A Clinical Nurse Leader Nurse Navigator Program for Heart Failure Patients

A Scholarly Project

Submitted to the

Faculty of Liberty University

In partial fulfillment of

The requirements for the degree

Of Doctor of Nursing Practice

By

Shanna Lantel Negron

Liberty University

Scholarly Project Defense

Dr. Tonia Kennedy

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Scholarly Project Chair Approval:

Dr. Tonia R. Kennedy, Ed.D, MSN, RN-BC, CCRN-K

Abstract

The purpose of this integrative review is to examine the literature regarding nurse-led educational interventions, transitional care (TC) strategies for heart failure (HF) patients, nurse navigation, HF self-care, and the clinical nurse leader (CNL) role to support integrating a CNL into the care delivery model serving as a nurse navigator (NN) for adult HF patients being discharged home from the hospital. The basis for this review is to identify an innovative way to improve patient reported and clinical outcomes for the HF population which increases each year. The economic and symptom burden associated with this disease is high further enhanced by poor transitions in care leading to avoidable hospital readmissions. Whittemore and Knafl's (2005) methodology and the Preferred *Reporting Items for Systematic Reviews and Meta-Analyses* reporting guidelines served as the framework for this review. A total of 32 articles were obtained after an extensive literature search each addressing one of the five components to be examined for synthesis. The information gathered collectively supports a CNL integrated care delivery model best conveyed in a structure, process, outcome model.

Keywords: Heart failure, transition of care, clinical nurse leader, heart failure self-care, heart failure readmissions

Acknowledgements

I would like to thank my circle for their support because when one of us wins we all win. I would also like to thank my project chair, Dr. Tonia Kennedy, for her patience and guidance. Throughout this program, life happened as it usually does, when we least expect it. I experienced the greatest loss of my life, was under a spiritual attack, and faced several life changes. In those moments I wanted to quit this program, and did in my head, but I am so grateful that "with God all things are possible" (Matthew 19:26). With His grace and mercy, I made it and will continue to walk in the purpose He created in me!

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Section One: Formulating the Review Question

Background

Affecting more than 64 million people worldwide, heart failure (HF) is a global epidemic. In the United States, approximately 6.9 million people are affected by HF; an expected increase of 24% by 2030 would bring the total to 8.4 million (Urbich et al., 2020). HF is the most common discharge diagnosis among Medicare beneficiaries and contributes to higher morbidity and mortality among persons 65 years old or older. HF is a complex clinical condition caused by irregularities in cardiac function, structure, or both that results in organ oxygenation and peripheral circulation impairment (Garcia, 2017). HF presents as a gradual decline with episodes of acute decompensation and recovery (Ba et al., 2020); symptoms associated with HF include fatigue, edema, exercise intolerance, orthopnea, shortness of breath, and paroxysmal nocturnal dyspnea (Riegel et al., 2022). In addition to the extensive symptom and clinical burden, the complexity and progressive nature of this disease coupled with the presence of multiple comorbidities poses an economic burden.

In 2020, the direct and indirect costs for HF in the United States were estimated at $43.6 billion, with hospitalization being a major contributor to the direct costs associated with the disease (Urbich et al., 2020). Unplanned readmissions for any cause to an acute care hospital within 30 days of discharge following an initial HF hospitalization, termed *30-day all cause readmissions*, further drive up costs (Urbich et al., 2020). The Hospital Readmissions Reduction Program, a Medicare value-based purchasing program, is designed to stimulate hospitals to improve care coordination and communication during transitions of care to reduce avoidable readmissions (U.S. Centers for Medicare & Medicaid Services, 2022). With the Hospital Readmissions Reduction Program, hospital systems are penalized 3% of total Medicare

payments for Medicare fee-for-service patients who are readmitted within 30 days for HF and other target conditions (Psotka et al., 2020). Reducing readmissions would result in decreased readmission penalties incurred by hospitals as well as lower direct costs (Urbich et al., 2020). Further, reducing the full spectrum of hospital utilization, emergency department visits, observation stays, and readmissions (Wadhera et al., 2019) would improve patient outcomes (Urbich et al., 2020). Despite the advances made in the management of HF, hospitalization utilization remains a challenge (Wadhera et al., 2019).

Approximately 40% of 30-day readmissions are the result of subpar transitional care (TC; Li et al., 2021; Van Spall et al., 2017), including inadequate care coordination and continuity between providers and settings (Li et al., 2021). Additionally, such discharges from the hospital to the community occur in the early phases of recovery for most patients without proper management of underlying problems or inadequate self-care instructions (Garcia, 2017).

Self-care, the process of maintaining one's health, includes self-care maintenance, self-care monitoring, and self-care management. Self-care maintenance encompasses behaviors that are employed to maintain physical and emotional stability. Self-care monitoring involves an individual's observation of themselves for changes in signs and symptoms. The last component, self-care management, is the determination and application of appropriate responses to the signs and symptoms observed in oneself (Jaarsma et al., 2021). Indicated by many studies as inadequate among HF patients (Al-Sutari & Ahmad, 2017; Bader et al., 2018; Chen et al., 2020; Hsu et al., 2021; Negarandeh et al., 2019; Sezgin et al., 2017; Son et al., 2020; Sun et al., 2019), proper interventions would result in lower hospital readmissions, mortality rates, and emergency department visits (Al-Sutari & Ahmad, 2017). Although many studies have focused on interventions delivered using a multidisciplinary team approach, nurses in the outpatient setting

are positioned to bridge the gap between patients' needs and the health care system while providing education regarding self-care (Ba et al., 2020; Kolasa et al., 2022; Rice et al., 2018; Son et al., 2020) to effectively manage the condition.

Defining Concepts and Variables

Three central concepts for this integrative review are TC, the nurse navigator (NN), and the clinical nurse leader (CNL). According to the World Health Organization (2016) "transitions of care refers to the various points where a patient moves to, or returns from, a particular physical location or makes contact with a health care professional for the purposes of receiving health care" (p. 3). Although no consensus is established regarding the length of the transition period, this phase is considered a vulnerable time, as it is associated with hospital readmissions, demonstrating gaps in safety and quality of care. Various TC interventions applied across care episodes ensure timely and safe transfer, establish continuity, and avoid preventable negative outcomes (Garcia, 2017). A NN is a registered nurse guided by primary care principles who enhances care transitions, reduces duplication, and facilitates shared decision-making for patients and families. These nurses possess advanced knowledge of information technology, the health system, communication techniques, complex health care needs, and outcome metrics. (McMurray & Cooper, 2017). Lastly, CNLs are master's prepared registered nurses that have been academically trained to redesign care delivery to address gaps in the safety and quality of care (Bender et al., 2017). Efficient in assessing the microsystem, mapping processes, creating teams, identifying patterns, and recognizing opportunities for improvement, CNLs are change agents (Noles et al., 2019). Together, these concepts will be examined and further operationalized to identify the ideal approach for improving outcomes for HF patients discharged home from the acute care setting.

Rationale for Conducting the Review

As a CNL, the writer identified variability regarding the practice and expectations of CNLs despite how the role is outlined by the American Association of Colleges of Nursing. Positioned in the microsystem, the CNL, an advanced generalist, fulfills the roles of outcomes manager, team manager, lifelong learner, member of the profession, clinician, client advocate, systems analyst/risk anticipator, information manager, and educator. The CNL assumes accountability and leadership for the safety and quality outcomes of a specific group of patients by applying evidence to design, implement, and evaluate care (Hatley et al., 2018). Furthermore, through serving the HF population, the writer has seen firsthand the fragmentation of care for this group post discharge, the lack of self-management skills, and the many barriers patients must navigate to access support for individual disease management. Therefore, the intent of this review is to reconceptualize the phenomenon of a NN with a CNL fulfilling the role while applying TC strategies for adult HF patients upon discharge home from a hospital admission.

Review Question

The goal of this integrative review is to examine TC strategies, educational interventions, and the evidence which supports integrating a CNL as a NN into the care delivery model for adult HF patients discharge home from a hospital. The question to be explored was, “What evidence supports a health care delivery model integration of a CNL serving as a NN to improve TC outcomes for HF patients?”

Formulate Inclusion and Exclusion Criteria

Studies published in English within the last 5 years were included in this literature review. Sources focusing on TC strategies for HF patients, nurse-led HF education, adult patient navigation, CNL, and care coordination for adult patients were examined in this review.

Although the focus of this review was adult patients, writer included one qualitative study that explored the perspectives of adult and pediatric patients who were under the care of a NN (Hudson et al., 2019). The researchers conducted semistructured interviews of 25 participants, 24 of whom were adults. The participants were either patients or caregivers for pediatric patients who did not meet criteria for participation, with the one pediatric patient included in the semistructured interview with the adult caregiver. Studies that only focused on interventions led by other health care professionals such as pharmacists, medical residents, and social workers were excluded. Also excluded were studies involving (a) minimal interventions, such as one post discharge phone call no more than 14 days after the discharge date or a follow-up appointment scheduled prior to discharge, (b) one home visit or in-hospital interventions only, (c) quality improvement initiatives, and (d) nurse navigation for a specific disease process such as cancer.

Conceptual Framework

Whittemore and Knafl's (2005) framework guided this integrative review. This framework guides the writer in the process of identifying the problem, performing the literature search, evaluating and analyzing data from diverse sources, and presenting of the conclusions. Following the formulation of the problem, the variables of interest and the sampling frame, which define the type of studies included in the review, are determined. The variables of interest include the target population, health care problem, and concepts. The search strategies included in this framework ensure that a comprehensive search is conducted with minimal bias. Both empirical and theoretical sources are evaluated with appropriate instruments where the scores can be used as criteria for inclusion or exclusion or as a variable utilized in the next step, the data analysis stage. The four systematic steps of the data analysis stage, data reduction, data display, data comparison, and conclusion drawing and verification are designed to avoid error. In the

final stage, presentation of the conclusions, implications for research, policy, and practice are included. The goal of this systematic approach is to formulate a holistic understanding regarding having a CNL serve as a NN while implementing TC strategies to improve outcomes for adult HF patients (Whittemore & Knafl, 2005).

Section Two: Comprehensive and Systematic Search

Search Organization and Reporting Strategies

The writer performed a comprehensive literature search and purposive sampling of sources with the aim of identifying data to support the question being explored. A systematic search was conducted using three computerized databases: the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and Liberty University Jerry Falwell Library. Keywords used for this review were *heart failure, nurse navigator, clinical nurse leader, patient navigator, transition of care, care coordination, readmission rates, nurse-led heart failure clinics, nurse coaching, and self-care* (Whittemore & Knafl, 2005). Keywords were combined using Boolean operators; limiters were applied so only articles published in the English language between 2017 and 2022 involving participants age of 18 years or older were located (Toronto & Remington, 2020). Included articles focused on (a) interventions performed by registered nurses, (b) interventions conducted after hospital discharge and in the outpatient setting, or (c) patient outcomes. The writer conducted other recommended approaches to literature searching including hand searching of the *Journal of Cardiac Failure* and *Heart & Lung: The Journal of Cardiopulmonary and Acute Care*. Additionally, the writer performed ancestry (Whittemore & Knafl, 2005) and web searches with Google Scholar and Google to locate gray literature (Toronto & Remington, 2020). The title of each paper identified with each search was examined, and those that were not relevant to the topic being explored and duplicates were removed. The

abstracts of those remaining were reviewed, and those that were irrelevant were also removed. Finally, a full-text screening was performed of the remaining sources; additional articles were removed based on the inclusion and exclusion criteria. The initial search resulted in 437 articles, of which 32 remained for this review.

Terminology

Defining the NN role provides understanding of this concept as discussed in this review. The NN is often a broad role with varied dimensions that include home visits, care planning and coordination, patient and family education, and advocacy (McMurray & Cooper, 2017). Sometimes given different position titles, NNs, serve as "pivot nurses" (McMurray & Cooper, 2017, p. 208) providing emotional support, disease specific information, and practical advice. These nurses facilitate decision-making, generate links to resources, and help identify community support. Navigators engage patients and their families to improve health literacy, access to services, and self-care ability.

CNLs have a Master of Science in Nursing and unique professional competencies; they are meant to work side-by-side with frontline nurses to affect change at the point of care. Academically trained to be a team manager in TC and coordination, CNLs have the competency to effectively navigate the complex care environment (Hulett & Shatto, 2021). CNLs provide education to patients, their families, and other members of the health care team, ensuring all are well informed regarding the processes and self-care management (Agomoh et al., 2020).

TC, the time when a patient transfers from the hospital setting to home, spans the care continuum for HF patients beginning prior to discharge (Ba et al., 2020). Although TC is known to be time limited (Garcia, 2017; Li et al., 2021), for this review there is no standard time limit; instead, the aim of this intervention is outcome improvement through closer monitoring or

integrated, supportive care (Van Spall et al., 2017). The TC model comprises two key components that complement one another (Garcia, 2017) and promote effective processes that reduce costs, improve care, and enhance positive outcomes (Agomoh et al., 2020). The first element is a nurse with advanced education, knowledge, and skills regarding coordinating comprehensive and holistic care for patients in different health care settings using a multidisciplinary approach (Agomoh et al., 2020; Garcia, 2017). The second component is strong collaboration between the members of the health care team, the patient, and caregivers. A variety of strategies may be utilized to improve care transitions, including education before and after discharge, in-person home visits, systematic telephone support and follow-up, telemonitoring, and outpatient follow-up visits tailored to meet the needs of each patient (Garcia, 2017).

Section Three: Managing the Collected Data

The writer did not use software tools when performing the process of source identification, screening, selection, and sorting, but instead completed each step by hand. During the search of each database, PubMed, CINAHL, and the Liberty University Jerry Falwell Library, a combination of each of the search terms and Boolean operators “AND” and “OR” were utilized to generate as many results as possible. Limiters selected for PubMed included free full text, meta-analysis, randomized controlled trial (RCT), review, and systematic review. English was the selected language for articles published in the last 5 years about adults. When utilizing the CINAHL database, the writer selected full text articles published in the English language. Other limiters included peer reviewed, abstract available, and a date range of August 2017 to August 2022. Lastly, the writer selected the options for inclusion of related words applied to the search and searching for with words within the full text of the articles. The advanced search conducted with the Jerry Falwell Library included limiters for full text online,

published within the past 5 years, English language, peer reviewed, and matches in full text. Google Scholar and Google searches were conducted using various combinations of the search terms. Hand searches were completed of the *Journal of Cardiac Failure* and *Heart & Lung: Journal of Cardiopulmonary Acute Care Journal of Cardiac Failure* utilizing a combination of the terms *heart failure readmissions* and *transition of care*. Lastly, ancestry searches were conducted for each review article, gray literature, and RCT meta-analysis. A total of 437 sources were generated, with 236 duplicates removed. The remaining titles and abstracts were screened, and 113 not meeting the eligibility criteria were removed, leaving 88 for a full text assessment. Based on the exclusion criteria, 56 articles were removed, leaving 32 for the review. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; see Appendix A), was utilized to present the results for the search with the application of the inclusion and exclusion criteria (Toronto & Remington, 2020). The remaining articles were sorted into five categories: CNL, NN, HF transition of care, HF self-care, and nurse-led educational interventions. Five articles centered on CNLs, four focused on NNs, six centered on HF transition of care, three regarding HF self-care, and 14 focused on nurse-led interventions.

Section Four: Quality Appraisal

Sources of Bias

The writer served as the only reviewer of the studies obtained through the comprehensive literature search and assessed each study for relevance in support of the goal of the review. To fully formulate a response to the question guiding the review, the writer included both experimental and nonexperimental studies. Understanding that bias can occur at any stage of a research study (Toronto & Remington, 2020), the writer utilized a systematic approach for assessing each experimental study to ensure that all sources of bias were identified, beginning

with the study design, followed by participant selection, data collection and measurement, analysis, and publication (Smith & Noble, 2014).

During the first stage of research, study design, no bias was noted in any of the articles selected. Direct recruitment (Bender et al., 2017) and convenience sampling (Coyne et al., 2020; Hatley et al., 2018) bias potential was identified in the assessment of the participant selection process, the second step of the research process. The main source of bias for the 18 empirical studies utilized for the review was selection, as 44% had small sample size bias, which alone can prohibit firm conclusions from being drawn from the analysis of the data (Smith & Noble, 2014). A single site of study was noted in 28% of the studies, with more than half of those also having a small sample size. A small sample size was noted in 20% of the nonempirical sources, reviews of RCTs (Ali-Faisal et al., 2017; Son et al., 2020). Control groups were utilized to mitigate the impact of sample size and single center studies for internal validity in approximately half of the studies. The remaining studies utilized an appropriate research design best matching the objectives. Attrition (Chen et al., 2020), recall (Moon et al., 2018) and a lack of standardized collection methods (Al-Sutari & Ahmad, 2017; Hsu et al., 2021; Kolasa et al., 2022) were identified as potential sources of bias in the data collection and measurement phase. Lastly, confounding threated the internal validity in one study due to cognitive function and other comorbidities not being analyzed (Cui et al., 2019). The writer was unable to identify sources of potential bias in the last two phases of the research process.

Internal Validity

Internal validity is the degree to which the methods by which a study was designed, executed, and analyzed allow research questions to be answered in a trustworthy manner. explores whether the methods a study was designed, executed, and analyzed allows research

questions answers which are trustworthy. Forms of bias include performance bias, detection bias, and selection bias (Andrade, 2018). Since this review was conducted by one writer, bias may be present due to the purposive sampling approach utilized. However, to mitigate the risk and produce trustworthy results, Melnyk's level of evidence (LOE) was utilized as the framework for appraisal (see Appendix B).

Appraisal Tools

The writer independently appraised the articles selected for the review using Melnyk's LOEs (Melnyk & Finest-Overholt, 2019), although it is preferred that two reviewers appraise the quality and relevance of each study to minimize bias during this stage of the review. Using Melnyk's LOEs, the writer identified methodological rigor of each study (Toronto & Remington, 2020), with Level I as the highest and Level VII the lowest. The literature matrix presents the source citation, study purpose, sampling methods, interventions, study results, LOE, limitations, and rationale for inclusion or exclusion from the review for each article (Melnyk & Finest-Overholt, 2019). While nursing questions are typically best answered by studies that are lower on the hierarchy (Toronto & Remington, 2020), the studies in this review span each of the levels, (Appendix B):

- Level I studies include systematic reviews or meta-analysis of RCTs. Five articles were classified as Level I (Ali-Faisal et al., 2017; Li et al., 2021; Rice at al., 2018; Son et al., 2020; Van Spall et al., 2017).
- Level II articles are RCTs. Eight articles included in this review met the criteria for this classification (Al-Sutari & Ahmad, 2017; Chen et al., 2020; Cui et al., 2019; Hsu et al., 2021; Hwang et al., 2020; Negarandeh et al., 2019; Sezgin et al., 2017; Sun et al., 2019).

- Level III studies are controlled trials without randomization. Five articles meet the quasi-experimental design requirements for this LOE (Hatley et al., 2018; Kolasa et al., 2022; Liljeroos & Stromberg, 2019; Moon et al., 2018, Noles et al., 2019).
- Level IV studies include both cohort and case-control study designs. Two studies are classified to this level (Bader et al., 2018 and Reese et al., 2019).
- Level V includes systematic reviews of qualitative and descriptive studies. Five articles provided this type of evidence (Agomoh et al., 2020; Ba et al., 2020; Garcia, 2017; Ryan et al., 2019; Toback & Clark, 2017).
- Level VI comprises single qualitative or descriptive studies. Three articles in this review met the requirements for this LOE (Bender et al., 2017; Coyne et al., 2020; Hudson et al., 2019).
- Level VII articles include evidence from the opinion of individuals and/or committees with demonstrated expertise in the area. Four articles, including one theoretical update, met criteria for this level (Hulett & Shatto, 2021; Jaarsma et al., 2021; McMurray & Cooper, 2017; Riegel et al., 2022).

Applicability of Results

The completed literature matrix provides a visual depiction of the articles selected for the review and allowed the writer to identify support for each concept required to answer the research question. Each of the articles provided evidence or expert opinion that is relevant for the defined concepts related to the phenomenon of interest. The studies on TC and nurse-led interventions demonstrated the impact of these types of care on patient-reported and clinical outcomes for the adult HF patient population. Lastly, the writer elected to incorporate theory into the integrative review to ensure direct applicability of the proposed model of care to nursing

practice. Theoretical frameworks articulate the answers to the whys of what is done for each patient. Nursing metaparadigm theories can inform patient interactions, aid in assessment, explain patient responses, and set nursing apart as a unique discipline in health care. Each of the four concepts, person, environment, health, and nursing, can individually impact the outcomes for the HF patient; however, through robust synthesis this review has the potential to demonstrate a comprehensive understanding and a holistic solution to a complex problem in health care (Whittemore & Knafl, 2005).

Reporting Guidelines (Whitmore & Knafl)

Articles included in the review span each of Melnyk's LOEs (Melnyk & Finest-Overholt, 2019). Due the diversity of the literature included, guidelines were formulated based on the purpose of the review that aided in the extraction of appropriate data from the sources included. In an effort to achieve methodological quality, informational value, and authenticity (Whittemore & Knafl, 2005), the writer utilized the PRISMA guidelines to enhance transparency and quality and to minimize bias for the final review (Toronto & Remington, 2020).

Section Five: Data Analysis & Synthesis

Constant Comparison Method

After evaluating the sources using a LOE table (Melnyk & Finest-Overholt, 2019), the writer ordered, coded, categorized, and summarized the data to develop an integrated answer to the question, "What evidence supports the health care delivery model integration of a CNL serving as a NN to improve transitional care outcomes for HF patients?" (Whittemore & Knafl, 2005). Although it is best to have more than one reviewer complete an analysis to decrease bias, the writer worked independently and maintained records of all decisions to increase the rigor of the review. The four phases of the constant comparison method, data reduction, data display,

data comparison, and conclusion drawing and verification were completed sequentially (Toronto & Remington, 2020).

In the first phase, data reduction, the sources were logically divided into topic subgroups aligned with the review purpose, resulting in five explicit groupings: NN, CNL, transition of care, nurse led interventions, and HF self-care. Next, using predetermined and relevant data, the writer reduced each source classified as Level I to Level VI to a single page and extracted similar data to facilitate a systematic comparison of variables, specific concepts, and characteristics (Whittemore & Knafl, 2005). For example, the data extracted from the subcategory nurse-led interventions included study design, educational content, teaching strategies and time spent providing instruction, inclusion of family members, outcomes measured, and frequency and type of additional supportive strategies such as structured telephone support and follow-up intervals. Of the 32 articles included in the review, the four that were classified as level VII using Melnyk's hierarchy of evidence were either opinion pieces, practice guidelines, or a theoretical update. Each provided a summary of literature to support the aim of informing the concepts of this review, resulting in high-quality evidence that can be implemented into practice.

In the next phase, data display, matrices were created for each subcategory. More simplified than the literature matrix (Appendix B), the subcategory matrices provided a compressed presentation of the information, allowing the writer to process the large amount of information included in the review (Toronto & Remington, 2020). The displays strengthened the visualization of the relationships and patterns across the primary sources, providing a starting point for interpretation (Whittemore & Knafl, 2005). The information extracted from the articles in the NN, CNL, transition of care, HF self-care, and nurse led interventions subgroups was transcribed, capturing the concepts identified by the writer as essential to show patterns and

relationships, including supportive information from the articles classified as level VII using Melnyk's LOEs.

Data comparison, the third phase, involves the process of examining the data display matrices created in the previous step to determine relationships, patterns, or themes within as well as between studies considering factors such as heterogeneity and noting relations between variables (Whittemore & Knafl, 2005). To facilitate data comparison, the writer created a handwritten table and inserted variables from each of the studies, clustering like data and concepts together. The writer was able to compare and contrast each entry to those already written, revealing relationships within each subcategory of NN, CNL, TC, HF self-care, and nurse-led interventions, as well as across those categories. For example, self-efficacy, which is a significant predictor for behavioral changes associated with self-care and improving clinical outcomes (Toback & Clark, 2017), was noted to improve in a NN-led model of care (Ali-Faisal et al., 2017). The lower-level papers were included in the comparison and clustering but were not as prominent in the review. The rigorous activities performed in this step support the final phase, conclusion drawing and verification (Toronto & Remington, 2020).

Moving from the description of patterns and relationships to the conclusion drawing and verification phase required the writer to progress to higher levels of abstraction. The writer identified commonalities and differences, progressing from smaller to larger generalizations, through continual revision to include as much data possible (Whittemore & Knafl, 2005). Returning to the sources several times was required to reconfirm themes, patterns, and relationships identified in the previous phase (Toronto & Remington, 2020). The writer continually moved from the interpretive efforts of description to abstraction to avoid premature analytic closure. In the final component of this stage, the writer synthesized an integrated

summation to answer the review question, providing a conceptualization of the primary sources of each subgroup, nurse-led interventions, CNL, NN, HF transition of care, and HF self-care, to answer the review question. Meticulous records of the entire process were maintained for analytical honesty and transparency (Whittemore & Knafl, 2005).

Descriptive Results

Thirty-two articles with various methodologies spanning each category of Melnyk's hierarchy of evidence were examined to answer the review question. To fully understand the phenomenon of interest, support the conclusion, and inform practice, four studies categorized as level VII using Melnyk's hierarchy were included (Whittemore & Knafl, 2005), though not as prominently as the other studies. These four papers included one theoretical update, one article outlining practice recommendations, and two opinion pieces. Source details, including the full citation, the study purpose, sampling methods and subjects, interventions, study results, Melnyk LOE, limitations, and the rationale for inclusion in the review, are listed in the literature matrix (Appendix B).

Heart Failure Self-care

HF self-care includes a system of behaviors that reflect responsibility and active engagement for self-care maintenance, self-care monitoring, and self-care management (Riegel et al., 2022). HF self-care is influenced by multiple factors including health literacy, socioeconomic status (Hwang et al., 2020; Riegel et al., 2022; Toback & Clark, 2017), cognitive impairment, depression (Hwang et al., 2020; Riegel et al., 2022), aging, prior experiences with the health care system, symptom experiences, social support, anxiety (Hwang et al., 2020), and comorbid conditions such as diabetes. Cognitive impairment (noted in approximately 70% of HF patients; Riegel et al., 2022), sleep disorders such as obstructive sleep apnea, and depression are

associated with poor self-care. For example, depression, one of the most prevalent comorbid conditions, has been linked to lower treatment adherence and self-care neglect, illustrating the importance of routine assessment (Jaarsma et al., 2021; Riegel et al., 2022; Ryan et al., 2019) for proper referral as well as to determine the ideal time to provide education (Hwang et al., 2020).

To account for the impact of the various factors impacting self-care, the situation-specific theory of heart failure self-care was selected to undergird this review. A recent theoretical update describes the problem-, person-, and environment-related factors that influence decisions regarding self-care. Problem-related factors encompass the emotional and physical consequences of a HF diagnosis, such as comorbid conditions. Person-related factors include demographics, health literacy, attitudes and social norms, motivation, habits, self-efficacy, and perception of control. Environmental factors are categorized as physical, chemical, biological, and social or cultural issues that may increase the need for self-care while decreasing one's ability to access the services and resources needed (Riegel et al., 2022). The impact of these factors, which are unique to each person, must be considered routinely when providing HF self-care education.

Nurse-led Education

HF education is essential to equip patients and their caregivers with the knowledge and skills necessary for adherence to self-care behaviors to effectively manage the disease and thereby achieve positive clinical and patient-reported outcomes (Al-Sutari & Ahmad, 2017; Jaarsma et al., 2021; Negarandeh et al., 2019; Rice et al., 2018; Riegel et al., 2022; Sezgin et al., 2017; Toback & Clark, 2017). According to Negarandah et al. (2019), education during the discharge from hospitalization is the first essential step in the process. However, more than 50% of the nurse-led education empirical studies included in this review were conducted in the outpatient setting only (Al-Sutari & Ahmad, 2017; Bader et al., 2018; Hsu et al., 2021; Hwang et

al., 2020; Liljeroos & Stromberg, 2019; Moon et al., 2018; Sezgin et al., 2017). Nurse-supervised follow-up has been found to improve self-care behaviors and was a component of each empirical and nonempirical source included in the review on the impact of nurse-led HF education. A variety of follow-up approaches, including face to face, home visits, structured telephone support, and follow-up telephone calls, alone or in combination, were seen in all the studies, including the RCT analysis (Rice et al., 2018), with varied lengths of HF self-care education interventions ranging from 4 weeks (Hsu et al., 2021; Hwang et al., 2020; Moon et al., 2018) to 12 months (Chen et al., 2020; Cui et al., 2019). One exception, Hsu et al.'s (2021) study, involved an examination of the impact of a self-regulation program; findings revealed a noted improvement in HF patients' self-care behaviors. The outcomes studied across the sources included hospital readmission rates, length of stay, emergency department visits, physical activity capacity, quality of life, health related quality of life, satisfaction, incidence of depressive symptoms, sleep patterns, and tenets of self-care, including, knowledge, maintenance, management, confidence, or behavior. Overall, the impact seen with patient-reported and clinical outcomes was generally positive. As the exception, no substantial improvement was noted with self-care management, sleep quality, depressive symptom incidences (Chen et al., 2020), and readmissions (Al-Sutari & Ahmad, 2017; Chen et al., 2020) at the follow-up endpoints. Chen at al. (2020) proposed more powerful interventions were needed.

Transitional Care Interventions

As in the nurse-led education studies, diversity was noted in the TC interventions included in this review. Most of the HF TC sources were nonempirical, with two meta-analyses of RCTs, one integrative review, one narrative review, and one descriptive review collectively representing approximately 150 primary and secondary sources spanning the timeframe of

January 2000 to June 2020, all supportive of nurse-led TC for HF patients. A variety of interventions were studied, including self-care education alone, home visits, structured phone support, clinic visits, telemedicine, disease management clinics, and case management which included nurse home visits and telephone follow-up. The implementation timeframe ranged from during the hospital admission to within 24 to 48 hours after discharge up to 12 months after discharge. In the concluding statements presented after the analysis, both Ba et al. (2020) and Garcia (2017) recommended that TC interventions begin upon patient admission to the hospital setting and be individualized according to the needs of each patient (Ryan et al., 2019). These interventions should include an assessment of the patient's HF disease knowledge to determine the baseline for building self-care education with ongoing monitoring to confirm discharge readiness (Ba et al., 2020). Garcia (2017) suggested a multicomponent program based on the evidence of the review. Utilizing a univariate meta-regression analysis, Li et al. (2021) recommended more intense and complex TC approaches to yield greater benefits. Recurrent clinical contact and supportive services postdischarge coupled with self-care education is necessary to impact clinical outcomes (Moon et al., 2018). Van Spall et al. (2017) identified nurse home visits as the most effective method of the TC strategies studied.

Nurse Navigator

Operating at an advanced level (Hudson et al., 2019), NNs have the potential to impact TC by collaborating with multidisciplinary team members regarding discharge planning, education, and ongoing assessment and monitoring via telephone support, home visits, and advocacy (McMurray & Cooper, 2017). Considering all aspects of each person, NNs practice from a holistic lens (Hudson et al., 2019) to align care with the person's needs, aiding them in working through priorities for improved outcomes (Coyne et al., 2020). In partnering with the

person with a chronic disease, NNs "focus on effective use of limited resources, continuity of care, and health literacy for self-management" (Coyne et al., 2020, p. 2920), enabling each person to take an active role in their health. In addition to improved self-management (Ali-Faisal et al., 2017), which should decrease hospitalizations (Coyne et al., 2020), studies have found that patients who work with a NN are more likely to adhere to the treatment plan and attend recommended events such as cardiac rehabilitation (Ali-Faisal et al., 2017). Patients have reported positive outcomes regarding access, support, and aspects of care coordination (Coyne et al., 2020; Hudson et al., 2019).

Clinical Nurse Leader

Educated at an advanced level, CNLs have real-time knowledge of bedside processes and barriers and a skillset that is unique because of the specialty training they have received. Equipped with strong leadership skills, which are central to the educational curriculum (Hulett & Shatto, 2021), CNLs assume "leadership accountability for improving quality and safety of health outcomes for a specified group" (Hatley et al., 2018, pp. 269–270) using evidence-based practice to guide the design, implementation, and evaluation of care (Agomoh et al., 2020). CNLs are also proficient in improvement science, which highlights the function of evidence-based practice and innovation application, which is essential for improving patient outcomes and meeting the goals of the triple aim (cost control, improved patient experience, and better population health; Noles et al., 2019). When a validated practice model is used (Bender et al., 2017; Hatley et al., 2018), CNL-integrated care delivery has been identified as having the potential to meet higher quality standards in health care by the Robert Wood Johnson Foundation, the Agency for Health Care Research and Quality, and the National Academy of Medicine (Bender et al., 2017).

CNLs are academically and clinically prepared to manage outcomes through lateral integration, such as readmissions, to improve care coordination (Hulett & Shatto, 2021). Furthermore, Agomoh et al. (2020) found that the CNL academic curriculum includes the five competencies established by national accrediting bodies for TC: (1) communication; (2) teamwork and collaboration; (3) education and engagement of client and family; (4) educating, promoting, and support for self-management; and (5) assessing/managing risks and symptoms. These competencies enable CNLs to effectively communicate and lead multidisciplinary teams. Additionally, CNLs are skilled in developing individualized educational strategies to promote and support self-care management as well as identifying those who are high risk and require added layers of preventative interventions. While researchers suggest a need for explicit TC competencies, CNLs can coordinate comprehensive care across health care settings for patients, families, and groups (Agomoh et al., 2020).

Synthesis

This integrative review provided useful information to answer the question, "What evidence supports a health care delivery model integration of a CNL serving as a NN to improve TC outcomes for HF patients?" The period after discharge, during the transition from the hospital to home, is a time of elevated vulnerability when patients are at risk for clinical deterioration (Van Spall et al., 2017). As HF is a complex disease process, Ryan et al. (2019) stated "that a single intervention may not be sufficient to address the multiple needs of patients with HF and that the transition of care should be individualized and multifaceted to achieve additive and synergistic effects" (p. 86).

Studies have shown that TC strategies have resulted in improvement in HF patient-reported and clinical outcomes. Diversity was noted in the TC strategies represented in this

review (Ba et al., 2020; Garcia, 2017; Li et al., 2021; Reese et al., 2019; Ryan et al., 2019; Van Spall et al., 2017) as well as the nurse-led educational interventions, which are essential to improving self-care (Al-Sutari & Ahmad, 2017; Bader et al., 2018; Chen et al., 2020; Cui et al., 2019; Hsu et al., 2021; Hwang et al., 2020; Kolasa et al., 2022; Liljeroos & Stromberg, 2019; Moon et al., 2018; Negarandeh et al., 2019; Rice et al., 2018; Sezgin et al., 2017; Son et al., 2020; Sun et al., 2019). In addition to the variety of interventions, opposing views regarding the impact of dose intensity was noted by Li et al. (2021), who suggested that the intensity coupled with the complexity of the interventions could be driver for patient outcomes. On the other hand, Hwang et al. (2020) found comparable effects on self-care with a single session of education followed by two telephone calls in one intervention group and a single session of education with additional telephone calls and an audiotape recording of the educational session in a second intervention group. These contrasting results mean that more research is required.

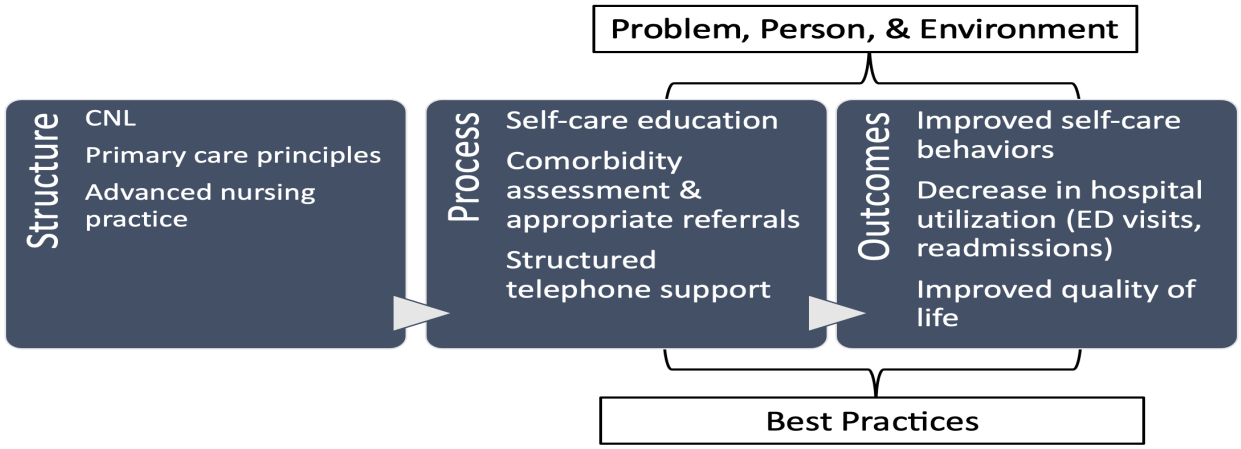
There is strong evidence regarding the inclusion of family members in the self-care educational offerings if the patient is agreeable (Jaarsma et al., 2021), as their support has been shown to increase self-care behaviors of HF patients (Riegel et al., 2022). Furthermore, the Joint Commission has affirmed the inclusion of family caregivers in discharge education (Son et al., 2020). While several of the nurse-led education papers included in the review involved family in the delivery of the content (Al-Sutari & Ahmad, 2017; Cui et al., 2019; Hwang et al., 2020; Rice et al., 2018; Son et al., 2020; Sun et al., 2019), consistency is not seen. While, self-care education is important, motivation is more vital for patients to continue the behaviors to improve their health status (Moon et al., 2018: Riegel et al., 2022; Toback & Clark, 2017). Other strategies were presented in the studies in this review included the initiation of referrals for comorbid conditions (Cui et al., 2019; Jaarsma et al., 2021; Reese et al., 2019; Riegel et al., 2022; Toback

& Clark, 2017) and securing access to resources needed (Cui et al., 2019; Hudson et al., 2019; McMurray & Cooper, 2017; Riegel et al., 2022; Toback & Clark, 2017; Van Spall et al., 2017).

Moving away from the adage "a nurse is a nurse," one scholar stated, "the TC program should include a TC nurse with advanced skills and education to manage the multidisciplinary HF programs" (Garcia, 2017, p. 24). Nurse-led models of care have demonstrated an improvement in the health of populations moving between the care settings (Coyne et al., 2020; McMurray & Cooper, 2017). Unique to the NN is the autonomy to determine the best method to aid in the transition (McMurray & Cooper, 2017). Due to their advanced academic preparation with the inclusion of TC competencies in the curriculum, coupled with the complexity associated with the care transitions of adult HF patients, a CNL serving as a NN is a good fit. The literature included in this review demonstrates improvements in patient-reported and clinical outcomes overall; however, consistency and standardization are missing in numerous components that could be used for the formulation of a successful NN program. Additionally, with the advancing age of the population and increasing comorbidities, meeting higher health care quality standards will serve to close the care gap a little more. Therefore, redesigning the care delivery model by integrating the CNL aligns with quality priorities and care needs (Bender et al., 2017; Hatley et al., 2018). Undergirding this model, the situation-specific theory of heart failure self-care ensures holistic care considering the unique impact of person, problem, and environmental factors at a particular moment (Riegel et al., 2022). This proposed integrated model of care delivery can be supported by the Donabedian framework (Ameh et al., 2017; see Figure 1).

Figure 1

Donabedian Framework Example of CNL-Integrated Care Delivery



Ethical Considerations

The writer completed the two-part Collaborative Institutional Training Initiative Program (see Appendix C). Additionally, the appropriate processes were followed to submit this integrative review to the Liberty University Institutional Review Board. Following the review process, the writer received an email from the Institutional Review Board indicating that the project did not meet the definition of human subjects research (see Appendix D).

Section Six: Discussion

This review was conducted to synthesize the literature related to NN principles, TC strategies, and nurse-led educational interventions for adult HF patients to determine if there is support for integrating a CNL serving as a NN into the health care delivery model for this population. The studies included expert opinions regarding HF self-care education, nurse-led educational interventions, CNLs, NNs, and TC for HF. Overall, positive clinical and patient-reported outcomes are noted in each subcategory and can be applied to the adult HF population being discharged from the acute care setting to home.

However, when viewing the findings and supporting literature collectively, several areas of overlap are noted. A range of nurse-led education interventions demonstrated a positive impact on both patient-reported and clinical outcomes (Al-Sutari & Ahmad, 2017; Jaarsma et al., 2021; Negarandeh et al., 2019; Rice et al., 2018; Riegel et al., 2022; Sezgin et al., 2017; Toback & Clark, 2017), initiated during hospitalization or in the outpatient setting (Al-Sutari & Ahmad, 2017; Bader et al., 2018; Hsu et al., 2021; Hwang et al., 2020; Liljeroos & Stromberg, 2019; Moon et al., 2018; Sezgin et al., 2017). Self-care education is the key focus of the nurse-led educational interventions in addition to TC strategies (Ba et al., 2020; Garcia, 2017; Li et al., 2021; Reese et al., 2019; Ryan et al., 2019; Van Spall et al., 2017), the role of the NN (Hudson et al., 2019; McMurray & Cooper, 2017), and the CNL leading a TC team (Agomoh et al., 2020). Structured telephone support was the most noted follow-up component, seen in 83% of the primary sources regarding nurse-led interventions as well as in the realm of NN (Ali-Faisal et al., 2017) and TC (Ba et al., 2020; Garcia, 2017; Li et al., 2021; Reese et al., 2019; Ryan et al., 2019; Van Spall et al., 2017). Consistency and standardization of interventions remains to be seen; however, a level of flexibility is required due to the unique needs of each patient.

Undergirding this review, the situation-specific theory of heart failure self-care ensures that the unique nature of each patient is assessed so that best practices may be applied with intervention implementation. To meet the growing need of the aging population where HF is one of the most common diagnoses of hospital admissions, the integration of a CNL as a NN into the care delivery model is a method to improve population health. Demonstrating advanced nursing practice, the CNL is equipped to lead multidisciplinary teams, navigate the complex health care system, establish partnerships with patients and families, and ensure that risks are mitigated.

Implications for Practice/Future Work

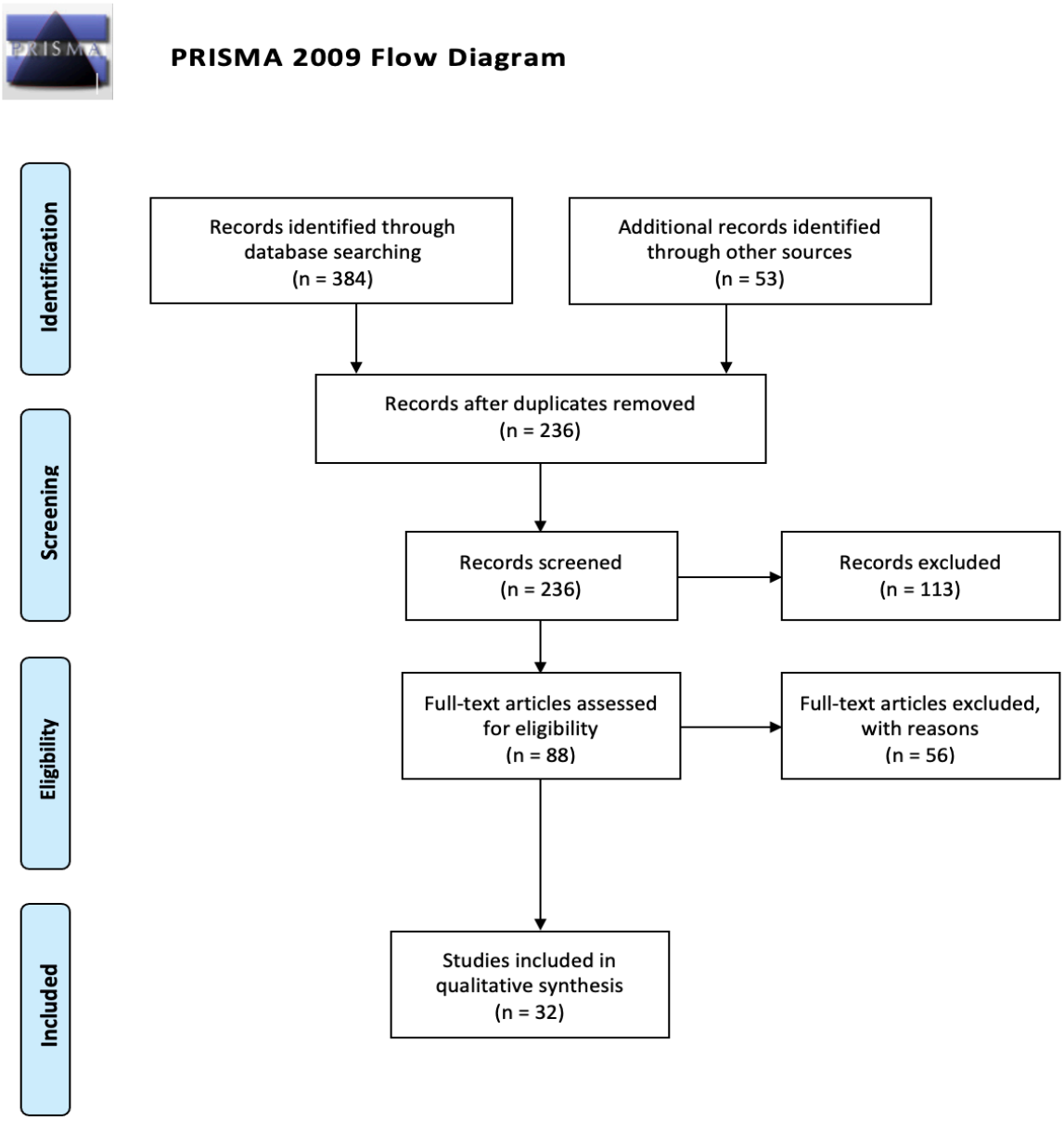
This study contributes to the growing body of literature regarding the management of HF patients and transition of care. This review also makes a new contribution to the literature by proposing this model of CNL-integrated care delivery. Future studies should focus on trialing this proposed model of care and, if successful, implementing it into practice. Lastly, with the trialing of this model and subsequent dissemination of findings, the impact associated with the role of the CNL to address the critical need to improve quality patient outcomes will be demonstrated, which is currently underrepresented in the literature.

Dissemination

The writer intends to submit this review to Scholar's Crossing for publication and accessibility by Liberty University students and alumni and the general public via Google. Once submissions are open, the writer will submit an abstract for the next scheduled CNL Summit, a national professional conference, for this review to be presented as a poster or podium presentation. As a CNL, the writer will also disseminate this review via several avenues associated with her employer, including the CNL community of practice and the national nursing practice council, both enterprise-level venues. Lastly, the writer will disseminate this work at her employer research day or the next scheduled Nurses' Week.

Appendix A

PRISMA 2009 Flow Diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

Appendix B

Literature Matrix

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Agomoh, C. J., Brisbois, M. D., & Chin, E. (2020). A mapping review of clinical nurse leader and nurse educator transitional care skills and competencies. *Nursing Outlook*, *68*(4), 504–516. https://doi.org/0.1016/j.outlook.2020.02.003	To identify and synthesize essential recommendations regarding the content in academic curricula required to increase the nurse educator (NE) and clinical nurse leader (CNL) student transitional care knowledge and skills.	Three documents outlining graduate education competencies for the CNL and NE and six guidelines from national accrediting bodies referencing the knowledge and skills needed for effective transitional care. All met the inclusion criteria in addition to the dates listed were 1) written in the English language, 2) empirical and nonempirical literature, 3)	The Johns Hopkins Nursing Evidence Based Practice Model was utilized to appraise the quality and strength the documents and guidelines.	Five competencies for transitional care were identified, communication, teamwork and collaboration, engagement and education of patients and family, support and promotion of self-management, and assessing and managing	Level 5	The results of the study were weakened by the lack of empirical evidence to support the requirements for CNL and NE academic preparation. Therefore, the authors were not able to identify how transitional care competencies are developed for the NE who serve	Despite the authors' conclusion that the five transitional care competencies coincide with the those in the current CNL and NE field from a broader perspective. curriculum specific to leading transitional care teams. Therefore, CNLs with additional education and experience in

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		national guidelines that addressed knowledge and skills needed for transitional care, 4) focusing on CNL or NE education, and 5) documents from certification organizations. Exclusion criteria included studies that 1) focused on clinical nurse specialists and advance practice nurses, 2) focused on undergraduate nursing students, and 3) systematic or literature reviews. Guidelines and recommendations regarding competencies for		symptoms and risks. These competencies are represented in the CNL and NE master's level degree programs broadly.		as trainers or the CNL who is preparing to lead a transitional care team.	the care of heart failure (HF) patients are prepared for the role of the nurse navigator (NN) in the program designed to improve the transitions of care for HF patients.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		transitional care nurses were searched on websites such as the Joint Commission Division of Health Care Improvement, Agency for Healthcare Research and Quality and World Health Organization.					
Ali-Faisal, S. F., Colella, T. J., Medina-Jaudes, N., & Scott, L. B. (2017). The effectiveness of patient navigation to improve healthcare utilization outcomes: A meta-analysis of	To establish the effects of patient navigation on health care utilization outcomes of adherence to appointment completions for diagnostic resolution, cancer care	Twenty-five studies that met the following criteria 1) peer-reviewed, 2) English, 3) randomized control trials (RCTs), 4) tested a navigation intervention, measured components of	Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement recommendations.	Participants who received navigation were almost three times more likely to attend care events as recommended by the health care	Level 1	Many of the studies included had small sample sizes, articles limited to the English language, the level of training the patient	Although it unclear if the those serving in the role of patient navigator are nurses the outcomes data presented is relevant to multiple areas of

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
randomized control trials. *Patient Education and Counseling*, *100*(3), 436–448. https://doi.org/10.1016/j.pec.2016.10.014	follow-up treatment, attendance to care events such as smoking cessation programs, and health screening rates.	the intervention, and assessed a health outcome, and 5) "navigation" or variant intervention. Exclusion criteria included 1) non-peer reviewed articles, 2) quasi-experimental, qualitative, or case study studies, 3) meta-analyses, editorials, case series, conference proceedings, notes, or systematic reviews, 4) research testing technology applications, and 5) non-empirical studies.		team. Increased adherence to recommended screening behaviors, follow-up treatments, and diagnosis resolution for cancer was also noted.		navigators received was unclear, and variability in follow-up times for assessment of outcomes	health care including HF.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Al-Sutari, M. M., & Ahmad, M. M. (2017). Effect of educational program on self-care behaviors and health outcome among patients with heart failure: An experimental study. *International Journal of Evidence Based Healthcare*, *15*(4), 174–185. https://doi.org/10.1097/XEB.0000000000000108	The implementation of an education program for HF patients and to evaluate the effectiveness of this program on self-care behaviors and associated health outcomes of emergency department visits, frequency of hospitalizations, and mortality.	A comparative-experimental design was used for this study which included a total of 135 participants who completed all phases of the study. Eligibility criteria included 1) 18 years old or older, 2) left ventricle ejection fraction of 40% or less, 3) cardiologist attending confirmed HF diagnosis, 4) able to speak Arabic, 5) New York Heart Association (NYHA) functional class II or III, and 6) have a telephone to be accessible for follow-up.	The education program consisted of three parts. The first was an hour in person education session. The second part was a manual that was provided to reinforce the information covered during the in-person session. Lastly, telephone follow-up occurred once per week for the first month and once every other month for month two and three.	There was a significant increase in self-care maintenance and self-care management and lower emergency department visits for the intervention group. No significant differences were noted with the number of hospitalizations or mortality.	Level 2	This was a single center trial therefore the results cannot be generalized. Second, the follow-up period was short which did not allow for measurement of the consistency in maintaining the participants improvement of self-care and behaviors and health outcomes. Lastly, how each individual	Although the results are not generalizable, this study demonstrates improved outcomes with nurse led education a planned component of the recommended CNL NN program.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		Participants were excluded if they had dementia.				interpretated the questions on the self-administered instrument was not controlled leading to the possibility of answering the people's questions about each item was reduced.	
Ba, H. M., Son, Y., Lee, K., & Kim, B. (2020). Transitional care interventions for patients with heart failure: An integrative review.	To identify the components of transitional care interventions (TCIs) and the impact on HF patient outcomes.	Twenty-five articles that met the following criteria 1) published between January 2000 and December 2019, 2) patients transitioning	Mixed methods appraisal tool	TCIs were found to reduce HF readmission rates in approximately 55% of the studies. Nurse led intervention	Level 5	Only English publications were searched and included, and gray literature was not	The information included in this review supports the plans for heavy dosing of the navigator program

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
International Journal of Environmental Research and Public Health, *17*(8), Article 2925. https://doi.org/10.3390/ijerph17082925		from the hospital to home, 3) published in English, 4) available in full text, 5) focused on adult HF patients, 6) focused on the effectiveness of transitional care programs or interventions, and 7) patient-related and clinical outcomes were mentioned as dependent variables. Exclusion criteria included 1) studies that did not describe the transitional care procedure or process of intervention, 2) non-original articles, 3)		s significantly decreased readmission and death. Patient reported outcomes of quality of life (QoL) and health-related QoL was improved in more than 90% of studies included.		searched. Coupled together all relevant research may not have been included in the review.	interventions post discharge.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		development of an instrument, and 4) study protocols.					
Bader, F., Atallah, B., Sadik, Z. G., Tbishat, L., Gabra, G., Soliman, M., Bakr, K., Ferrer, R., Stapleton, J., & Khalil, M. (2018). Nurse-led education for heart failure patients in developing countries. *British Journal of Nursing*, *27*(12), 690–696. https://doi.org/10.12968/bjon.2018.27.12.690	To evaluate nurses' knowledge about HF, obtain an assessment of patients' baseline knowledge, and to appraise the effectiveness of nurse-driven structured education.	Nurses who were involved in the care of HF patients were randomly selected from several units throughout the facility. Six were excluded due to being a part of the HF program resulting in a sample size of 131. Patients were included in the sample of 30 participants if they were new patients referred to the HF program. Other inclusion criteria included and a	Participants received standard nurse-led education during the first visit as well as each subsequent visit during three to six months. Two researchers utilized independent surveys, the first to assess nursing knowledge and the second to evaluate HF patients' general knowledge. The survey for	Post-intervention survey responses indicated more awareness regarding salt and fluid restriction, monitoring of daily weights, and the actions required in scenarios with a weight increase of more than 2kg. Improvement was also	Level 4	Small sample and single site study.	Although the sample of patients was small and the number of subsequent appointments with standard nurse-led education was unclear the improvements in patient knowledge and reduction in readmission between baseline and follow-up were significant.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		HF diagnosis for at least three months and were able to read and understand the survey. Exclusion criteria included 1) younger than 18 years old, 2) noncompliant with appointments, 3) unable to read and understand the survey questions, 4) unwillingness to participate, and 5) if they were unable to complete the follow-up survey.	patients was administered twice, at baseline and once for follow-up.	seen with patients' physical activity. Readmissio n reductions were also noted.			
Bender, M., Connelly, C. D., & Brown, C. (2017). Interdisciplinary collaboration:	Empirical validation of a conceptual model of CNL integrated care delivery.	A total of 518 respondents to the survey who reported involvement in a CNL initiative	An expert panel used focus group discussions to refine the CNL model	The study identified and validated a pathway of CNL-	Level 6	Direct recruitment from the known population of CNLs	The content in this article lists outcomes associated with the

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
The role of the clinical nurse leader. *Journal of Nursing Management*, *21*, 165–174. https://doi.org/10.1111/j.1365-2834.2012.01385.x		with a response rate of 22% overall. Sequential mixed methods design with a qualitative survey and model refinement and quantitative analysis of a survey administered post intervention.	components and domains. The result was a model that included 15 components organized into 5 domains: structuring CNL-integrated care delivery, readiness for CNL-integrated care, CNL practice: continuous clinical leadership, administrative/ social integration at the macro-to-micro level, and outcomes of CNL-integrated care delivery. Subsequently a	integrated care delivery that begins with organizational readiness for change and ends with the value domain where CNL-integrated care delivery is perceived as value adding. After organizational readiness, the next domain is structuring the CNL-integrated care delivery where the		and snowball sampling to recruit leaders and clinicians involved in CNL initiatives and the population size is not known. Potential for different interpretations of survey items due to heterogeneity of care delivery systems. Effectiveness of the CNL-integrated care delivery was not provided	incorporation of the CNL into a health care delivery model that has been redesigned aligning the CNL workflow with the need of the microsystem. Demonstrating leadership at the point of care improved patient outcomes as well as care coordination in addition other patient outcomes. The workflow redesign and associated

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
			survey was developed, pretested with a convenience sample, and revised after respondent debriefing. The refined survey was then administered to the target population via email.	microsystem is re-designed to allow the CNL to be accountable for all nine CNL essentials of competence. The third domain, continuous practice leadership enacting four core practices surrounding communication, relationship building, creation and sustainment of effective teams, and support of staff		by the validated model.	improvements support the CNL as a NN.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
				engagement. The fourth domain, outcomes included validated elements for improved care quality.			
Chen, H., Wang, S., Wu, S., Lee, C., Fetzer, S., & Tsai, L. (2020). Effects of predischarge patient education combined with postdischarge follow-ups on self-care, readmission, sleep, and depression in patients with heart failure. *The Journal of*	To evaluate the effects of a program with the education given predischarge and self-care behaviors, depression, sleep quality, and readmission post discharge follow-up for one year for HF patients.	Longitudinal, nonequivalent, pretest-posttest design for two groups. There were 47 participants, randomly assigned to the intervention or control groups, who completed the entire study. Subjects were selected based on the inclusion criteria of 1) ability to communicate in	The intervention group received individualized education and by a trained advanced care cardiac nurse or principal investigator on the day immediately after admission. The education was provided in a pamphlet. After discharge telephone	The intervention group demonstrated adequate self-care maintenance at the six-month follow-up without significant improvement sustained at 12 months. On the other hand, the control	Level 2	Bias may have been introduced due to the groups not being equivalent. The sample size was small and a high drop-out at 76% of participants occurred.	The outcomes of continued telephone consultative education in this study demonstrated an increase in self-care maintenance and management illustrating that the incorporation of this method of ongoing

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Nursing Research, *28*(5), Article e112. https://doi.org/10.1097/JNR.0000000000000395		Taiwanese, Chinese, or Mandarin without shortness of breath, 2) were 20 years of age or older, and 3) NYHA classification of II or higher. Subjects were excluded for 1) had musculoskeletal limitations such as hemiplegia noted in the medical record, 2) had a diagnosis of dementia, or 3) psychological impairment.	follow-up and outpatient consultation was performed within the first week by cardiac educators. Subsequently telephone follow-ups and consultations were conducted at month 1, 3, 6, and 12. Only outcome follow-ups were completed for the control group at month one, three, six and 12.	group had inadequate self-care throughout the entire study based on the instrument utilized. The intervention group had improved self-care managemen t 1 month after discharge. No effect was noted with the prevalence of depression. The intervention group were less likely to be rehospitaliz			educational support is beneficial.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
				ed and had a longer time to readmission during the yearlong follow up period, but this was not significant when compared to the control group.			
Coyne, E., Carlini, J., Doherty, T., Harlow, W., Mitchell, M. L., & Grealish, L. (2020). Partnership between nurse navigators and adult persons living with complex chronic disease-	To explore the partnership experiences for adults with complex chronic diseases and NNs.	A convenience sample of NNs who were working with adult patients with chronic disease. Exclusions were NNs working with adults with mental health conditions or pediatric patients. A total of seven	Semi-structured interviews were performed and studied using descriptive content analysis in this interpretive exploratory qualitative approach.	Three themes identified in the NN responses: 1) establishing and sustaining relationships, 2) nurse-led planning, and 3)	Level 6	Recruitment bias was a possibility for convenience samples. The small sample size and single jurisdiction are other limitations of this study.	The themes of nurse navigation and the associated overall nurse engagement and client satisfaction identified offer support for navigation.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
An exploratory study. *Journal of Clinical Nursing*, *29*(15–16), 2918–2926. https://doi.org/10.1111/jocn.15364		NN participated. Adult patients with two or more diagnosed chronic diseases and their family members who were receiving NN services were the participants. Eleven of the 14 participated in the study.		aligning care with the clients' needs. Two themes identified through a secondary analysis were establishing relationships and person-focused and nurse-led partnerships. The themes from the consumers were regular contact is seen as access to the health system and valued nurses.			

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Cui, X., Zhou, X., Ma, L., Sun, T.-W., Bishop, L., Gardiner, F. W., & Wang, L. (2019). A nurse-led structured education program improves self-management skills and reduces hospital readmissions in patients with chronic heart failure: A randomized and controlled trial in China. *Rural and Remote Health*, *19*(2), Article 5270. https://doi.org/10.22605/RRH5270	Evaluate the impact of a nurse-led education program on hospital readmissions and patient self-management.	An RCT was conducted between January and October 2016. Ninety-six patients were who were 18 years old or older with symptoms classified using the New York Heart Association classes of HF as II or above, with and ejection fraction of 45% or less at initial HF diagnosis. Exclusions included patients with acute renal failure, thromboembolic events, chronic obstructive pulmonary disease (COPD), acute coronary syndrome.	The intervention group received two one-hour of HF education before discharge. Teaching strategies included in person tutorials, printed materials, and pictures which were given to the participants and their family members. The patients were provided with printed charts for recording measures during the study period. Community	Patients who received structured in-hospital and after discharge education were able to better self-manage their condition including dietary modification, symptomatic control, medication adherence, and psychological and social support.	Level 2	Limited to a small sample size located in only one region in China which limited generalizability. Cognitive function and other comorbidities were not evaluated but may impact HF outcomes.	This study provides support for the role in providing education fostering better self-management of HF patients with a telephone or in-person consult once per month.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		Hearing or vision impairment, inability to give informed consent or participate in regular follow-up appointments, or with untreated mental health disorders	support groups were contacted for those patients without family support or lived in isolation. Counseling was offered to the participants who had mild symptoms of mental disorders such as anxiety or depression. An individualized exercise plan was created for each participant based on physical condition and exercise tolerance. Following discharge each				

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
			participant was also encouraged to attend the HF clinic every eight weeks in addition to a 15-30-minute telephone or in-person consult every 4 weeks before the clinic visits. Recorded data was reviewed and concerns were addressed if needed.				
Garcia, C. G. (2017). A literature review of heart failure transitional care interventions. *The American Journal of Accountable*	To appraise current literature regarding TCIs and determine effectiveness of reducing hospital	Articles were included if one of the outcomes was HF readmissions after implementation of the interventions. Six articles met the	The primary tool used to appraise and rate the quality and strength of each article was the John Hopkins Nursing	The six articles included in this review suggest that multicompo nent programs initiated	Level 5	No limitations were included by the author.	This review provides several interventions that can be integrated into integrative review.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Care, *5*(3), 21–25. https://www.ajmc.com/view/a-literature-review-of-heart-failure-transitional-care-interventions	admissions for HF patients.	inclusion and exclusion criteria, two were RCTs and four were systematic reviews limited to the English language, no earlier than 2009, systematic reviews, and RCTs.	Evidence-Based Practice Research Evidence Appraisal Tool. A secondary evaluation was performed of the four systematic reviews considering their strengths and weaknesses with the PRISMA checklist.	upon admission and continued after discharge lead to a reduction in HF readmissions. The transitional care programs led by nurses included home visiting with in-person, remote monitoring of vital signs, telephone calls, videophone calls, and messaging.			

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
				Most of these interventions included educational components and have shown significant improvement in quality of life, lower health care cost, and a reduction in readmission rates.			
Hatley, A., Ralyea, T., Buttriss, G. O., & Rankin, V. L. (2018). Clarifying role expectations and practice standards using a clinical nurse	To introduce and assess a CNL professional practice model illustration to communicate practice standards and	Convenience sample of 71 nursing staff employed in clinical, leadership, and supportive roles of one service line. Participants were recruited	Participants attended a scripted educational session where the developed illustration of the CNL professional practice model.	Familiarity and importance of the nine aspects of the role increased with intervention which were	Level 3	There is no awareness regarding how the illustration developed compares to other modalities for	Although this study was not performed to contribute to generalizable knowledge, it illustrates that the CNL role is one

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leader professional practice model illustration. *Journal of Nursing Care Quality*, *34*(3), 269–272. https://doi.org/10.1097/NCQ.0000000000000370	role expectations.	during daily during bed huddles.	A paper based closed ended question survey was administered before and after the educational intervention.	both statistically significant.		describing the CNL competencies and role in an educational format. Also, this study was not conducted with the intent of developing generalizable knowledge.	that could be utilized appropriately if understood thereby leading to improved patient outcomes such as care coordination which is a foundational concept for this integrative review.
Hsu, M., Chiang, C., & Chiou, Q. (2021). The effects of a self-regulation program on self-care behavior in patients with heart failure: A	To assess the effects of a self-regulation program for HF self-care.	Randomized control trial of 82 participants who met the inclusion criteria of 1) agreeing to communicate and participate in the study, 2) 20 years of age or older, 3) cardiologist	The intervention group participants received one individualized educational session regarding the self-regulation program in-	The intervention group demonstrated significantly greater improvement in self-care maintenance and	Level 2	The limitations of this study were the small sample size and the single location indicating that the	Based on the outcomes of this study, the concept of self-regulation may be considered for incorporation into the self-

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
randomized controlled trial. *International Journal of Nursing Studies*, *116*, Article 103778. https://doi.org/10.1016/j.ijnurstu.2020.103778		diagnosed HF, and 4) a clear consciousness without cognitive impairment. Participants were excluded for 1) cognitive impairment, 2) cancer or mental illness including anxiety and depression, 3) renal failure, or 4) lung disease such as asthma or chronic obstructive pulmonary disease.	person which also included an overview of HF and self-care behaviors. This was followed by twice a week telephone follow-up counseling session for four weeks. During these sessions the researcher guided the patients in the identification of their personal problems and helped them tailor their self-care behaviors based on their past experiences and records. The patients	management at four weeks and self-care confidence at eight weeks.		results may not be generalizable to all HF patients of different races. Additionally, changes in self-regulations processes were not measured. Long-term effects were not evaluated, and two methods of data collection were employed. Lastly, family participation was excluded.	care educational component of a CNL NN program for HF patients as a means of motivation for the patients.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
			then formulated a personal plan, setting appropriate goals to modify specific behaviors. Follow-up assessments of the outcome measures were at Week 4 and 8 for both groups.				
Hudson, A. P., Spooner, A. J., Booth, N., Penny, R. A., Gordon, L. G., Downer, T., Yates, P., Henderson, R., Bradford, N., Conway, A., O'Donnell, C., Geary, A., &	To examine patients' and caregivers' experiences of receiving care from a NN.	Twenty-five patients and caregivers agreed to participate one who was under the age of 18. The adult participants ranged in age from 18 to over 70 years old. Twelve of the	Semi-structured interviews were conducted using an interview guide by one of the two research nurses. The interviews for	Four themes were identified: 1) being our compass, 2) being there for us, 3) knowing is power, and 4) bringing it together.	Level 6	The researchers initially aimed to recruit 10 children but were only able to secure one. This was a challenge for	The findings of this qualitative study provide insight into the perceived impact and importance of NNs for patients who have complex

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Chan, R. J. (2019). Qualitative insights of patients and carers under the care of nurse navigators. *Collegian*, *26*(1), 110–117. https://doi.org/10.1016/j.colegn.2018.05.002		participants were patients and the remaining 13 were caregiver, 9 who were parents. The health conditions of the children included complex gastrointestinal and/or respiratory problems and acquired brain injury. The adults suffered from stroke, diabetes, complications of pregnancy, cancer, chronic respiratory conditions, and mental health disorders.	patients and caregivers were conducted separately either in person in a private room or on the telephone as chosen by the participants. A thematic analysis was conducted using the six phases described by Braun and Clarke.			obtaining the experiences of children as intended. Despite only recruiting one child the researchers were able to obtain the experiences of nine parents.	medical issues and those charged with caring for them.
Hulett, B., & Shatto, B. (2021). Clinical nurse leaders: Illuminating	To highlight the CNL role in health care and discuss	N/A	N/A	N/A	Level 7	N/A	In this expert opinion the writer provides a great deal of

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
and leading the future. *Nursing Management*, *52*(8), 49–51. https://doi.org/10.1097/01.NUMA.0000758712.33132.83	the future of this position.						insight regarding the intent of the CNL role, the training received, and the ability of those in these positions including care coordination which is the foundation of the NN program.
Hwang, B., Pelter, M. M., Moser, D. K., & Dracup, K. (2020). Effects of an educational intervention on heart failure knowledge, self-care behaviors, and	To evaluate the impact of an educational program for rural HF patients on patient-reported outcomes and to examine differences between	An RCT of 614 patients who were placed in the usual care or 1 of the 2 intervention groups. Inclusion criteria included 1) 18 years of age or older, 2) a clinical diagnosis of HF, 3) ability	Both intervention groups attended a 50-minute in-person educational session designed to increase knowledge about HF and	At three months, both intervention groups had higher HF knowledge. At months 12 and 24, the PLUS group had significantly	Level 2	This study is only generalizable to patients who live in rural areas with limited access to health care and resources. The	Although the findings from the study are only generalizable to patients who live in rural settings, the lack of impact seen with those patients who

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
health-related quality of life of patients with heart failure: Exploring the role of depression. *Patient Education and Counseling*, *103*(6), 1201–1208. https://doi.org/10.1016/j.pec.2020.01.007	patients with and without depression.	to read and write English, 4) hospitalized for HF within the previous 6 months of the study time frame, 5) living in rural area defined as a town of < 2,500 persons, open country, or a metropolitan center of < 50,000 persons, and 6) living independently. Exclusion criteria for this study were 1) complicating serious comorbidities, 2) cognitive impairment defined as a word recall score of zero or less than or equal to two	improve self-care with a registered nurse. Family members were invited to attend the session. A script was provided for use when calling a health care provider regarding worsening HF symptoms, diaries to record HF symptoms and daily weights, and a scale. The LITE intervention group also received two biweekly calls from the registered nurse who	higher HF knowledge than the LITE intervention group. Self-care behaviors were significantly better in both intervention groups at three months than those who received usual care. However, at 24 months there was no significant difference noted between all three groups. All three groups		researchers could not rule out the possibility of lack of power to determine effects of the interventions for patients with depressive symptoms.	have depressive symptoms points to the importance of depression screening and subsequent referrals as needed. This aspect of care coordination is aligned with the role of nurse navigation.

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		with an abnormal clock drawing on the Mini-Cog assessment, or 3) current participation in a HF disease management program.	provided the education to reinforce the information provided. Biweekly calls were also made to the PLUS group until they demonstrated content competency. This group also received an audiotape of the educational session for home review as needed.	demonstrated better health-related QoL at 3 months. This was sustained throughout the 24-month study period. There was not dose related effectiveness seen with self-care. Lastly, intervention effects were seen with patients who did not have depressive symptoms.			
Jaarsma, T., Hill, L., Bayes-Genis, A., La	To offer practical advice for	N/A	N/A	N/A	Level 7	N/A	The information presented by

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Rocca, H. B., Castiello, T., Celutkiene, J., Marques-Sule, E., Plymen, C. M., Piper, S. E., Riegel, B., Rutten, F. H., Gal, T. B., Bauersachs, J., Coats, A. J., Chioncel, O., Lopatin, Y., Lund, L. H., Lainscak, M., Moura, B., . . . Stromberg, A. (2021). Self-care of heart failure patients: Practical management recommendations from the Heart Failure Association of the European Society of Cardiology.	health care professionals providing care for patients with HF.						the authors included current guidelines and evidence all areas of self-care maintenance, monitoring and management to be integrated into the education provided by the CNL NN, which is important for improving QoL, mortality, and readmissions.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
European Journal of Heart Failure, *23*(1), 157–174. https://doi.org/10.1002/ejhf.2008							
Kolasa, J., Fraczek-Jucha, M., Grabowksi, M., Jankowska, E. A., Lelonek, M., Pawlak, A., Uchmanowicz, I., & Nessler, J. (2022). A quasi-experimental study examining a nurse-led educational program to improve disease knowledge and self-care for patients with acute decompensated	To implement and evaluate a nurse-led standardized HF education program with the intent of improving knowledge of the disease and self-care behaviors for patients admitted to the hospital with acute decompensated HF with reduced ejection fraction.	A total of 231 participants hospitalized due to acute decompensated HF were included in this quasi-experimental pretest-posttest study. Inclusion criteria included 1) a HF diagnosis with an ejection fraction of < 40%, 2) agreement to treatment, and 3) cognitive ability to participate. There were no exclusion criteria.	Two educational sessions were provided by a certified NE while the patients were admitted. At the conclusion of the second session, each participant was provided a cover letter to the primary care physician, a drug dispenser, and a HF passport with an individualized	Self-care behaviors improved and the level of consulting behaviors also significantly increased at the end of the study period, three months. The level of provider-based adherence also improved. Post-	Level 3	One limitation of this study is the quasi-experimental, non-randomized design. No control group, the small sample size, and the short observation period are also limitations. The researchers also	Despite the small sample size and short follow-up time frame the results further support telephone follow-up education for HF patients to improve HF knowledge and self-care behaviors.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
heart failure with reduced ejection fraction. *Advances in Clinical and Experimental Medicine*, *31*(3), 267–275. https://doi.org/10.17219/acem/143989			treatment plan. Following discharge, three follow-up telephone calls were made with the last being at three months.	discharge telephone calls were found to also have a positive impact on patients HF knowledge and self-care behaviors.		indicated that another limit to this study was that most of the subjects were relatively young, lived with family in the city, and had a higher educational level. These factors combined with hospitalization for ADHF suggests that these patients may have higher levels of initial disease managemen	

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
						t and health literacy and could be significantly different from "an average patient."	
Li, M., Li, Y., Meng, Q., Li, Y., Tian, X., Liu, R., & Fang, J. (2021). Effects of nurse-led transitional care interventions for patients with heart failure on healthcare utilization: A meta-analysis of randomized controlled trials. *PLoS One*, *16*(12), Article e0261300. https://doi.org/1	To explore the dose-response and effectiveness of nurse-led TCIs on HF patients' health care utilization including emergency department visits, length of hospital stays, all-cause and HF-specific readmissions. An additional purpose of this	The following inclusion criteria for RCTs included was 1) patients with a primary diagnosis of HF 18 years or older who were discharged home from the hospital, 2) reported at least 1 of the following outcomes within a 6-month period: HF readmissions, all-cause readmissions, emergency department visits,	Meta-analyses, meta-regression analysis, and the one-stage robust error meta-regression approach were performed as appropriate. The strength of each outcome was assessed with the Grading for Recommendation Assessment, Development,	The studies included multiple nurse-led interventions to develop transitional care strategies which included case management and structured telephone support which were the most widely	Level 1	Most of the studies were performed in high-income countries, with approximately half in the United States leaving the findings insufficient to determine the extent these nurses led TCIs can be applied to	Although the specifics of the interventions included in this review were not outlined the findings support the impact of nurse-led TCIs on HF readmissions which is the aim of this project.

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0.1371/journal.pone.0261300	study was to identify trial-level characteristics that have demonstrated overall effectiveness.	and hospital length of stay, and 3) compared nurse-led TCIs initiated either during or within 1 week of the HF hospitalization with usual care. Studies that recruited patients with general cardiac disorders were excluded as well as those that focused on medical practices with nurses only assisting with the interventions.	and Evaluation guidelines.	utilized. Other interventions included monitoring, counseling, education, and extended follow-up. The interventions ranged from 2 weeks to 6 months. The interventions suggested a risk reduction of all cause and HF related readmission with a mean of 9% and 29% respectively when		low- and middle-income countries. The findings should be interpreted cautiously as the risk of bias of the studies included is judged as high. The number of TCI intervention types was large and the number of studies was small for some types for a reliable analysis to be conducted so no	

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				compared to patients who received usual care. Nurse-led TCIs also proved to be effective in decreasing length of stay but was not found to decrease emergency department visits.		subgroup analysis was performed. Lastly, there was a large amount of inconsistency in the definition of usual care which added to the clinical heterogeneity resulting in the inability to precisely capture the overall program dose.	
Liljeroos, M., & Stromberg, A. (2019). Introducing nurse-led heart failure clinics in	To examine the impact of implementing a nurse-led HF clinic in primary care	One health care region with three hospitals totaling 270 beds baseline data. For the post implementation	Creation of a nurse-led interdisciplinary clinic for HF patients.	The implementation of a nurse led interdisciplinary clinic	Level 3	The pretest-posttest design	Although this study did not include specific details of the nurse led

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Swedish primary care settings. *European Journal of Heart Failure*, *21*(1), 103–109. https://doi.org/10.1002/ejhf.1329	settings on evidence-based HF treatment and hospital utilization. To evaluate patients' experiences of the HF clinics.	year 762 patients, mostly male with a mean age of 75 registered to the Swedish HF registry. Pretest-posttest design where in-hospital utilization was compared to post implementation data.		where nurses provide specific HF education, optimize medication adherence, and support self-care resulted in a reduction in emergency room visits, hospital admissions, and hospital days. Additionally, the patients were highly satisfied and there was a noted improvement in provider adherence to prescribing and			clinic intervention including the number of follow-up appointments, education time and such the results support the development of an outpatient nurse led educational intervention clinic which is the homebase of the proposed CNL NN program.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
				optimizing evidence-based treatment for HF.			
McMurray, A., & Cooper, H. (2017). The nurse navigator: An evolving model of care. *Collegian*, *24*(2), 205–212. https://doi.org/10.1016/j.colegn.2016.01.002	To describe the history of the NN role and the possibilities associated with integration into current health care models.	N/A	N/A	N/A	Level 7	N/A	The concise presentation of the knowledge for the NN role and major focus for each of the outlined concepts which can be tailored to the navigation of HF patients. Furthermore, many of the knowledge base concepts are aligned with the core competencies

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							of a CNL which provides support for a CNL NN program.
Moon, M. K., Yim, J., & Jeon, M. Y. (2018). The effect of a telephone-based self-management program led by nurses on self-care behavior: Biological index for cardiac function, and depression in ambulatory heart failure patients. *Asian Nursing Research*, *12*(4), 251–257. https://doi.org/1	To perform and evaluate the effects of a nurse led telephone-based self-management support program on self-care behavior, depression, and biological index for cardiac function.	There were 38 participants in this study all who met the inclusion criteria: 1) had a HF diagnosis a minimum of 6 months but no more than 10 years by a cardiologist, 2) between 60 and 75 years old, 3) left ventricle ejection fraction < 50%, 4) NYHA function class II and/or III, 5) understood the purpose of the study, 6) agreed to participate, and	Quasi-experimental in nonequivalent control group with no-synchronized design. The first part of the intervention was an in-person self-management education lasting 30 minutes. After the first week, weekly follow-up calls lasting 15 to 30 minutes focused more	The participants in the intervention group were found to have a significant increase in self-care behavior and left ventricular ejection fraction when compared to the control group. A significant decrease in NT-proBNP	Level 3	The short intervention period of 5 weeks did not allow for the researchers to assess the long-term and microscopic effects of the program. Secondly, the sample size number of participants needed was 42 was not achieved	Although health care utilization was not a study outcome the results provide more support the positive impact a nurse led telephone support education has for HF patients with patient satisfaction, improvements in cardiac function, and

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
0.1016/j.anr.2018.10.001		7) able to communicate. Participants were excluded for 1) the inability to read, 2) had prior knowledge about telephone self-management programs for HF, 3) respiratory disease such as asthma or chronic obstructive pulmonary disease, 4) diabetes, 5) stroke, 6) chronic kidney failure, or 7) terminal cancer.	education including a review of the electronic health record, the self-care behavior calendar, and symptom checklist were conducted for 4 weeks.	levels and depression was also noted.		with only 38 persons who participated weakening the effect of the intervention. Lastly, bias may have been involved with the data collection as the instruments utilized were subjective reports by each subject's recall with self-report measures.	a decrease in symptoms associated with depression.
Negarandeh, R., Zolfaghari, M., Bashi, N., &	To evaluate the impact of telephone	This study was an RCT with pretest-posttest	The intervention group received	The intervention group	Level 2	The limitations of this study	Despite no improvement in

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Kiarsi, M. (2019). Evaluating the effect of monitoring through telephone (tele-monitoring) on self-care behaviors and readmission on patients with heart failure after discharge. *Applied Clinical Informatics*, *10*(2), 261–268. https://doi.org/10.1055/s-0039-1685167	monitoring on readmission and self-care behaviors on HF patients after discharge.	design. A total of 80 HF patients who were hospitalized in the cardiac intensive care units of the setting in 2016. Inclusion criteria included 1) 45 years or older, 2) diagnosis of HF with NYHA functional classes II and III, 3) had access to a landline or cellular phone, and 4) were able to communicate in Farsi. Exclusion criteria for participation were 1) major disability and limitation of self-care 2) diagnosed with congenital heart disease, 3)	was discharged according with usual care, education provided by a nurse at discharge. After discharge, telephone follow-up was conducted with two 20 minutes weekly for one month which decreased to once a week in the second. Each telephone follow-up varied based on each participant's educational questions and needs. After four weeks, a posttest was conducted for	demonstrated a significantly better self-care behaviors scores at the 12-week follow up. A decrease in readmission rates were not seen in the 12-week follow-up period.		included the short follow-up period, the small number of participants, not considering each subject's HF knowledge when developing and implementing the intervention, and the impact of raising awareness and self-esteem on self-assessment of participants.	readmission rates, the intervention did demonstrate self-care behavior improvements further supporting the continued educational follow-up for this population.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		hearing impairment, 4) mental illness, 5) paraplegia, 6) hemiplegia, 7) Alzheimer's disease, and 8) organ failure.	both groups collecting HF readmission data. This was repeated during the final call, in addition to self-care education for the control group only. Self-care was significantly improved after one month and three months post intervention. Readmission rates did not decrease during the 3-month period.				
Noles, K., Barber, R., James, D., & Wingo, N.	To identify if CNLs have different perceptions of	A web-enabled concurrent mixed-methods survey design at	Two open-ended questions and 18 perceived	Two themes emerged regarding innovation	Level 3	Sample size of the respondents in both	This study was utilized to support the

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
(2019). Driving innovation in health care: Clinical nurse leader role. *Journal of Nursing Care Quality*, *34*(4), 307–311. https://doi.org/10.1097/NCQ.0000000000000394	innovation and their own competency to lead it as compared to other nurse leaders.	one academic center. The survey was sent via an email link inviting two groups to participate which were 21 CNLs and about 100 nurse leaders. Forty-four people participated with 32 nurse leaders and 12 CNLs.	innovation competency questions answered using a Likert scale.	from the open-ended question 1) innovation is new outcomes and 2) innovation is creativity with two subthemes 1) new ways to problem solve and 2) thinking outside of the box. Nurse leaders rated themselves more competent when compared to the CNLs regarding the use of unconventio nal		groups and there was variation noted in the size of the comparative groups.	innovative capacity of the CNL in creating and establishing an integrated care delivery model.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
				approaches. However, when compared to the definition used for the study nurse leaders were not found to be as innovative as self-perceived.			
Reese, R. L., Clement, S. A., Syeda, S., Hawley, C. E., Gosian, J. S., Cai, S., Jensen, L. L., Kind, A. J., & Driver, J. A. (2019). Coordinated-transitional care for veterans with heart failure and	The examine the feasibility and effectiveness of adapting the Coordinated-Transitional Care (C-TraC) program for Veterans with COPD and HF at a large tertiary VA	There were 273 eligible Veterans who met the inclusion criteria of 1) 65 years or older, 2) admitted to the medical service with a diagnosis of COPD or HF, and 3) one of the following: discharge to a nonskilled	The C-TraC program was implemented using the Replicated Effective Programs model as a guide. The interventions of the nurse care manager included coordination of	The participants in the C-TraC program had a 30-readmission rate than the comparison group 15.8% versus 21.0% respectively.	Level 4	The participants of this study were all white male veterans from a single center which limits generalizability. The facility lacked a formal	The interventions performed by the case manager are in aligned with the plans for the CNL NN program.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
chronic lung disease. *Journal of the American Geriatrics Society*, *67*(7), 1502–1507. https://doi.org/10.1111/jgs.15978	medical center in Boston.	facility, lived alone, cognitive impairment, or had one or more inpatient admission to the VA within the last year. Veterans were excluded if they were had a primary admitting diagnosis of substance abuse, did not have telephone access, enrolled in hospice, or not discharged directly to home.	care, medication reconciliation, education, referrals, and securement of resources. The care manager was introduced one to two days prior to discharge and received the first telephone follow-up within 48 hours of being discharged home. During the first call, the care manager performed medication reconciliation, ensured follow-up, provided education, and			medication reconciliation process upon implementation of the program which may have led to an enhanced effect on this intervention of the C-TraC program. There were some systematic differences between the intervention and comparison group due to the nonrandomized nature of the	

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
			looked for red flags. Calls continued once per week for three weeks with continued assessment and electronic health record review concluding at 30 days or with patient refusal. The care manager coordinated care with primary and specialty providers, obtained new resources for the patients, provided continued medication reconciliation and education, procured			evaluation. A RCT would be the best method to determine program efficacy.	

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
			equipment, and made referrals based on the individual needs of each subject. Comparison subjects were those who were admitted at another VA medical center during a previous time period who would have met criteria for the C-TraC program. The comparison patients were selected based on the chart review and matched to individual C-TraC participants according to				

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
			baseline characteristics.				
Rice, H., Say, R., & Betihavas, V. (2018). The effect of nurse-led education on hospitalization, readmission, quality of life and cost in adults with heart failure: A systematic review. *Patient Education and Counseling*, *101*(3), 363–374. https://doi.org/10.1016/j.pec.2017.10.002	To identify the impact of nurse led 1:1 education on QoL, hospitalization, cost, and readmission in patients with HF.	Criteria for inclusion included 1) RCT, 2) published in the English language, 3) patients 18 years or older with a diagnosis of HF regardless of duration, comorbidities, or severity, and 4) evaluated nurse-led HF patient education that could impact hospitalization, cost, QoL, and readmission rates. Those studies that indicated other health care professionals were involved in	Prior to inclusion in the review, each study was assessed for quality using the Clinical Appraisal Skills Program tool for RCTs.	Nurse-led education can reduce hospitalizations and readmissions and improve QoL with two of the studies indicating that the intervention is cost-effective.	Level 1	External validity of the studies included was not measured. The variations in the settings of the trials and selection and characteristics of the participants undermine external validity. Variation was also seen with usual care between the studies resulting in	This review illustrates the impact of nurse-led education on HF readmission rates as well as the cost effectiveness which is unique to this article.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		the intervention were excluded. Seven studies were included that were conducted in Canada, Argentina, and the United States.				the measurement of the intervention against a standard problematic.	
Riegel, B., Dickson, V. V., & Vellone, E. (2022). The situation-specific theory of heart failure self-care: An update on the problem, person, and environmental factors influencing heart failure self-care. *Journal of Cardiovascular Nursing, 37*(6),	To describe the method in which characteristics of person, problem, and environment interact to influence decision making regarding self-care.	N/A	Theoretical update summarizing literature on the influence of the person, problem, and environment on HF self-care.	Seven new testable propositions were added to the theory.	Level 7	N/A	Knowledge regarding the person related factors influencing HF self-care which can be applied to the theoretical foundation guiding the proposed CNL NN approach with educational interventions. Additionally,

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
515–529. https://doi.org/10.1097/JCN.0000000000000919							the trajectory of HF is outlined providing a concise outline of the progression of HF which may serve as a predictor of self-care further supporting the need for educational interventions early in the disease continuum.
Ryan, C. J., Bierle, R., & Vuckovic, K. M. (2019). The three Rs for preventing heart failure readmission: Review,	To summarize psychosocial, clinical, and system-based factors related to decreasing HF 30-day readmissions.	Not listed by authors	N/A	The psychosocial factors summarized included quality of life and depression. The clinical	Level 5	None listed	The information presented in this article support many components effective management of HF

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
reassess, and reeducate. *Critical Care Nurse*, *39*(2), 85–93. https://doi.org/10.4037/ccn2019345				factors summarized included self-management, patient education, biomarkers, and comorbidities. System factors included discharge telephone calls, transition of care, palliative care, and low socioeconomic status.			patients via a NN program aimed outcome improvements.
Sezgin, D., Mert, H., Ozpelit, E., & Akdeniz, B. (2017). The	To assess the effect of a nursing care and follow-up program for	Single center, single-blind RCT. A total of 86 participants were included	The intervention group received a self-care education	The intervention group had more improvemen	Level 2	In addition to being a single center trial the study cannot	The intervention demonstrated self-care behavior and

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
effect on patient outcomes of a nursing care and follow-up program for patients with heart failure: A randomized controlled trial. *International Journal of Nursing Studies*, *70*, 17–26. https://doi.org/10.1016/j.ijnurstu.2017.02.013	HF patients on QoL, self-care, and rehospitalization.	based on the inclusion criteria 1) 18 years old or older, 2) literate, 3) person, place, time, and situation oriented, 4) able to speak and understand Turkish, 5) NYHA classification of II or III, and 6) willing to participate. Exclusion criteria included 1) Impaired vision or hearing, 2) cardiac bypass surgery within 6 months, 3) severe kidney failure requiring dialysis, 4) COPD requiring ventilation, 5) rheumatoid or	booklet and follow-up chart to record weight, heart rate, blood pressure, edema, and any extra medications daily as well as reminder tools. The education was customized to the prescribed medication regimen and daily lifestyle. Follow-up phone calls were conducted every other week for six months and assessed in clinic at baseline, the first, third, and	t in QoL with left ventricle ejection fraction significant improvements at the third and sixth month. Likewise, significant differences were seen between the intervention and control groups with self-care maintenance, management, and confidence. Readmission for HF was decreased significantly		be generalized for patients at stage NYHA stage IV. The short duration of the trial is another limitation. Lastly, interactions between the control and intervention groups while in the waiting room of their scheduled visit could not be controlled.	QoL improvements as well as a decrease in HF-specific admissions further supporting the continued educational follow-up for this population.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		cerebrovascular arthritis affecting the ability to perform self-care, and 6) cancer patients being treated with radiotherapy or chemotherapy.	sixth months. Each in-person visit included more education and assessment as well as review of symptoms, actions taken, and homelife.	at three months, but no significance was noted from the fourth to sixth months.			
Son, Y., Choi, J., & Lee, H. (2020). Effectiveness of nurse-led heart failure self-care education on health outcomes of heart failure patients: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*,	To describe the strategies of nurse-led interventions for HF patients and the effects on patient outcomes.	Eight RCTs were selected following PRISMA guidelines. The inclusion criteria were: 1) patients 18 years of age or older receiving treatment for a HF diagnosis, 2) published in English, and 3) RCTs that tested nurse developed and/or delivered interventions on HF self-care or	PRISMA	Nurse-led HF education reduced HF-specific readmissions by 40%, all-cause readmissions by 25.2%, and all-cause mortality or readmission by 29.4%. No significant reduction of	Level 1	Generalizability was limited due to the small sample size. Patient satisfaction was not included. Lastly the interventions were not outlined in detail.	Even though the interventions were not outlined the results of a significant reduction in HF-specific and all-cause readmissions supports this approach for HF self-care interventions.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
17(18), Article 6559. https://doi.org/10.3390/ijerph17186559		self-management. Exclusion criteria included: 1) lack of peer review, 2) no outcomes reported, or 3) observational studies, letters, editorials, reviews, or conference abstracts.		all-cause mortality was noted neither was the impact on quality of life.			
Sun, J., Zhang, Z., Ma, Y., Liu, W., & Wang, C. (2019). Application of self-care based on full-course individualized health education in patients with chronic heart failure and its influencing factors. *World Journal of Clinical Cases*,	To evaluate the impact of a full-course individualized health education on self-care for HF patients. Scientific, professional, and individualized health guidance are the components	An RCT of 100 participants. Inclusion criteria for subject selection were 1) conscious and able to communicate with the researchers, 2) voluntary participations, 3) diagnostic criteria of congestive HF released by the American Heart	On the day of admission, the participant's condition, awareness of the disease, educational background, learning ability, and family status was assessed to establish an education plan. Upon the creation of the	The 6-minute walk test was significantly increased for intervention group at 3 and 6 months. The same was seen with self-care maintenance, managemen	Level 2	The small size from a single center is a limitation of this study.	The intervention results demonstrated support the impact of continued follow-up for HF patients.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
7(16), 2165–2175. https://doi.org/10.12998/wjcc.v7.i16.2165	included in the full-course individualized health education program.	Association, and 4) NYHA class II or above. Exclusion criteria included 1) learning or cognition problems, 2) serious complications or comorbidities, 3) inability to care for themselves, and 4) former participation in other self-care related research.	plan the nursing staff worked with the participants for three days to correct their self-care plan and monitored its implementation. Each participant was required complete self-care independently and their medications and education were compiled into a daily schedule. Upon discharge the cardiology nurses answered questions via an online platform from	t, and confidence as well as each of the eight sub-scales of quality of life.			

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
			0900-1700 daily. The caregivers assisted the patients with self-care. The hospital nursing staff developed health care education programs weekly each with a new theme and messages were delivered via a web-based platform. Weekly telephone follow-up was performed by the nursing staff for 3 months and then every 2 weeks after 3 to 4 months.				

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
			Monthly calls were made in the fifth and sixth months. Health guidance and self-care correction were the focus of each follow-up call.				
Toback, M., & Clark, N. (2017). Strategies to improve self-management in heart failure patients. *Contemporary Nurse*, *53*(1), 105–120. https://doi.org/10.1080/10376178.2017.1290537	To assess the studies regarding HF self-management, and to explore educational, psychosocial, and behavioral strategies that have a significant impact on the improvement of patient self-management.	Twenty-six articles were selected by two researchers who excluded studies that were not relevant during the assessment process.	PRISMA	Both internal and external factors were identified as having influence on HF self-care management. The internal factors included cognitive ability, behavioral change,	Level 5	None listed	This article provides specific strategics to facilitate factors that influence HF self-management which can used in when designing and implementing the self-management education

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
				health literacy, and self-efficacy. The external factors identified included knowledge and skill development, socioeconomic factors, therapy-related factors, health care team factors, and health care system factors.			portion of the NN program.
Van Spall, H. G., Rahman, T., Mytton, O., Ramasundarahettige, C.,	To compare the efficacy of transitional care services in decreasing	The RCTs included in this study met the following inclusion criteria:	Study quality was assessed using four quality indicators:	The interventions tested in the RCTs included	Level 1	The classification scheme utilized by the authors	Nurse case management includes HF self-education

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
Ibrahim, Q., Kabali, C., Coppens, M., Haynes, R. B., & Connolly, S. (2017). Comparative effectiveness of transitional care services in patients discharged from the hospital with heart failure: A systematic review and network meta-analysis. *European Journal of Heart Failure*, *19*(11), 1427–1443. https://doi.org/10.1002/ejhf.765	HF all-cause readmissions and all-cause death after hospitalization.	1) patients admitted with a primary diagnosis of HF and enrolled in the trial before or immediately following discharge, 2) comparison group, 3) outcomes of 30-day all-cause readmission or mortality, 4) RCTs, and 5) an intervention intended to prepare the patients for the transition from hospital to home and could be offered in the hospital, clinic, or at home. Studies were excluded if they 1) did not meet	description of losses to follow-up or withdrawal, blinding of assessors, appropriateness of blinding, and randomization. Publication bias was assessed using Begg's Funnel Plot. A meta-analysis was conducted to pool data for interventions.	education, pharmacist interventions, telemonitoring, telephone support, nurse case management, nurse home visits, and disease management clinics (DMCs). Nurse home visits and DMCs were found to decrease mortality significantly when compared to usual care. All-cause readmissions were		varied from others as there is not guideline-recommended nomenclature for the classification of TCIs. Also, the quality of care nor the fidelity of each intervention category could not be determined.	combined with telephone support and home visits which with the exception of home visits aligns with the role of the NN for the proposed program.

Article Title, Author, etc.	Study Purpose	Sampling Methods and Subjects	Interventions	Study Results	Melnyk Framework Level of Evidence	Study Limitations	Rationale
		the inclusion criteria, 2) patients enrolled in the intervention had multiple diagnoses, 3) tested alternative hospitalization models, 4) did not report the results, 5) enrolled health care providers as the intervention, and 6) were not published in English. Fifty-three RCTs were included.		significantly decreased by nurse home visits, DMCs, and case managers. Home visits were the most effective followed by case managers, and DMCs without statistically significant differences in their ranks.			

Appendix C

CITI Training Certificate of Completion

CITI PROGRAM

Completion Date 11-Oct-2022
Expiration Date 10-Oct-2025
Record ID 52031738

This is to certify that:

Shanna Negron

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Biomedical Research - Basic/Refresher
(Curriculum Group)
Biomedical & Health Science Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Liberty University

CITI
Collaborative Institutional Training Initiative
101 NE 3rd Avenue, Suite 320
Fort Lauderdale, FL 33301 US
www.citiprogram.org

Verify at www.citiprogram.org/verify/?w230a65fd-3faa-40c0-bfdb-a368a6d5b76a-52031738

Appendix D

Institutional Review Board Exemption Notification

D do-not-reply@cayuse.com

To: Negron, Shanna Lantel; Kennedy, Tonia Renee (Doctoral Nursing) Fri 2/10/2023 4:17 PM

[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

February 10, 2023

Shanna Negron
Tonia Kennedy

Re: IRB Application - IRB-FY22-23-1055 A Clinical Nurse Leader Nurse Navigator Program for Heart Failure Patients

Dear Shanna Negron and Tonia Kennedy,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds that your study does not meet the definition of human subjects research. This means you may begin your project with the data safeguarding methods mentioned in your IRB application.

Decision: No Human Subjects Research

Explanation: Your study is not considered human subjects research because it will not involve the collection of identifiable, private information from or about living individuals (45 CFR 46.102).

Please note that this decision only applies to your current application. Any modifications to your protocol must be reported to the Liberty University IRB for verification of continued non-human subjects research status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this determination or need assistance in determining whether possible modifications to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office