failure patient-reported health status as a quality metric, highlighting the importance of tools like the KCCQ-12 in clinical practice (Heidenreich et al., 2022). These endorsements reflect a growing emphasis on standardized, patient-centered approaches in chronic disease management.

This chapter reviews the evidence supporting the implementation of the KCCQ-12 within a home-based acute care services program. The literature review examines the tool's clinical utility, prognostic value, reliability, and applicability to geriatric populations. Additionally, it addresses the theoretical framework guiding the project and considerations for implementing this evidence-based practice change. The synthesis of evidence will demonstrate how integrating the KCCQ-12 can enhance heart failure management and improve patient outcomes within this care model.

Methodology

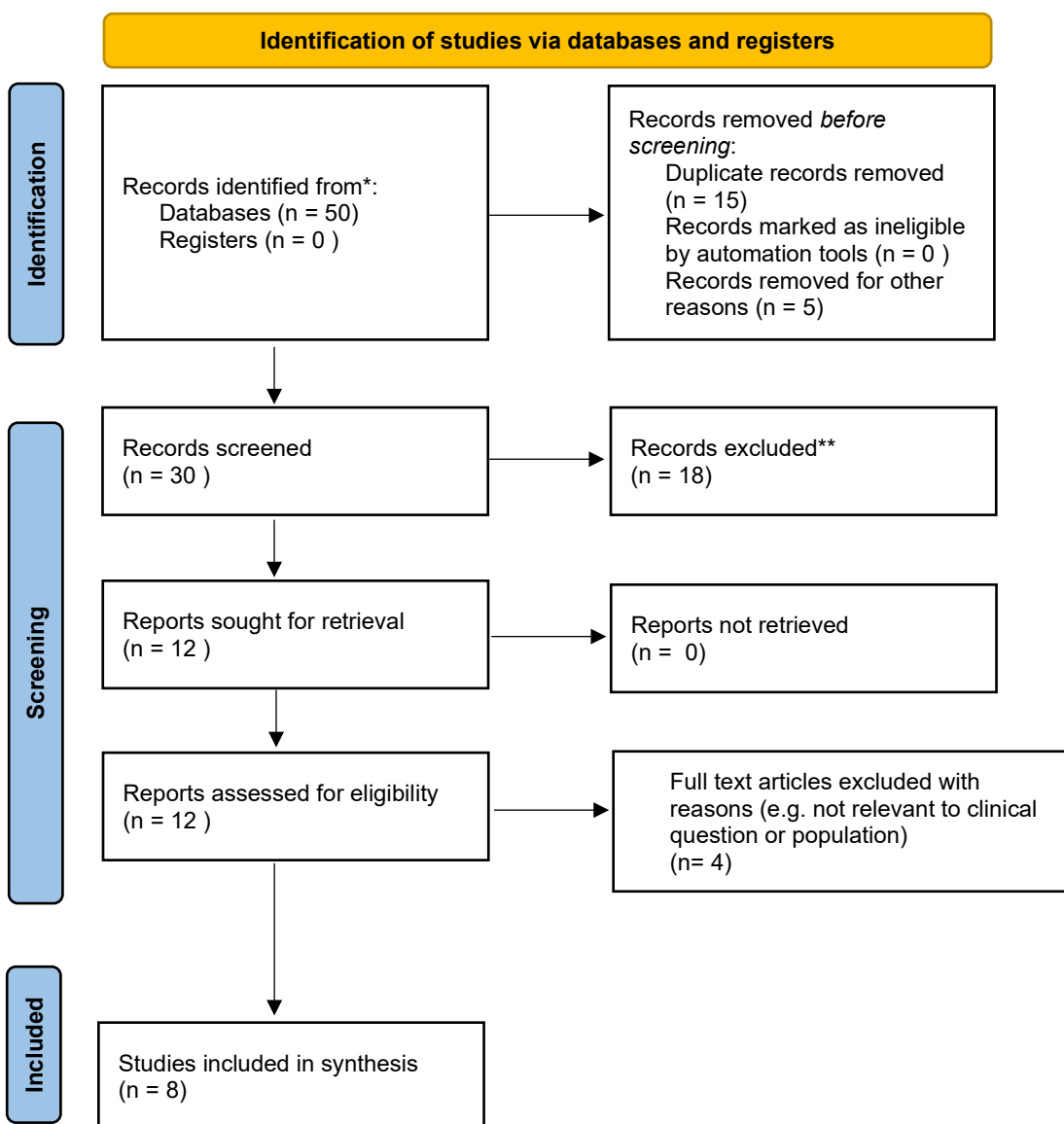
A systematic search was conducted to identify recent, high-quality literature supporting the implementation of the Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) for improving heart failure management in a home-based acute care services program. Databases such as PubMed, CINAHL, and Google Scholar were utilized to locate relevant studies. Search terms included “Kansas City Cardiomyopathy Questionnaire,” “KCCQ-12,” “heart failure management,” “patient-reported outcomes,” and “geriatric populations.” Boolean operators (e.g., AND, OR) were employed to refine the search strategy and focus on specific topics of interest. The inclusion criteria were studies published within the last five years, written in English, and addressing the clinical utility, reliability, or implementation of the KCCQ-12 in heart failure care. Articles were excluded if they were older than five years, non-peer-reviewed, or focused on unrelated populations, such as pediatric or non-cardiac patient groups.

The search initially identified 50 articles. After removing 20 duplicates, 30 unique records were screened based on title and abstract. Of these, 18 articles were excluded for not meeting the inclusion criteria, leaving 12 for full-text review. Following the full-text review, four articles were excluded due to lack of relevance to the clinical question or population, resulting in

the inclusion of eight articles. These eight articles provided evidence supporting the clinical utility, reliability, population relevance, and implementation of the KCCQ-12 in heart failure management. The search and selection process is summarized in the PRISMA flow diagram (Figure 1).

Figure 1

PRISMA Flow Diagram



Note. This diagram outlines the study selection process for identifying evidence supporting the use of the KCCQ-12 in heart failure management

Findings

National Heart Failure Statistics and Need for Standardized Assessment

Heart failure (HF) is a leading cause of morbidity and mortality in older adults, with projections indicating a significant increase in prevalence over the coming decades. In the United States, an estimated 6.7 million adults are currently living with HF, and this number is expected to reach 8.7 million by 2030 and over 11 million by 2050 (Bozkurt et al., 2024). These trends highlight the growing burden on healthcare systems and the need for scalable, efficient models of care delivery, especially for vulnerable populations such as older adults and veterans.

Effective HF management relies on timely, accurate assessment of symptoms to guide clinical decision-making. However, many care settings, including home-based acute care programs, lack standardized tools for evaluating symptom burden and health-related quality of life (HRQoL). The absence of such tools leads to variability in provider assessments and may delay necessary interventions.

The Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) has emerged as a validated patient-reported outcome (PRO) tool that addresses this gap. National clinical guidelines issued by the American College of Cardiology (ACC) and the American Heart Association (AHA) recommend integrating PRO measures like the KCCQ-12 into routine HF care (Kalwani et al., 2023; Heidenreich et al., 2022). These endorsements reflect the broader shift toward patient-centered care and emphasize the importance of standardized symptom monitoring in improving clinical outcomes.

Veteran Population and Heart Failure Burden

Veterans experience disproportionately high rates of HF due to advanced age, multiple chronic comorbidities, and service-related health conditions (Pelizzari et al., 2022; Brownell et

al., 2023). The complexity of managing HF in this population is further compounded by multimorbidity; for example, nearly 87% of individuals with HF have three or more chronic conditions, increasing the risk of exacerbation and complicating care management (Sandhu et al., 2022). In a large-scale analysis of HF hospitalizations within the Federally Funded Healthcare System, Brownell et al. (2023) reported that HF remains one of the leading causes of hospitalization among veterans, with age-adjusted admission rates continuing to rise. These findings reflect persistent challenges in outpatient management and emphasize the urgent need for targeted, veteran-specific interventions to reduce disease burden and improve outcomes in non-traditional care settings like home-based services.

Given these trends, implementing a standardized tool such as the KCCQ-12 offers an opportunity to improve symptom tracking, facilitate timely interventions, and guide individualized care for this vulnerable and growing population.

Clinical Utility and Value of the KCCQ-12

Patient-Reported Outcomes and Clinical Utility. Kalwani et al. (2023) provided strong evidence supporting the inclusion of the KCCQ-12 in HF management, noting its Class 2A endorsement by the ACC/AHA. The tool enhances symptom tracking by allowing patients to report their own experiences of physical limitation, fatigue, and social engagement, key domains often underassessed in clinical practice. This is particularly relevant in home-based programs, where patients may not have continuous provider interaction.

Reliability and Feasibility. Albarrati et al. (2023) confirmed the psychometric strength of the KCCQ-12, citing excellent internal consistency (Cronbach's alpha = 0.97) and high test-retest reliability (ICC = 0.95). The tool's brevity, clarity, and ease of administration make it ideal

for geriatric patients, who may be prone to cognitive or physical fatigue during longer assessments.

Improving Individualized Care. The KCCQ-12 supports personalized care through improved communication between patients and clinicians. Sandhu et al. (2022) reported that incorporating the tool into clinical encounters promotes shared decision-making and facilitates timely adjustments in care plans. Standardized administration protocols, as proposed by Kalwani et al. (2023), help integrate the KCCQ-12 into routine workflows, minimize data variability, and ensure consistency across providers.

Prognostic Value and Risk Stratification. Hu et al. (2021) demonstrated the tool's prognostic value by linking lower KCCQ-12 scores with increased risk for hospitalization and mortality. This makes the tool not only a measure of current status but also a critical predictor for future health events. Identifying at-risk patients earlier allows clinicians to intervene proactively, an essential feature in geriatric care, where timely response can prevent significant decline.

Alignment with National Standards

Multiple studies (Kalwani et al., 2023; Sandhu et al., 2022) emphasize that the KCCQ-12 meets national heart failure (HF) care quality benchmarks established by organizations such as the Centers for Medicare & Medicaid Services (CMS). Its integration into clinical practice supports value-based care initiatives and promotes consistent documentation, patient engagement, and outcome tracking. Albarrati et al. (2023) further demonstrated that the KCCQ-12 correlates strongly with established tools like the Minnesota Living with Heart Failure Questionnaire and the six-minute walk test, reinforcing its validity while offering improved ease of use in clinical settings.

The synthesis of evidence demonstrates the KCCQ-12's capacity to improve heart failure management through enhanced symptom tracking, individualized care, and risk stratification. By addressing a critical gap in symptom monitoring, the implementation of the KCCQ-12 aligns with national guidelines and evidence-based practices, offering a structured approach to optimizing care for geriatric veterans with heart failure. These findings collectively support the tool's integration into home-based acute care programs, where it has the potential to improve patient outcomes and quality of care. See Appendix B for a summary of the critically appraised articles supporting this evidence.

Theoretical Framework

The Iowa Model of Evidence-Based Practice was selected as the framework for this project because of its structured, systematic approach to integrating research findings into clinical practice. Originally developed in the 1990s by Marita Titler and colleagues at the University of Iowa, the model was revised and validated in 2017 by Buckwalter et al. to reflect contemporary healthcare challenges and the evolving role of evidence-based practice in improving patient outcomes (Buckwalter et al., 2017; Titler et al., 2001). The revised model emphasizes the importance of stakeholder engagement, sustainability, and the integration of evidence into clinical workflows. These principles make it highly applicable to this project, as they align with the goals of implementing the KCCQ-12 within a home-based acute care services program. The Iowa Model emphasizes the importance of identifying clinical problems, reviewing existing evidence, engaging stakeholders, and implementing sustainable changes, making it highly relevant to this project.

Steps of the Iowa Model

The Iowa Model follows a stepwise process that supports systematic practice change:

1. **Identifying a Trigger or Clinical Problem:** The process begins with identifying a clinical trigger, either from new research findings or a recognized problem in practice. In this project, the trigger is the absence of a standardized tool to assess and monitor heart failure symptoms in the home-based acute care program. This gap limits the ability to track patient progress, evaluate health-related quality of life (HRQoL), and facilitate timely interventions.
2. **Reviewing and Synthesizing Evidence:** The next step involves reviewing existing evidence to determine if a practice change is warranted. In this case, extensive literature supports the KCCQ-12 as a reliable, validated, and clinically useful tool for symptom monitoring and individualized care planning.
3. **Engaging Stakeholders:** Successful implementation relies on the engagement of key stakeholders. For this project, stakeholders include registered nurses, social workers, and program leadership within the home-based acute care program. Engaging these stakeholders ensures alignment with organizational goals and fosters collaboration.
4. **Designing and Conducting a Pilot Test:** The model encourages pilot testing to evaluate the feasibility and effectiveness of the proposed change. This project includes a pilot implementation of the KCCQ-12 within the program to assess its impact on patient outcomes, workflow integration, and clinician satisfaction.
5. **Integrating and Sustaining the Change:** The final step focuses on sustaining the practice change by embedding it into clinical workflows. This project aims to integrate the KCCQ-12 into the organization's electronic health record (EHR) system, ensuring its ongoing use and supporting continuous monitoring and improvement in heart failure management.

Application of the Iowa Model

Applying the Iowa Model provides a systematic approach to addressing the identified gap in heart failure management. By beginning with a clearly defined problem, the absence of a standardized assessment tool, and progressing through evidence review, stakeholder engagement, pilot testing, and sustainability planning, this project ensures an evidence-based process for practice change. The inclusion of the KCCQ-12 aligns with the goals of delivering high-quality, individualized care to geriatric veterans.

Summary

The comprehensive analysis and synthesis of the evidence supported the use of the Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) in the management of heart failure, with a focus on its relevance to home-based care for geriatric veterans. The literature review emphasized the tool's clinical utility, reliability, prognostic value, and alignment with national guidelines. Studies highlighted the KCCQ-12's ability to improve symptom tracking, enhance clinician-patient communication, and support individualized care planning. The methodological approach to identifying high-quality, peer-reviewed research ensured that the evidence reviewed was current and applicable to the project's objectives.

The Iowa Model of Evidence-Based Practice was identified as the theoretical framework guiding the project. Its structured, stepwise approach, including identifying clinical triggers, synthesizing evidence, engaging stakeholders, pilot testing, and planning for sustainability, provides a solid foundation for implementing the KCCQ-12 within an existing home-based acute care program. The model's emphasis on clinical relevance, staff engagement, and long-term integration aligns well with the goals of this practice change.

Together, the literature and theoretical framework establish a strong justification for integrating the KCCQ-12 into routine care for geriatric veterans with heart failure.

Chapter 3

Methods

Introduction

This chapter provides a detailed overview of the methods used to implement and evaluate the Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) in a home-based acute care program for geriatric veterans with heart failure. The structured methodology was designed to align with evidence-based practice principles, ensuring the feasibility, rigor, and clinical relevance of the project. Key elements of this chapter include a comprehensive description of the project design, sample and setting, data collection instruments, procedures for implementation, analysis plan, resource considerations, and project timeline. Each section aims to support the systematic integration of the KCCQ-12 into routine clinical workflows while emphasizing quality improvement within a real-world healthcare environment.

Project Design

This quality improvement (QI) initiative employed a pre- and post-intervention design to assess the impact of implementing the KCCQ-12 as a standardized tool for monitoring symptoms and health-related quality of life (HRQoL) in veterans diagnosed with heart failure. The design allowed for comparison of patient-reported outcomes at two critical points in the care continuum—program admission and discharge. This design was selected for its practicality in real-time clinical environments and its ability to generate meaningful, actionable data without disrupting existing care processes. The project emphasized integration into clinical workflows, minimizing staff burden while maximizing the potential for sustained impact on patient care.

Sample and Setting

The project was conducted within a Federally Funded Healthcare System's home-based acute care services program, which provides hospital-level care to veterans in the comfort and safety of their own homes. This innovative program supports timely transitions from inpatient to home settings, with the goal of reducing complications and enhancing quality of life. The patient population is predominantly composed of older veterans with multiple chronic illnesses, including heart failure, COPD, diabetes, and hypertension.

A convenience sample of approximately 15–20 participants was anticipated, based on current program census and referral trends. Inclusion criteria required participants to be veterans aged 65 years or older with a documented diagnosis of heart failure, actively enrolled in the home-based acute care program, and capable of providing informed consent or having a legally authorized representative. Exclusion criteria included veterans receiving hospice or palliative care, individuals with significant cognitive impairment limiting their ability to complete the KCCQ-12, and those with terminal illnesses unrelated to heart failure. The selected sample allowed for pragmatic evaluation of the intervention in a high-risk, real-world population.

Protection of Human Subjects

In adherence to ethical standards for quality improvement initiatives, this project received prior approval from both the project site and the university's IRB Committee (Appendix C). The university's IRB screening tool was used to determine project classification, and the initiative was deemed to meet criteria for QI status. Participants were informed of the project's intent as part of routine care practices. No formal informed consent was required or obtained.

No personally identifiable information was collected. All data were de-identified and stored securely within the Federally Funded Healthcare System's Computerized Patient Record

System (CPRS), with access restricted to the project team. The KCCQ-12 was administered solely for clinical improvement purposes, and no additional risk was introduced to participants. This ethical approach ensured participant privacy and safety while supporting meaningful improvements in care delivery.

Data Collection Instruments

Demographic Survey

To contextualize patient characteristics and enhance interpretation of results, a brief demographic survey was conducted at admission. The survey captured age group, gender, and relevant comorbidities such as COPD, hypertension, and diabetes. These data were used to describe the patient population and support subgroup comparisons if relevant.

Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12)

The KCCQ-12 is a widely endorsed, disease-specific, patient-reported outcome instrument developed to evaluate physical function, symptom frequency, social limitation, and quality of life in individuals with heart failure (Spertus et al., 2020). Its concise 12-item format allows for rapid administration while preserving psychometric rigor. Albarrati et al. (2023) demonstrated excellent internal consistency (Cronbach's alpha = 0.97) and strong test-retest reliability (ICC = 0.95), establishing the KCCQ-12's validity across diverse patient populations, including older adults. For this project, the KCCQ-12 was administered at two time points: during the initial home admission visit and again at discharge from the program. The tool was verbally administered by the provider and used to guide clinical decision-making in conjunction with other clinical data. Although a standardized CPRS note template was initially planned to facilitate documentation, it was not implemented due to permission requirements. The electronic health record system requires formal approval from the KCCQ-12 tool's owner before

integration. Despite outreach to obtain authorization, no response was received, and the Clinical Applications Coordinator (CAC) team was unable to move forward with template creation. This limitation is discussed further in Chapter 5. As a result, providers documented responses manually within the existing note structure in CPRS.

Data Collection Procedures

Implementation of the KCCQ-12 began with staff training. Educational sessions were conducted to introduce the purpose, administration, and interpretation of the tool.

Interdisciplinary team members, including nurses and social workers, were included in the training to promote team-wide adoption and consistency.

Following training, the KCCQ-12 was integrated into the program's admission and discharge protocols. Patients meeting inclusion criteria were asked to complete the tool with assistance from the provider. Documentation of responses occurred in the providers' narrative notes using the standard CPRS documentation format, as a dedicated template was not available. Scores were reviewed and shared with the clinical team during interdisciplinary huddles. Results were used to inform care plans, highlight changes in symptom burden, and support goal setting with patients. Any challenges encountered during implementation were discussed during weekly team meetings to identify and address barriers in real time.

Data Analysis

Data analysis was performed using descriptive statistics. Frequencies and percentages were used to summarize demographic characteristics. KCCQ-12 scores were calculated for each of the four domains as well as for the overall summary score. Change in scores from admission to discharge was evaluated using percent difference and visual comparison methods. While

statistical testing was not conducted due to the small sample size and QI designation, attention was paid to clinical significance and patterns of change.

The primary outcome of interest was improvement in overall KCCQ-12 scores from admission to discharge. Secondary observations included trends in individual domains such as symptom frequency and quality of life. These insights were used to assess the feasibility of implementing the KCCQ-12 in a home-based care setting and to inform future scalability.

Resources and Budget Considerations

This project was designed for low-cost implementation using existing infrastructure and resources. The KCCQ-12 is publicly available for use in non-commercial clinical settings and required no licensing fees. Staff training was embedded into existing team meetings, and no additional personnel were required.

Materials needed for the project were minimal and included printed reference guides and internal handouts to support clinical use. Although a CPRS template was initially considered to support standardization of documentation, it was not developed due to licensing limitations, as explained previously. Instead, providers utilized existing narrative documentation formats within CPRS. The time required to administer the KCCQ-12 was brief, estimated at five to seven minutes per patient, and was integrated into routine assessment protocols. This resource-conscious approach supports long-term sustainability without significant financial burden.

Project Timeline

The project followed a structured, phased timeline spanning proposal development, implementation, and dissemination. Initial activities included stakeholder engagement, IRB approval, and staff education. Implementation occurred over a 10-week period, during which the KCCQ-12 was administered at admission and discharge visits. Ongoing staff feedback was

gathered throughout the process to assess feasibility and workflow integration. The final weeks were dedicated to data analysis, synthesis of findings, and preparation of project deliverables. A detailed overview of the project timeline is presented in Table 1.

Table 1

Project Timeline

Component	Projected Completion Date
Project Proposal Defense	November 2024
Institutional Review Board Approval	December 2024
Recruitment	January 2025
Delivery of Educational Sessions	January 2025
Data Analysis	February 2025
Write-up of results and discussions	March - April 2025
Final Project Presentation	May 2025

Note. Timeline reflects major project phases from proposal through final presentation.

Summary

The chapter outlined the project's pre- and post-intervention design, sample selection criteria, and setting within a Federally Funded Healthcare System. It also described the data collection instruments, including the demographic survey and KCCQ-12 tool, along with specific implementation procedures such as staff training and integration into clinical workflows.

Although a CPRS template for documentation was initially planned, it was not implemented due to licensing restrictions, and providers used existing note structures instead. The data analysis plan emphasized descriptive statistics and visual comparisons to evaluate clinical significance.

Resource and budget considerations demonstrated the project's feasibility and sustainability within an existing care model. Lastly, the project timeline illustrated a structured and sequential approach to execution. These components collectively supported a rigorous and pragmatic foundation for evaluating the effectiveness of the KCCQ-12.

Chapter 4

Results

Introduction

The project was implemented over 10 weeks including education and recruitment, and with an intervention implementation (the KCCQ-12) of 8 weeks. The central objective was to evaluate whether structured use of the KCCQ-12 supported improved symptom management and enhanced health-related quality of life (HRQoL). The KCCQ-12 was administered at both admission and discharge, allowing clinicians to tailor individualized care plans, optimize interventions, and measure outcome trajectories over time.

Throughout the project intervention period, participants received regular home visits from providers trained in the use of the KCCQ-12. The initial assessment served not only as a clinical snapshot but as a foundation for personalized interventions. Though formally administered at only two time points, the four domains, physical limitation, symptom frequency, quality of life, and social limitation, were used to frame care conversations throughout the patient's course. Clinicians consulted the tool to guide medication adjustments, reinforce heart failure education, and prioritize care needs during each home visit. For example, a participant with poor scores in physical limitation was assisted with activity pacing and monitored closely for signs of fatigue and exertional dyspnea. Others with elevated symptom frequency benefited from targeted diuretic titration and sleep positioning strategies. Team huddles included discussions about how evolving KCCQ-12 responses reflected patient engagement and progress, encouraging a shared mental model among interdisciplinary staff.

In this way, the tool became more than a questionnaire, it functioned as a clinical compass. By discharge, the second administration of the KCCQ-12 provided tangible evidence

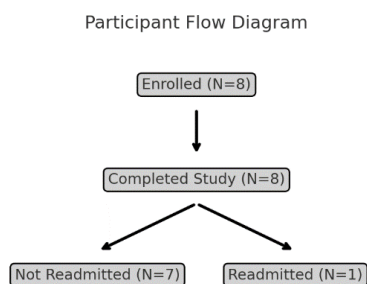
of improvement for patients and providers alike, reinforcing the value of structured, patient-centered symptom tracking.

Demographics

Eight male participants were enrolled in the project, all of whom completed the intervention, yielding a 100% retention and response rate. The average age was 74.9 years, with a range from 65 to 93 years. One participant (12.5%) was readmitted to the hospital during the project period, while seven participants (87.5%) remained stable in the home-based program. (Figure 2). No participant withdrawals occurred. Recruitment occurred during routine visits, and informed consent was obtained for all participants.

Figure 2

Participant Flow Diagram



Note. This figure illustrates the progression of participants through the study, from enrollment to study completion and readmission status.

The KCCQ-12 was administered at two standardized time points, baseline (admission) and discharge, ensuring complete paired data collection. All participants were informed of the project's purpose, and informed consent was obtained prior to survey administration. Since each participant completed both assessments, the response rate was 100%, allowing for comprehensive outcome evaluation.

Findings

The KCCQ-12 evaluates heart failure impact across four domains: physical limitation (e.g., walking or climbing stairs), symptom frequency (e.g., shortness of breath or fatigue), quality of life (emotional impact and satisfaction with health), and social limitation (participation in social roles or activities).

Data Analysis Procedures

The data analysis followed the plan outlined in Chapter 3, with no modifications necessary. The quantitative data collected through the KCCQ-12 assessments at baseline and discharge were analyzed to evaluate changes in symptom burden, physical limitations, quality of life, and social limitations. Descriptive statistics summarized the data, while a paired t-test was used to determine statistical significance. Cohen's *d* was calculated to assess the effect size, and a 95% confidence interval was computed to establish the precision of the mean difference estimate.

To verify that the assumptions for parametric testing were met, a Shapiro-Wilk test was used to assess the normality of the score change distribution. This test is a widely used method for determining whether a dataset is normally distributed. It evaluates whether the data follows a bell-shaped curve, which is an important assumption for applying the paired t-test. A result with a p-value greater than .05 suggests that the data do not significantly deviate from a normal distribution (González-Estrada et al., 2022). Since the same participants were assessed at both time points, the paired t-test was an appropriate statistical method.

KCCQ-12 Scores

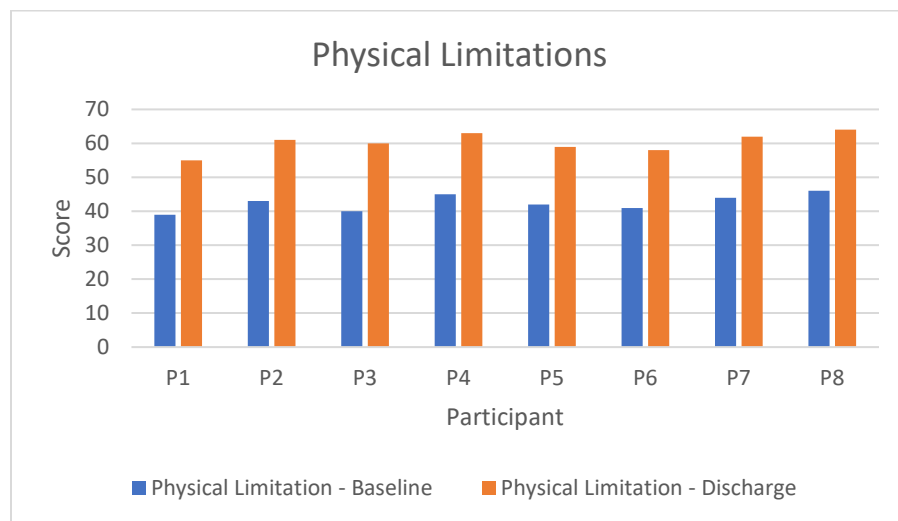
The KCCQ-12 scores demonstrated consistent improvement across all domains from admission to discharge. Participants experienced a mean overall increase of 16.88 points,

indicating clinically significant gains in symptom burden, physical limitation, quality of life, and social functioning. A paired t-test confirmed this change was statistically significant ($t = -8.58$, $p = .0001$), and the effect size (Cohen's $d = 1.85$) reflected a large and meaningful impact. The 95% confidence interval for the mean difference ranged from 15.00 to 20.75, reinforcing the precision of these results. A summary of the statistical analysis is provided in Appendix D, including mean scores at admission and discharge, score distribution, score changes, and descriptive statistics for baseline and discharge scores.

Finding: Physical Limitation Domain

Baseline scores for physical limitation averaged 42.5, increasing to 60.3 by discharge, with a mean improvement of 17.75 points. Participants reported improved mobility and reduced fatigue during activities of daily living. This domain showed substantial clinical benefit in physical function, supporting greater independence and tolerance for daily tasks (Figure 3).

Figure 3
Physical Limitation Scores by Participant



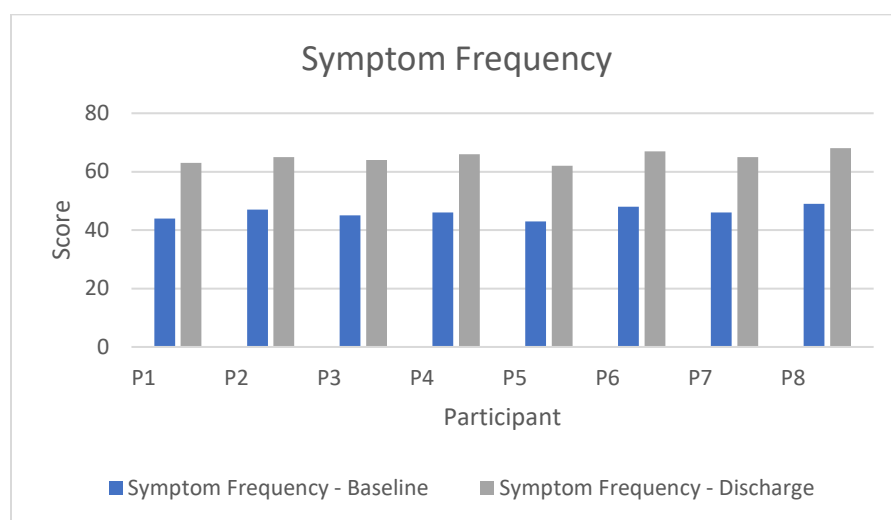
Note. Individual participant scores at baseline and discharge in the Physical Limitation domain of the KCCQ-12. Higher scores indicate better physical functioning and reduced activity-related limitations.

Finding: Symptom Frequency Domain

Symptom frequency scores improved from an average of 46.0 at baseline to 65.0 at discharge, showing a mean increase of 19.0 points. Participants reported fewer episodes of dyspnea, orthopnea, and nighttime symptoms. These results suggest improved symptom tracking and management over the course of the intervention (Figure 4).

Figure 4

Symptom Frequency Scores by Participant

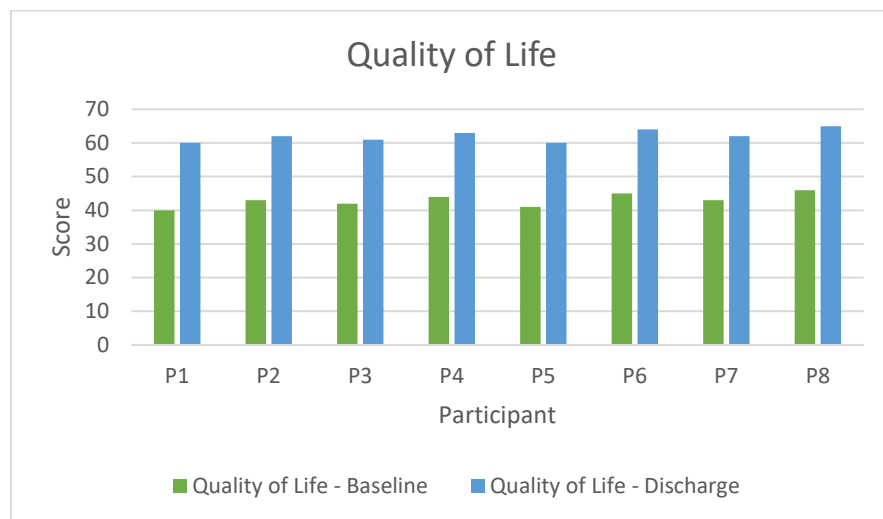


Note. Individual participant scores at baseline and discharge in the Symptom Frequency domain of the KCCQ-12. Higher scores reflect fewer and less frequent heart failure symptoms such as dyspnea and fatigue.

Finding: Quality of Life Domain

Quality of life scores rose from a baseline average of 43.0 to 62.1 at discharge, with a 19.12-point mean improvement (Figure 5). Participants expressed a greater sense of control and confidence in managing their condition. This reflects a notable increase in perceived well-being and emotional adaptation to heart failure.

Figure 5
Quality of Life Scores by Participant



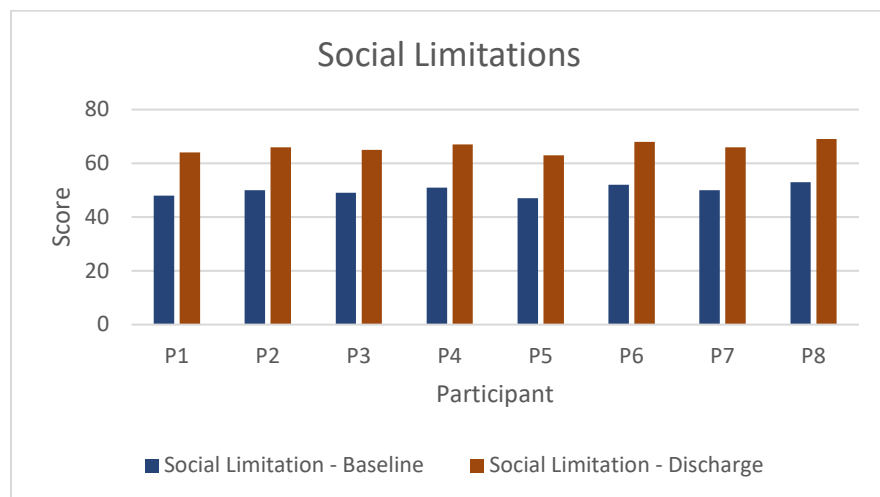
Note. Individual participant scores at baseline and discharge in the Quality of Life domain of the KCCQ-12. Higher scores represent improved emotional well-being and satisfaction with health status.

Finding: Social Limitation Domain

Scores in this domain improved from 50.0 to 66.0, reflecting a 16.0-point increase.

Figure 6

Social Limitation Scores by Participant



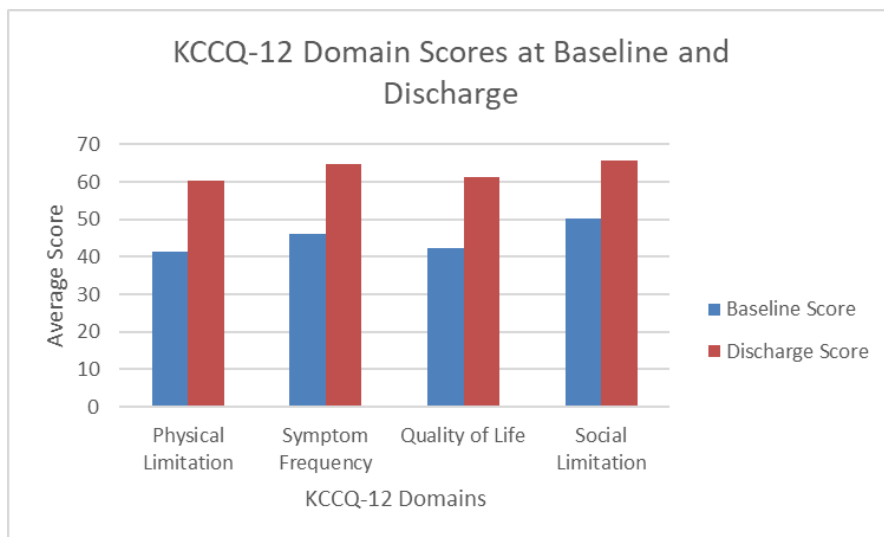
Note. This figure presents individual participant scores at baseline and discharge in the Social Limitation domain of the KCCQ-12. Higher scores indicate fewer limitations in participating in social and daily activities

Participants reported increased ability to engage in hobbies, household chores, and social visits. These gains suggest reduced disruption in social roles and daily routines (Figure 6).

An overall comparison of pre- and post-intervention KCCQ-12 scores across all domains and participants is presented in Figure 7, highlighting the general improvement following implementation.

Figure 7

KCCQ-12 Domain Scores at Baseline and Discharge



Note. Average scores for each KCCQ-12 domain at admission and discharge, showing improvements in physical limitation, symptom frequency, quality of life, and social limitation.

Informal Participant Feedback

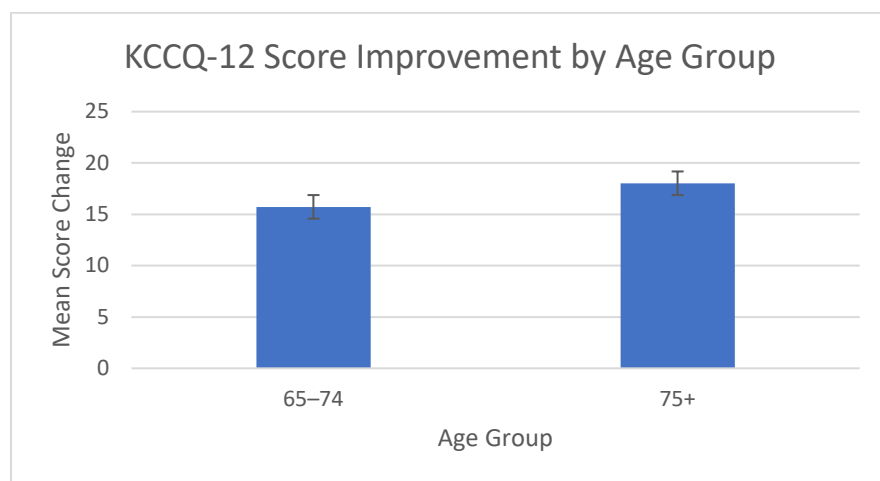
While the KCCQ-12 was a structured, self-reported tool, several participants made brief anecdotal comments during its administration. Common remarks included increased awareness of symptom improvement and greater confidence in daily activities. For example, one veteran noted, *“I didn’t think I was doing better until I saw how I answered this time.”* Another shared, *“I can walk around the house more without stopping to catch my breath.”* These reflections echoed the quantitative improvements observed in the KCCQ-12 scores and highlighted the value of using the tool to support patient-centered care.

Subgroup Analysis

An exploratory subgroup analysis was conducted to compare score improvements between age groups 65–74 and 75+ (Figure 8). Although the sample consisted exclusively of male veterans, participants aged 75 and older showed slightly higher mean improvements across all KCCQ-12 domains. Both groups demonstrated clinically meaningful gains; however, individuals in the 75+ group appeared to derive greater benefit from the intervention.

Figure 8

KCCQ-12 Score Improvement by Age Group



Note. Compares KCCQ-12 score improvements between age groups 65–74 and 75+, with error bars representing standard deviations.

Informal clinical observations revealed that participants in this age range were more likely to have consistent caregiver support, which may have positively influenced their ability to implement self-management strategies, adhere to treatment recommendations, and communicate symptom changes more effectively. Caregiver involvement likely played a moderating role in the effectiveness of the intervention, reinforcing the importance of including family or support systems in patient-centered care models for older adults. While the small sample size limited formal subgroup analysis, these findings suggest a need for further exploration of how caregiver

presence may enhance outcomes in home-based heart failure management. Future studies may benefit from specifically examining the relationship between caregiver support and improvements in patient-reported outcomes.

Coding Procedures and Data Integrity

Data were collected manually using standardized KCCQ-12 forms and entered into an encrypted spreadsheet for analysis. Double-entry verification was performed to ensure accuracy. As the KCCQ-12 is a quantitative tool, no intercoder reliability measures were required; all responses were numeric and based on the scoring rubric established by the instrument developers. The scoring process, including item grouping, domain calculation, and transformation of raw scores into a 0–100 scale, is detailed in Appendix E to support understanding and interpretation of the results.

Summary

The findings from this project demonstrated both statistically significant and clinically meaningful improvements across all domains of the KCCQ-12, including physical limitation, symptom frequency, quality of life, and social limitation. These results reflect the effectiveness of the KCCQ-12 in capturing dynamic changes in patient-reported health status over the course of the intervention. By administering the tool at two structured time points, admission and discharge, providers were able to better assess symptom burden and adapt care plans to align with patient needs. In addition to enhancing individualized care, the tool facilitated consistent communication within the interdisciplinary team and supported ongoing monitoring in a real-world home-based setting. Notably, greater improvements were observed among participants aged 75 and older, many of whom had caregiver involvement, suggesting that supportive

networks may further enhance patient outcomes. Collectively, these results highlight the potential of the KCCQ-12 to serve as both a clinical and quality improvement tool.

Chapter 5

Discussion

Introduction

The purpose of this project was to implement the Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) as a standardized tool for assessing symptom burden and health-related quality of life (HRQoL) in patients with heart failure. The findings supported the intended outcome: participants demonstrated statistically significant and clinically meaningful improvements in their KCCQ-12 scores from admission to discharge. These results suggest that the integration of the KCCQ-12 enhanced symptom management and provided a reliable method for tracking health status throughout the care episode.

Implications of Findings

The implementation of the KCCQ-12 yielded notable improvements in symptom burden, physical limitations, quality of life, and social limitations among geriatric veterans with heart failure. The statistically significant increase in KCCQ-12 scores from admission ($M = 44.98$) to discharge ($M = 62.85$), with a large effect size (Cohen's $d = 1.85$), indicates that the tool effectively captured changes in health status over the course of the intervention period. These findings affirm the value of standardized patient-reported outcome measures in guiding clinical care within home-based acute care programs. The measurable improvement in scores supports the integration of validated assessment tools to enhance individualized care and monitor patient progress systematically.

The Iowa Model of Evidence-Based Practice provided the framework for this project by guiding the identification of the clinical problem, lack of standardized symptom assessment, and supporting the systematic implementation of a validated tool. The model emphasizes the

importance of stakeholder engagement and sustainability, both of which were critical to the successful adoption of the KCCQ-12 in the clinical workflow.

The findings also align with the literature reviewed. For instance, Albarrati et al. (2023) confirmed the KCCQ-12's high reliability and validity, while Sandhu et al. (2022) emphasized its usefulness in enhancing clinician-patient communication. Similarly, Hu et al. (2021) demonstrated the tool's prognostic value, reinforcing its relevance in monitoring disease progression. These consistencies validate the findings of this project and highlight the KCCQ-12 as a valuable tool for heart failure management in geriatric populations.

Limitations

In this project, the implementation of the KCCQ-12 questionnaire had benefits. However, several limitations must be considered. The small sample size ($N = 8$) limits the generalizability of the findings. All participants were male veterans, which restricts applicability to more diverse populations. Additionally, the short duration of the project (8–10 weeks) may not capture long-term changes in health status. Although the project achieved a 100% completion rate, potential response biases cannot be excluded. Lastly, the project's implementation in a single Federally Funded Healthcare System facility may introduce institutional bias and limit external validity. Efforts to integrate the KCCQ-12 into the electronic health record system using a standardized template were unsuccessful due to lack of licensing approval from the tool's owner, which limited documentation efficiency and workflow sustainability.

Recommendations for Implementation

The positive outcomes associated with the implementation of the KCCQ-12 support its continued use and expansion within home-based acute care programs. Embedding the tool into clinical workflows can help sustain improvements in symptom management and health-related

quality of life for geriatric veterans with heart failure. The following sections outline implementation considerations based on cost-benefit analysis, potential barriers, and key facilitators.

Cost Benefit Analysis

Integrating the KCCQ-12 into routine clinical practice presents a minimal financial burden. The questionnaire is publicly available and does not require licensing fees, making it a cost-effective option for home-based care programs. Although the creation of a standardized documentation template in the electronic health record was initially planned, it was not implemented due to licensing limitations. Nevertheless, providers were able to incorporate the tool into existing documentation workflows without disruption to care delivery. The modest investment of time spent on staff training is outweighed by the potential clinical benefits, including earlier identification of symptom changes and more timely interventions. These improvements may contribute to a reduction in avoidable hospitalizations and emergency department visits. Furthermore, using a standardized, validated assessment tool like the KCCQ-12 supports consistent data collection, facilitates quality improvement initiatives, and aligns with national performance metrics such as those supported by the Centers for Medicare & Medicaid Services (CMS) (Heidenreich et al., 2022).

Potential Barriers

Potential barriers to full-scale implementation include resistance to change, competing clinical priorities, and staff unfamiliarity with the tool. Some providers may perceive the KCCQ-12 as an additional task rather than a clinical asset. Moreover, time constraints during home visits may make providers hesitant to administer another assessment. Technical barriers may also arise if the electronic health record lacks an integrated template for standardized documentation.

Key Facilitators

Several key factors contributed to the successful implementation of the KCCQ-12 and supported its integration into clinical workflows. Engaging frontline staff early in the planning and pilot phases fostered ownership, reduced resistance to change, and encouraged meaningful contributions to workflow development. Providing brief, targeted training on the purpose, administration, and interpretation of the tool enhanced staff confidence and promoted consistent, team-wide adoption. These efforts created a culture of shared accountability and readiness for change.

The Iowa Model emphasizes the importance of stakeholder involvement and iterative pilot testing, both of which were intentionally embedded into this project to ensure practical feasibility and clinical relevance. In addition, strong leadership support and alignment with national quality initiatives surrounding patient-reported outcomes helped promote organizational buy-in and positioned the tool as part of a broader movement toward value-based, patient-centered care.

To ensure long-term sustainability, ongoing education, regular audit and feedback mechanisms, and the identification of a project champion will be essential. These strategies reflect the Iowa Model's emphasis on continuous quality improvement and the intentional integration of evidence-based practice into established systems of care (Buckwalter et al., 2017).

Recommendations for Future Practice, Education, Policy, and Research

The implementation of the KCCQ-12 demonstrated potential to enhance symptom tracking and health-related quality of life monitoring in geriatric veterans with heart failure. While this project provides preliminary evidence of the tool's benefits, further steps are

recommended to expand its reach, improve provider knowledge, inform policy, and build the evidence base.

Practice

Wider adoption of the KCCQ-12 across other home-based care programs, Federally Funded Healthcare System facilities, and outpatient clinics is encouraged. Standardizing symptom assessment can improve clinical decision-making, ensure timely interventions, and support patient-centered care. Integrating the KCCQ-12 into routine workflows across disciplines, nursing, primary care, and cardiology, may also facilitate more coordinated care for patients with heart failure.

Education

Training healthcare professionals on the use and interpretation of patient-reported outcome measures like the KCCQ-12 should be integrated into onboarding programs. Increasing clinician awareness of the tool's value can strengthen engagement and ensure appropriate use. Educational modules should emphasize the tool's domains, scoring, and clinical implications to promote meaningful conversations with patients regarding their health status.

Policy

At the organizational level, policies should support the use of validated assessment tools such as the KCCQ-12 as part of standardized care protocols. Integration into quality reporting initiatives and alignment with national guidelines (e.g., ACC/AHA heart failure guidelines) could promote consistent use. Additionally, leveraging the tool for performance metrics tied to value-based care models may support reimbursement and encourage broader implementation.

Research

Future research should include larger, more diverse samples to improve generalizability and enable subgroup analysis based on variables such as gender, race, or comorbid conditions. Longitudinal studies could examine whether sustained use of the KCCQ-12 leads to reductions in long-term hospitalizations and improved patient outcomes over time. Additionally, qualitative studies could explore patient and provider perspectives on impact of the tool in various clinical settings.

Summary

This project demonstrated that implementing the KCCQ-12 within a Federally Funded Healthcare System's home-based care program provided a standardized and effective approach for assessing heart failure symptoms and monitoring health-related quality of life among geriatric veterans. The observed improvements in KCCQ-12 scores from admission to discharge highlight the tool's clinical relevance and support its role in enhancing patient-centered care. By facilitating structured symptom tracking and informed decision-making, the KCCQ-12 reinforces the value of integrating evidence-based assessment tools into routine practice.

Although limited by a small, homogenous sample, the findings contribute meaningfully to the growing body of evidence supporting the use of patient-reported outcome measures in heart failure management, particularly in community-based care models. These results also point to the importance of further exploration in larger and more diverse populations to validate scalability and long-term impact.

Dissemination of this project's findings will occur through a formal presentation to the Veterans Affairs Pacific Islands Health Care System (VAPIHCS) Evidence-Based Practice (EBP) Council and will be shared with key stakeholders, including leadership and clinical staff

within the home-based care program. Consideration will also be given to submitting the project for publication in a peer-reviewed journal focused on geriatric or cardiovascular nursing to expand its reach and contribution to the field.

This initiative aligns with the American Association of Colleges of Nursing (AACN) Doctor of Nursing Practice (DNP) Essentials by demonstrating leadership in quality improvement, translating evidence into practice, and leveraging clinical scholarship to advance health outcomes in a vulnerable population (see Appendix F).

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Appendix A

Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12)

1. Physical Limitations

(Over the past 2 weeks, how much has heart failure limited your ability to:)

Activity	Not at All	Slightly	Moderately	Quite a Bit	Extremely
Dressing yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Showering or bathing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking 1 block on level ground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Symptom Frequency

(How often have you had the following symptoms over the past 2 weeks?)

Symptom	None	1–2 times	3–4 times	5–6 times	Daily
Shortness of breath	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fatigue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swelling in legs, ankles, feet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Symptom Burden

(How much do these symptoms bother you?)

Symptom	Not at All	Slightly	Moderately	Quite a Bit	Extremely
Shortness of breath	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fatigue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Quality of Life

(How would you rate your quality of life considering your heart condition?)

Question	Excellent	Very Good	Good	Fair	Poor
In general, how would you rate your quality of life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often does your heart failure affect your daily life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Social Limitations

(How much has your heart condition limited your social interactions?)

Interaction	Not at All	Slightly	Moderately	Quite a Bit	Extremely
Visiting family/friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending social activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall KCCQ-12 Score: _____

Appendix B

Evidence Table Synthesis of the Literature

Article number	Author(s), date	Evidence Type	Findings that help answer the EBP question	Evidence level and quality
1	Albarrati, A. M., Altimani, R., Almogbel, O., Alnahdi, A. H., Almurdi, M. M., Abuammah, A., & Nazer, R. (2023)	Randomized controlled trial	Demonstrated excellent reliability and test-retest reliability of the KCCQ-12. Validated its correlation with other tools (MLHF, 6MWT). Emphasized ease of use in geriatric populations and feasibility for integration into telehealth.	Level II, A (High Quality)
2	Hu, D., Liu, J., Zhang, L., Bai, X., Tian, A., Huang, X., Zhou, K., Gao, M., Ji, R., Miao, F., Li, J., Li, W., Ge, J., He, G., & Li, J. (2021)	Cohort study	Showed that lower KCCQ-12 scores predicted adverse cardiovascular outcomes. Validated use of the tool for risk stratification in diverse subgroups. Reinforced value for identifying patients at higher risk for hospitalization or mortality.	Level IV, A (High Quality)
3	Kalwani, N. M., Calma, J., Varghese, G. M., Gupta, A., Zheng, J., Brown-Johnson, C., Amano, A., Vilendrer, S., Winget, M., Asch, S. M., Heidenreich, P., & Sandhu, A. (2022)	Randomized controlled trial	Supported use of standardized PROs in chronic disease management. Provided implementation strategies. Highlighted ACC/AHA Class 2A recommendation for KCCQ-12 and its ability to enhance monitoring and continuity of care.	Level II, A (High Quality)
4	Sandhu, A. T., Zheng, J., Kalwani, N. M., Gupta, A., Calma, J., Skye, M., Lan, R., Yu, B., Spertus, J. A., & Heidenreich, P. A. (2022)	Randomized controlled trial	Supported clinician-patient communication and individualized care using KCCQ-12. Provided guidance on standardization and real-world administration. Demonstrated clinical benefits of routine KCCQ-12 use.	Level II, B (Good Quality)
5	Bozkurt, B., Ahmad, T., Alexander, K., Baker, W. L., Bosak, K., Breathett, K., Carter, S., Drazner, M. H., Dunlay, S. M., Fonarow, G. C., Greene, S. J., Heidenreich, P., Ho, J. E., Hsieh, E., Ibrahim, N. E., Jones, L. M., Khan, S. S., Khazanie, P., Koelling, T., Ziaecian, B. (2024)	Expert Report / Epidemiologic Review	Presented national prevalence trends for HF, showing sharp projected increases through 2050. Reinforced the need for scalable and standardized tools like KCCQ-12 to meet rising demand.	Level V, B (Good Quality)
6	Brownell, N., Kay, C., Parra, D., Anderson, S., Ballister, B., Cave, B., Conn, J., Dev, S., Kaiser, S., Rogers, J., Touloupas, A. D., Verbosky, N., Yassa, N., Young, E., & Ziaecian, B. (2023)	Retrospective Cohort Study	Identified HF as a leading cause of hospitalization among veterans. Demonstrated increasing admission rates despite stable mortality, reinforcing the need for proactive outpatient interventions like KCCQ-12-based symptom tracking.	Level III, B (Good Quality)
7	Parizo, J. T., Kohsaka, S., Sandhu, A. T., Patel, J., & Heidenreich, P. A. (2020)	Retrospective Cohort Study	Showed that veterans with HF often experience high comorbidity burden. Supported need for targeted, consistent symptom assessments in complex geriatric patients to guide management and reduce complications.	Level III, B (Good Quality)
8	Heidenreich, P. A., Bozkurt, B., Aguilar, D., Allen, L. A., Byun, J. J., Colvin, M. M., Deswal, A., Drazner, M. H., Dunlay, S. M., Evers, L. R., Fang, J. C., Fedson, S. E., Fonarow, G. C., Hayek, S. S., Hernandez, A. F., Khazanie, P., Kittleson, M. M., Lee, C. S., Link, M. S., Yancy, C. W. (2022)	Clinical Guideline / National Report	Highlighted CMS and national guideline endorsement of PRO measures like KCCQ-12. Positioned it as a quality metric in value-based care, supporting integration into EHRs and standardized workflows.	Level II, A (High Quality)

Adapted from 'Johns Hopkins Nursing Evidence-Based Practice – Individual Evidence Summary Tool Appendix G by D. Dang & S.L. Dearholt. p.298

Appendix C

**Hawai'i Pacific University
Institutional Review Board
Project Application**

Please complete and submit the form to the IRB chair via email: to irbchair@hpu.edu

Study title: Implementation Of The Kansas City Cardiomyopathy Questionnaire (KCCQ-12) In Home Based Program For Heart Failure Veterans

Investigator:

Name: Melyssa Majano
(Please check one)

· Faculty · Student · Outside Investigator

Phone: 571-606-9060

Email: mmajano1@my.hpu.edu

Sponsoring HPU Faculty Member: Dr. Jacqueline Thomas

(if Investigator is not an HPU faculty member)

Please attach a brief summary of the project. This should include an explicit statement of methods, data collection, and how confidentiality of subjects/data will be protected including consent form.

Category for Review:

Check one level of review (Exempt, Expedited, Full) for which you believe the project qualifies, and each criterion that your project meets.

Exempt from review (nil or minimal risk study, or already reviewed by an IRB)

- Research involves ONLY investigation into or comparison of normal instructional strategies.
- Tests, interviews, and surveys are unlikely to elicit emotion or place subjects at risk of civil/criminal liability or damage to their reputation, financial standing, employability, etc. AND information will not be recorded in such a way that subjects can be identified.
- Research involves only the study or analysis of existing data, documents, records, or specimens that are publicly available or recorded in such a way that subjects cannot be identified.
- If study involves ingestion of food: only wholesome food without additives in excess of USDA recommended levels is consumed.
- Brief informed consent will be done (except in the case of existing data, etc.).
- No use of vulnerable subjects (children, prisoners, pregnant women, mentally ill, etc.).
- Has already been approved by IRB at _____
(Include copy of signed IRB approval form.)

X Expedited review (minor risk study)

- Research and data collection methods are unlikely to elicit strong emotion and deception is not involved.
- Research involves only noninvasive, painless, and non-disfiguring collection of physical samples, such as hair, sweat, excreta.
- No use of vulnerable subjects (children, prisoners, pregnant women, mentally ill, disabled, etc.).
- Data are recorded using noninvasive, painless, and non-disfiguring sensors or equipment, such as EKG, weighing scales, voice/video recording.
- Research involves only moderate levels of exercise in healthy volunteers.
- Research does not involve ingestion of drugs or use of hazardous devices.
- If existing data, documents, records, or specimens with identifiers are used, procedures are in place to ensure confidentiality.
- Informed consent process will be done (attach copy of informed consent form).
- Data will be kept confidential and not reported in identifiable fashion.

Full review required (more than minor risk)

Attach a statement that describes the use of vulnerable subjects or the study procedures and conditions that place subjects at risk. Describe the precautions that will be taken to minimize these risks. Attach a copy of the informed consent form that will be used.

Certification by Principal Investigator: The above represents a fair estimate of risks to human subjects.

Melyssa Majano APRN 10/29/24

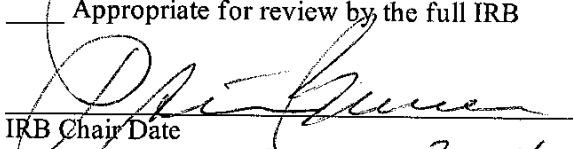
Name/ Title/ Date

FOR IRB USE ONLY

Certification by IRB Chair: I have read this application and believe this research qualifies as:

- Exempt from IRB review
- Appropriate for expedited review, and
 - approved
 - disapproved
- Appropriate for review by the full IRB

IRB Chair Date


#5609202169

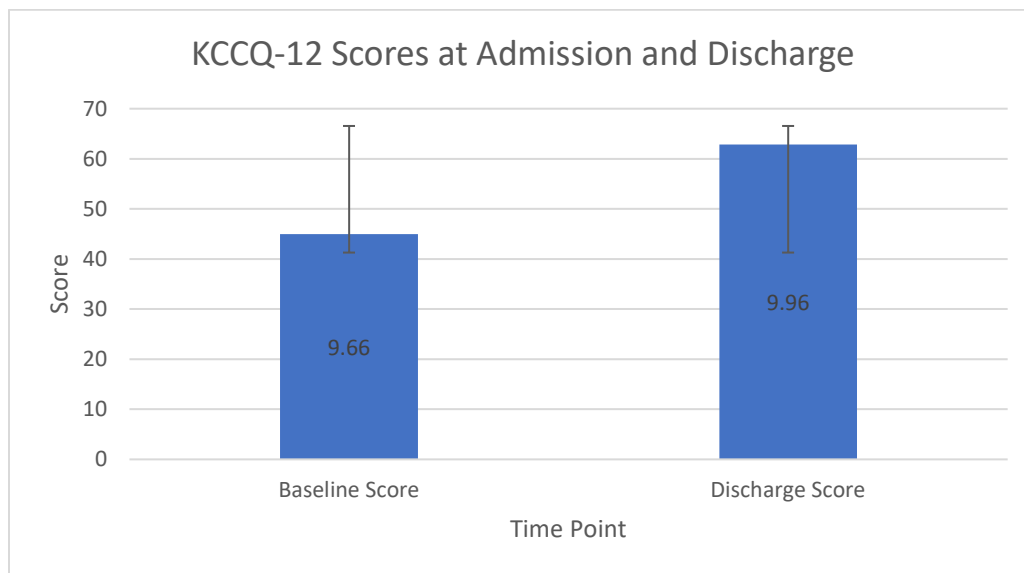
11.23.2024

Appendix D

Detailed Statistical Analysis and Visual Data Representations

Figure D1

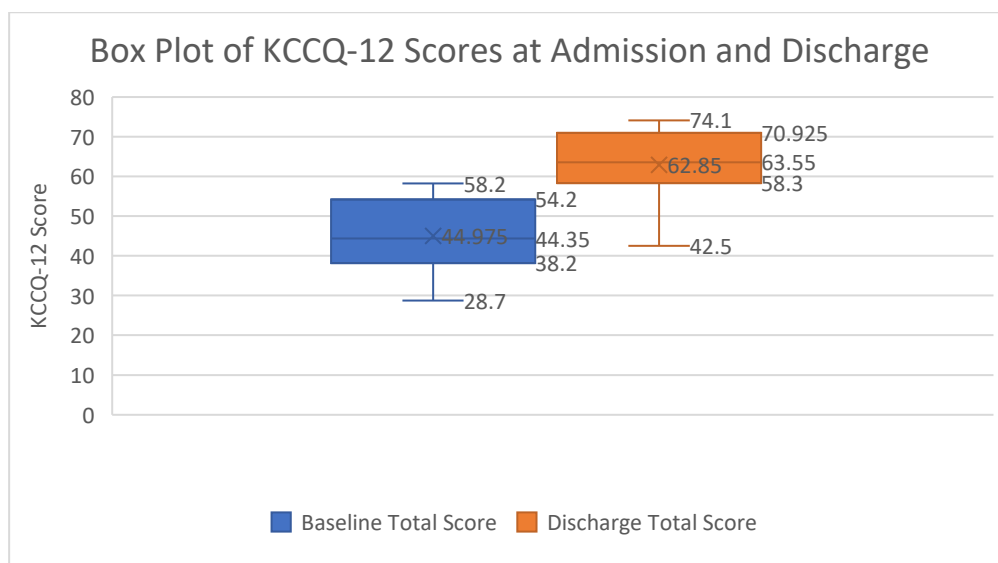
KCCQ-12 Scores at Admission and Discharge



Note. This figure illustrates the mean KCCQ-12 scores at admission and discharge, with error bars representing standard deviations.

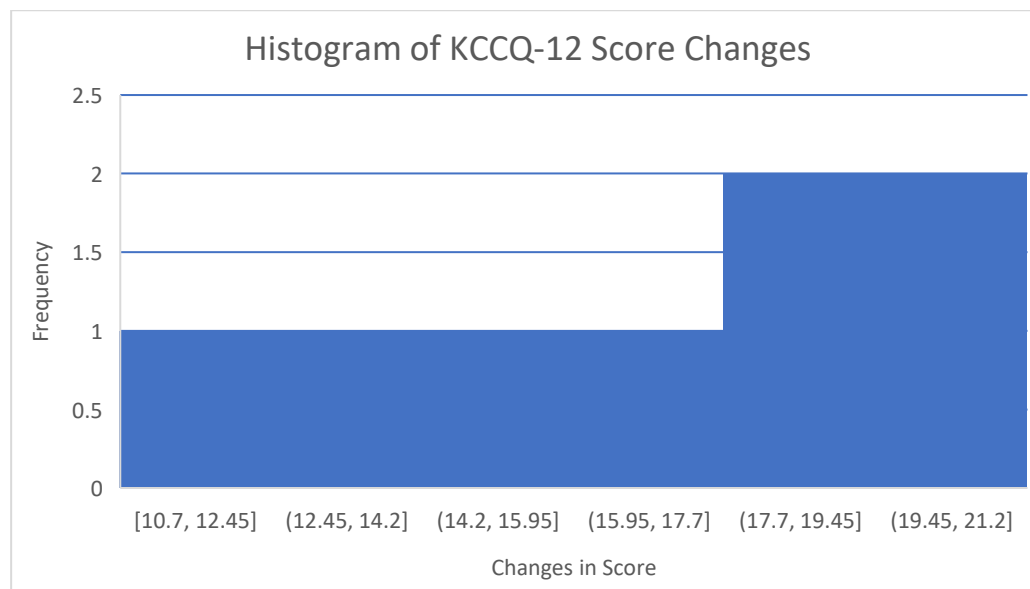
Figure D2

Box Plot of KCCQ-12 Scores at Admission and Discharge



Note. This figure displays the distribution of KCCQ-12 scores at admission and discharge, highlighting variability and potential outliers.

Figure D3
Histogram of Score Changes



Note. This figure represents the distribution of individual KCCQ-12 score improvements from admission to discharge.

Table D1
Descriptive Statistics for KCCQ-12 Scores

Measure	Mean	Standard Deviation
Baseline Score	44.98	9.66
Discharge Score	62.85	9.96
Change in Score	16.88	3.44

Note. Baseline and discharge KCCQ-12 scores with standard deviations.

Appendix E

KCCQ-12 Scoring Methodology

The KCCQ-12 includes 12 items divided into four domains:

- **Physical Limitation** (Items 1a–1c)
- **Symptom Frequency** (Items 2–5)
- **Quality of Life** (Items 6–7)
- **Social Limitation** (Items 8a–8c)

Each item is scored on a Likert-type scale. Raw scores for each domain are calculated by averaging responses within that domain. These raw scores are then transformed to a 0–100 scale using the following formula:

$$\text{Transformed Score} = [(\text{Actual Raw Score} - \text{Lowest Possible Raw Score}) / \text{Range of Raw Score}] \times 100$$

Higher scores indicate better health status (i.e., fewer symptoms and limitations, and better quality of life). Domain scores can also be averaged to calculate a summary score, which reflects overall patient health status related to heart failure.

Appendix F

DNP Essentials and Relationship to DNP Project

DNP Essential	Description	Application to Project
Essential I: Scientific Underpinnings for Practice	Integration of nursing science with biophysical, psychosocial, and organizational sciences to improve practice.	Applied evidence from peer-reviewed literature to support the implementation of the KCCQ-12, a validated assessment tool for heart failure symptom tracking.
Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking	Leadership skills to develop and evaluate care delivery approaches.	Led the design and execution of a quality improvement initiative within a federally funded healthcare system home care program using the Iowa Model.
Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice	Use of analytical methods to evaluate and translate research into practice.	Collected, analyzed, and interpreted quantitative data using the KCCQ-12 and paired t-tests to determine impact on patient outcomes.
Essential IV: Information Systems/Technology and Patient Care Technology	Use of technology to improve and coordinate care.	Integrated the KCCQ-12 into CPRS templates to streamline documentation and ensure sustainable implementation.
Essential V: Health Care Policy for Advocacy in Health Care	Influence on policy to improve care and outcomes.	Supported recommendations for standardizing heart failure assessments in line with national guidelines and federally funded healthcare system quality initiatives.
Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes	Effective communication and collaboration across professions.	Engaged registered nurses, program leadership, and informatics staff in training and implementation planning.
Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health	Address health promotion and disease prevention.	Enhanced symptom recognition and management among high-risk geriatric veterans to prevent worsening conditions and hospital readmissions.
Essential VIII: Advanced Nursing Practice	Conduct comprehensive assessments and design evidence-based interventions.	Delivered advanced practice leadership by implementing an assessment tool to improve symptom monitoring and patient-centered care.