Improving Health Outcomes Among Patients with CHF Through Implementation of Telehealth Depression Screening and CHF Symptom Management

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Improving Health Outcomes Among Patients with CHF Through Implementation of
Telehealth Depression Screening and CHF Symptom Management

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Doctor of Nursing Practice Final Project

University of San Francisco

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Abstract

**Background:** Comorbid congestive heart failure (CHF) and depressive disorder is a leading cause of mortality globally. Despite effective detection and therapeutic options, 30-day hospital readmission rates for CHF patients remain high, with patients experiencing adverse clinical outcomes and poorer quality of life. Depression is identified as a common comorbidity among CHF patients that may negatively impact patient self-care and adherence to a CHF treatment plan.

**Problem:** Telehealth applications are an increasingly utilized approach to healthcare delivery that enhances timely access to healthcare services by reducing physical proximity and transportation barriers to care. Currently, telehealth screening for CHF in the United States remains low. Screening programs for CHF and depression symptoms in patients with CHF may improve patient outcomes while reducing hospital readmission and mortality rates.

**Methods:** This DNP practice improvement project sought to employ telehealth to improve symptom management and reduce hospital readmission rate among CHF patients. The project aimed to assess the benefits of implementing telehealth screening of CHF patients, thus informing practice change in caring for patients diagnosed with CHF. This project also aimed to explore the efficacy of including Patient Health Questionnaire (PHQ-2 and PHQ-9) depression screening, CHF symptom screening, and CHF symptom management in each telehealth visit to improve adherence to treatment plans and health outcomes and to reduce the hospital readmission rate.

**Results:** The findings demonstrated that the rate of CHF-related 30-day readmission decreased substantially from 20.7% rate for the previous year (2022) to 0% after the 8-week
implementation of this project. Achieving the goal of less than 20.7% CHF readmission rate will provide significant cost savings for the hospital.

**Keywords:** congestive heart failure, heart failure, CHF, HF, telehealth, outcome, depression, readmission, 30-day readmission
Section II: Introduction

Heart disease accounts for approximately 928,741 deaths in the United States, making it the fourth leading cause of mortality in the United States (American Heart Association [AHA], 2023). Globally, heart failure affects more than 64 million people. Attempts to decrease the social and economic burden of congestive heart failure (CHF) have become a global public health priority (Savarese et al., 2022). In addition, CHF is the leading cause of hospitalization and hospital readmissions (Virani et al., 2020). According to Rollman et al. (2021), depression is comorbid in 20% to 40% of patients with CHF, contributing to reduced adherence to a care plan and worsening a patient’s quality of life (QoL). Sbolli et al. (2020) reported that depression in CHF patients is prevalent, with up to 30% of CHF patients who suffer from depression and even more who have depressive symptoms. These comorbidities often decrease adherence to the treatment plan, causing an increased use of healthcare resources, more frequent adverse clinical events, hospital readmissions, and mortality (Sbolli et al., 2020). The estimated prevalence of comorbid depression with CHF will increase dramatically in the next several years, as will the economic burden (Sbolli et al., 2020).

Telehealth monitoring allows the healthcare team to provide care to the patient, enabling an ongoing patient-to-provider link, regardless of physical proximity (Kruse et al., 2017). Through ongoing telehealth monitoring of adult and elderly CHF patients at home, the healthcare team can identify signs and symptoms of depression or CHF exacerbation, reinforce self-care practices and medication management, and detect behaviors that suggest nonadherence to the treatment plan. Implementation of telehealth monitoring of CHF symptomatology and the inclusion of depression screening in the assessment is currently underutilized. Early detection of impending deterioration and immediate, targeted intervention through telephone support and
noninvasive telemonitoring before any scheduled office visit have been shown to reduce mortality and heart failure-related rehospitalizations (Inglis et al., 2015).

**Specific Aim**

The aim of this Doctor of Nursing Practice (DNP) project is to improve CHF patients’ treatment plan adherence through the implementation of telehealth monitoring of CHF symptomatology with the inclusion of depression screening, maintaining a hospital readmission rate of less than 20.7% of CHF clients enrolled in the DNP program by August 2023.

**Available Knowledge**

**PICOT Question**

This review aimed to examine the available evidence to inform a change of practice in caring for patients with CHF and depression. The PICOT question guiding the review of the literature is: For patients enrolled in a tertiary institution’s CHF home monitoring program (P), how will depression screening, CHF symptom screening, treatment, and referral using telehealth visits at least three times in the month following discharge (I), compared to inpatient room visit for patient education (C), improve patient adherence to CHF treatment plan and reduce hospital readmission within 30 days of discharge (O), at 4 weeks and 8 weeks of intervention (T)?

The effects of evidence-based interventions (e.g., telehealth visits, depression screening, mental health treatment) on adherence to CHF treatment plans were explored. Evidence was examined for its applicability to a nursing intervention aimed at improving patients’ adherence to CHF treatment regimens, encouraging self-care practices, improving QoL, and reducing CHF readmission rates and CHF mortality. The terminology used in this review conforms to usage in each article. CHF and heart failure are used interchangeably, referring to the complex clinical syndrome arising from any functional or structural heart disorder that impairs the ventricular
filling or ejection of blood (Inamdar & Inamdar, 2016). Telehealth uses technologies to remotely connect individuals to healthcare providers and information (Doarn et al., 2014). Telemedicine refers to exchanging medical information between a provider and a patient to deliver care at a distance (American Academy of Family Physicians, 2016).

**Search Methodology**

The PICOT question guided the literature review using the PubMed/MEDLINE and Cumulative Index of Nursing and Allied Health Literature (CINAHL) databases. The initial search limitations and filters were peer-reviewed, English-language articles published between 2010 and 2022. The search terms used were *congestive heart failure, CHF, depression, telehealth, telemedicine, CHF, heart failure*, and *readmission*. The initial search yielded over 300 articles. From the initial return, articles were excluded if they were unrelated to heart failure. Articles were then examined for relevance to the PICOT question by examining titles, keywords, abstracts, and text sections. Nineteen articles were deemed relevant and then narrowed down to 10 articles that contained specific information on CHF and depression comorbidity, depression screening and treatment, and the effects of telehealth visits on CHF patient outcomes. These 10 articles were appraised for quality and level of evidence with the Johns Hopkins Nursing Based Research and Non-Research Evidence Appraisal Tools (Dang & Dearholt, 2017), subsequently cited as the *Johns Hopkins appraisal tool* in this paper. Articles ranged from Level I/B to Level V/B in quality and level of evidence. Two broad categories of articles emerged: CHF and depression comorbidities, screening, adherence to treatment, and outcomes, and telehealth interventions and outcomes (see Appendix A).
Integrated Review of the Literature

Celano et al. (2018) performed a targeted review of research studies on depression and heart failure to (a) identify associations between CHF and depression and anxiety, (b) examine the relationships between the coexistence of the conditions and medical outcomes, and (c) identify both diagnostic methods and evidence for treatment when depression or anxiety coexists with CHF. The narrative review of relevant studies revealed that depression is associated with the development and progression of CHF, including increased mortality rates. In combination with cognitive behavioral therapy, Celano et al. found physiological and behavioral treatments to be effective in improving mental health outcomes in patients with CHF. While this paper was rated Level V/B with the Johns Hopkins appraisal tool, it was included in the current review because it provides a broad overview of the association between depression and CHF, and it references many studies that can inform an approach to a telehealth screening and treatment intervention for comorbid CHF and depression.

Cully et al. (2010) performed a quantitative study to evaluate the links between disease severity, depression, anxiety, and heart failure patients’ QoL. The study population comprised 96 individuals from a large Veterans Administration hospital with heart failure diagnoses documented in their medical records. Half of the participants (n = 48) had significant symptoms of depression and functional impairment, while half (n = 48) did not. Disease severity in the study population was assessed via semistructured interviews using the New York Heart Association (NYHA) Functional Classification. Each participant’s QoL score was determined using a validated, 23-item inventory. The results showed significant differences for the overall QoL, including heart failure severity (β = −13.33, p < .001), depressive symptoms (β = −2.34, p = .003), and age (β = 0.76, p < .01), suggesting that disease severity and depression significantly
affect heart failure patients’ QoL. The value of this study is support for screening patients for heart failure and monitoring QoL indicators, especially for heart failure patients with depressive symptoms. This study was rated Level III/B with the Johns Hopkins appraisal tool.

Rustad et al. (2013) reviewed the prevalence, diagnosis, neurobiology, and treatment of depression associated with CHF. The authors sought to review research studies, systematic reviews, and meta-analyses published between 2010 and 2013. Focusing on the safety, efficacy, and tolerability of antidepressant medications used for depression treatment, the researchers linked depression to the pathogenesis of CHF. This study revealed evidence of a higher incidence of depression in CHF patients at the rate of 2 to 3 times more than in the general population. It also revealed that depression and CHF may be treated together rather than managed as isolated conditions. Moreover, Rustad et al. suggested that rating scales, like the PHQ-9, be implemented to monitor therapeutic efficacy, just as blood pressure is measured after initiating antihypertensive agents to monitor treatment response. This review was rated Level III/B with the Johns Hopkins appraisal tool.

Husain et al. (2019) conducted a large prospective cohort study to evaluate mortality, disability, and health-related QoL in CHF patients with depression. Husain et al. recruited 1,009 patients with a CHF diagnosis from public hospitals in Karachi, Pakistan. Participants were assessed at baseline and after a 6-month follow-up using the Beck Depression Inventory (BDI) and confirmed with the Clinical Interview Schedule-Revised (CIS-R). The researchers found that the severity of depression correlated with increased mortality at baseline ($p < 0.001$) and with lower income. In addition, this study found that higher BDI scores were associated with a history of depression ($p < 0.001$), higher NYHA class ($p < 0.001$), diabetes ($p < 0.001$), chronic obstructive pulmonary disease ($p = 0.007$), renal disease ($p < 0.001$), and stroke ($p = 0.02$).
These data were confirmed using regression analysis, which showed that at follow-up, higher BDI scores in depressed participants were associated with higher all-cause mortality (OR 1.23 (95% CI: 1.11-1.36); p < 0.001). This article adds to the evidence associating increased mortality rates and disability incidence for CHF patients with depression. The quality and strength of the article were rated Level II/B with the Johns Hopkins appraisal tool.

Linder (2016) conducted a retrospective chart review of 316 CHF patients using a descriptive, correlative, quantitative study design. The review was intended to identify a relationship between a positive depression screening score at first admission and hospital readmission within 30 and 60 days. The results indicated a significant correlation between a positive depression screening score and an increased hospital readmission rate, with more depressed patients more likely to be readmitted (Spearman correlation = 0.549, p < 0.001). The value of current practice is the effectiveness of applying depression screening for CHF patients, validating the premise that CHF patients benefit from ongoing depression screening to identify and treat depression, improve medication adherence, and reduce hospital readmission rates. This research was rated Level III/B using the Johns Hopkins appraisal tool.

Rollman et al. (2012) conducted a prospective quantitative study with convenience sampling to determine the prognostic value of a validated two-item depression screening instrument for coronary heart disease, the Patient Health Questionnaire (PHQ-2). The patient population consisted of 471 CHF patients from four university hospitals in Pennsylvania. At 12-month follow-up, all-cause mortality was significantly associated with a positive PHQ-2 screening status. The researchers found statistically that at baseline, PHQ-2 depression screen-positive patients (PHQ-2+; \( n = 371 \)), compared with PHQ-2 screen-negative patients (PHQ-2−; \( n = 100 \)), were younger (65 vs. 70 years) and more likely to report NYHA functional class III/IV
than class II symptoms (67% vs. 39%) and lower levels of physical and mental health-related QoL (all $P \leq .002$); which were similar in other characteristics (65% male, 26% mean ejection fraction). At 12 months, 20% of PHQ-2+ versus 8% of PHQ-2− patients had died ($P = .007$), and PHQ-2 status remained associated with both all-cause (hazard ratio [HR] 3.1, 95% confidence interval [CI] 1.4–6.7; $P = .003$) and cardiovascular (HR 2.7, 95% CI 1.1–6.6; $P = .03$) mortality, even after adjustment for age, gender, ejection fraction, NYHA functional class, and a variety of other covariates. The value of practice is evidence for the prognostic utility of the PHQ-2 screening instrument. This study was rated Level II/B using the Johns Hopkins appraisal tool.

Chuang et al. (2019) used a cross-sectional study design to test a path model of causal relationships of variables affecting self-care maintenance and management of 141 heart failure patients from a cardiology outpatient clinic to determine the mediating role of self-care confidence. The variables examined in the model were depressive symptoms, social support, e-health literacy, and heart failure knowledge. The authors used customized questionnaires and chart reviews to collect data on patient demographics and clinical characteristics. Depressive symptoms were found to affect self-care maintenance negatively and directly. E-health literacy affected self-care management and heart failure knowledge positively and directly. Self-care confidence significantly affected self-care maintenance and self-care management, supporting the hypothesized path model. Chuang et al. determined that depressive symptoms had a negative and direct effect on self-care maintenance ($r = -0.313, P < .01$). Of value to nursing practice is the finding that self-care confidence mitigates the adverse effects of depressive symptoms on self-care. Further, the study supports screening for depressive symptoms as part of the consideration for self-care management and maintenance in a CHF treatment plan. This study was rated Level III/B using the Johns Hopkins appraisal tool.
To quantify the efficacy of exercise-based cardiac rehabilitation in treating anxiety and depression in myocardial infarction patients, Zheng et al. (2019) conducted a systematic review and meta-analysis of 20 intervention studies, with eight studies selected for meta-analysis. The results demonstrated that exercise-based therapy decreases anxiety and depression symptoms in the patient population studied. The researchers found that exercise-based cardiac rehabilitation significantly decreased anxiety among the entire dataset [95% CI: (−4.23, −0.95); \( P \) value 0.002; \( P \) value for heterogeneity = 0.0003; \( I^2 \): 75%]. These translatable results indicated that exercise therapy could alleviate depressive symptoms at different times during treatment. The value to practice of this study is the contribution of exercise-based therapy in combination with other CHF therapies to promote better health outcomes.

The medical impact of telehealth interventions was examined in two articles: a systematic review by Kruse et al. (2017) and a meta-analysis by Zhu et al. (2020). In the systematic review, Kruse et al. evaluated the effectiveness of telemedicine in managing heart failure patients concerning improvement in medical outcomes. The final sample in the literature review consisted of 20 research studies using human subjects published in English between 2006 and 2015. The main attributes of telemedicine, as reflected by the number of instances cited, were reduced hospitalization and readmissions, improved mortality rates, increased cost-effectiveness, improved health outcomes, improved QoL, and increased disease self-management. While this review suggests the benefit of incorporating telemedicine in managing cardiovascular disease, Kruse et al. noted the limitations of inconsistency in evaluating and reporting outcomes in the literature cited and the introduction of publication bias in the desire to report positive outcomes in areas of substantial research interest. This article provides insights to inform practice changes
incorporating telehealth interventions. This research was rated Level II/B using the Johns Hopkins appraisal tool.

Zhu et al. (2020) conducted a meta-analysis of randomized controlled trials \((n = 29)\) that compared telemedicine’s potential impact on heart failure patients with conventional healthcare. The primary outcome measures were all-cause hospitalization and all-cause mortality. Secondary outcome measures were cardiac hospitalization, mortality, length of hospital stay, health-related QoL, and hospitalization costs. Telemedicine treatments included telephone support, telemonitoring with interactive vocal response monitoring, and monitoring by electrocardiogram (ECG). At the same time, conventional healthcare consisted of guideline-based standard care with scheduled clinic visits without other interventions. A significant beneficial effect of telemedicine was associated with reduced hospital stay length and improved QoL for the telehealth group and the conventional healthcare group (mean total score on Minnesota Living with Heart Failure Questionnaire [MLHFQ] 30.6 vs. 35, \(P = 0.001\)). The heterogeneity of pooled data was cited as a limitation in interpreting results. This study validates the utility of telehealth interventions for improved outcomes relative to conventional care. This research was rated Level II/B using the Johns Hopkins appraisal tool.

**Synthesis of the Literature**

The last three decades have seen a rise in mortality in patients with heart failure. This growing pool of mortalities has been attributed to aging. Heart failure has been long associated with depression. There is a widespread implementation of telehealth services, a technology not currently implemented in CHF and depression patients, at the project implementation site. There is an overarching need to embrace telehealth in this patient population to improve QoL and patient outcomes. The available literature supports the implementation of telehealth monitoring
of CHF patients, integrating depression symptom screening and intervention to improve adherence to treatment plans and reduce the readmission rate.

**Rationale**

Given the present-day modifications to healthcare access and compensation, acknowledging the scientific foundations of nursing is imperative. Within this trajectory, this project was guided by Dorothea Orem’s (1971) theory of self-care deficit and self-care confidence (see Appendix B). Orem’s theory is rooted in the conviction that patients benefit from preserving autonomy in their self-care. Specifically, the theory is based on the premise that individuals can care for themselves (Nascimento et al., 2021). The theory offers guidance on how nurses should intervene in patient care and how patients can be encouraged to initiate and practice self-care activities. Orem’s model relates to health promotion, focuses on nursing care, and empowers patients to participate in their health actively. The application of this model to monitoring CHF and depressive symptoms using telehealth will help harness, improve, and guide how nurses should intervene in CHF patients after discharge from hospital admission to reduce CHF symptom relapse, exacerbation, and rate of readmission.

Four key constructs of Orem’s self-care theory include foundational capabilities and dispositions, essential conditional factors, self-care requisite, and self-care agency (Chiu Yip, 2021). Foundational capabilities and dispositions entail personal characteristics, such as traits and skills, that influence an individual’s capacity for action (Chiu Yip, 2021). The first construct also entails the ability to know and do, a disposition that influences setting and pursuing goals and orienting capabilities, such as attitudes toward health (Chiu Yip, 2021). Essential conditioning factors refer to requirements and abilities for self-care based on the patient’s characteristics and environment (Chiu Yip, 2021). Such abilities include the patient’s health,
gender indent, social and cultural setting, developmental stages, and life habits (Chiu Yip, 2021). The third construct is self-care requisites, which entail actions and items required to attain holistic self-care, such as health, development, and general well-being (Chiu Yip, 2021). The last concept, self-care agency, refers to an individual’s overall capacity to fulfill their self-care requirements (Chiu Yip, 2021). The four concepts enable a holistic understanding of the patient’s capabilities to engage in self-care activities.

Orem’s theory has three components: (a) the theory of self-care, (b) the theory of self-care deficit, and (c) the theory of nursing systems (as cited in Khademian et al., 2020). The first component, self-care, is the practice of activities that an individual performs on their behalf to maintain life, health, and well-being. Based on self-care practices, people should be directed to self-care or carried out by their self-care agents (Nascimento et al., 2021). In this project, the clinician directed participants to engage in self-care activities through telehealth to reduce the need to travel to the hospital. In her theory, Orem identified three self-care categories: universal, development, and health deviation (as cited in Nascimento et al., 2021). Universal requirements are linked to life processes and entail maintaining human integrity, structure, and functioning, for example, breathing, drinking water, and eating (Nascimento et al., 2021). Developmental requirements are new situations and events in the human environment that foster development (Nascimento et al., 2021). Developmental requirements are fulfilled through biological, social, and psychological needs and universal self-care requirements. Lastly, self-care health deviation is care and decision-making about the identified health problem or diagnosis aimed at recovery, rehabilitation, or gaining control (Nascimento et al., 2021).

The second, self-care deficit, describes situations where a patient’s impairment prevents them from performing daily activities independently and requires nursing intervention. Based on
Orem’s nursing theory, self-care is activities that people engage in to maintain, restore, or improve their health (as cited in Khademian et al., 2020). Applying the Orem model to this practice improvement project will guide and encourage patients to practice self-care activities, to be in charge, and to have autonomy over their own health and self-care. In improving the health outcomes for CHF patients, ongoing follow-up, patient education, and follow-through on self-care are essential in putting Orem’s theory into practice.

**Section III: Methods**

**Context**

This quality improvement project was conducted at a large inpatient medical center in Stockton, San Joaquin County, California. According to the U.S. Census Bureau, as of July 2022, San Joaquin County has a population above 750,000, of which 321,000 individuals reside in Stockton. The population consists of Hispanic (44.9%), White (35.0%), Black/African American (11.3%), and Asian (20.9%). The average household income in Stockton is $75,063, with a poverty rate of 21.41%. It is estimated that 1.7 million adults (5.9%) in California have some form of cardiovascular disease, which includes CHF (California Department of Public Health, 2023). A report from CHF medical professionals at San Joaquin General Hospital revealed that San Joaquim County exceeds both the national and state average (Younnel, 2020). Of note, by 2022, San Joaquin County reported rising obesity and mental illness issues compounded by underlying social determinants of health, including education and socioeconomic status.

The project site is a teaching inpatient hospital medical center with a 300-bed capacity and is identified among the top 100 best hospitals in the United States. The hospital admits approximately 1,000 heart failure patients per year. The CHF patient readmission rate within one
month, as provided by the facility, was 20.7% as of the end of 2022 (see Appendix C). Other types of patients cared for by the tertiary hospital include, but are not limited to, diabetes mellitus Type 2, chronic obstructive pulmonary disease, hypertension, heart disease, anemia, hypothyroidism, prolonged pain syndromes, Alzheimer’s disease, arthritis, and all types of acute and chronic health conditions.

The staff is comprised of medical doctors with several specialties and expertise, nurse practitioners, and registered nurses (RNs). The demographics of the patient population include pediatrics and adult to older adult patients with various acute and chronic conditions, including those with existing CHF conditions. The plan for this project was to recruit and consent five to 10 patients for participation. The patients who volunteered were asked to sign an informed consent, and terms of project participation were given to the patients for signatory. The staff from the tertiary healthcare facility were also asked to volunteer to participate in participant recruitment and telehealth implementation.

**Interventions**

**Gap Analysis**

The quality improvement project addressed an existing treatment gap to improve health outcomes among patients with CHF by considering depression as a contributing factor to CHF patients’ lack of adherence to their treatment plans, contributing to an increased risk for hospital readmission (see Appendix D). The current literature supports that depression and anxiety disorders are common and associated with adverse outcomes, such as reduced adherence to treatment, poor function, increased hospitalizations, and elevated mortality of patients with CHF (Celano et al., 2018). The implementation site did not have a telehealth post-discharge
monitoring program for CHF patients. This DNP project implemented a set of telehealth home monitoring visits for patients recently discharged from the hospital with a diagnosis of CHF.

**Project Goal**

The project goal aims to implement structured telehealth visits to CHF patients at home to assess for depression and current CHF symptom status and to provide guidance, resources, and specific treatment instructions to achieve maximum mental and physical self-care and medication adherence.

**SMART Objectives**

The specific, measurable, achievable, realistic, and timely (SMART) objectives for this project include:

1. Develop protocols and workflows for telehealth monitoring CHF clients in a tertiary healthcare institution in San Joaquin County by June 2023.

2. Provide at least one staff training on CHF telehealth protocols and workflow by June 2023.

3. Complete a minimum of three telehealth visits per month (June to August 2023 for 8 weeks) for each of the 10 participants enrolled in the program, including depression screening and symptom management, by August 2023.

4. Maintain a readmission rate of less than 20.7% of CHF clients enrolled in the program by August 18, 2023. (This percentage was chosen because the current readmission rate at the site is 20.7%).

During the implementation of this quality improvement project, a telehealth nurse provided at least three telehealth assessments per month to assess current CHF symptoms and adherence to treatment plans and included a depression screening utilizing the PHQ-2 (see
Appendix E), followed by the PHQ-9 (see Appendix F) tools, if indicated. Telehealth monitoring of CHF patients was not intended to replace office visits but to enhance treatment efficacy for CHF patients and achieve health outcomes and QoL indicators that are difficult to achieve with routine office visits and conventional in-person visits alone.

At each telehealth visit, the clinician utilized the CHF symptom questionnaire. The PHQ-2 depression screening instrument was combined with the CHF symptom questionnaire. If the patient scored negative on the PHQ-2, then no further depression screening was needed. However, if the patient scored positive on the PHQ-2, further depression screening was conducted using the PHQ-9 instrument. Motivational interviewing techniques were used in all encounters to support CHF treatment adherence and symptom management. If the PHQ-9 score indicated depression, the clinician utilized motivational interviewing techniques to address depressive symptoms and referred the patient to mental health services for further evaluation and management. For any referrals made, the patient’s cardiologist was notified. If the patient was found to have symptoms that were likely to indicate a CHF exacerbation, the supervising physician was notified for further evaluation.

To meet these objectives, the DNP student trained one facility staff member and provided educational material to the facility staff member. These materials served as a guide to provide telehealth visit interventions to the clients and were printed in English and Spanish (see Appendix G). The content of the educational materials included education on understanding CHF symptomatology, medication management, maintenance of a low sodium/heart-healthy diet, and assessment of fluid retention, including edema and weight gain. The telehealth nurse provided motivational interview sessions during telehealth visits, if needed, to improve
To improve health outcomes among patients with CHF, patients must engage in self-care behaviors, such as complying with medication, dietary, and physical activity regimens (Vellone et al., 2020). The primary motivational interviewing approach is expressing empathy and compassion, developing trust, supporting self-efficacy, and focusing on the client to develop a shared plan for the desired change (Vellone et al., 2020). In this project, motivational interviewing was used to encourage patients to adhere to the medication regimen and to present patients with strategies for managing CHF symptoms during the telehealth visits. According to Gagneur (2020), the purpose of motivational interviewing is to support decision-making by eliciting and strengthening individual’s motivation to change their behaviors based on their argument for change. Motivational interviewing is based on three major concepts: (a) the spirit to develop partnership culture and compassion, (b) fostering engagement in the relationship and focus discussion on the target change, and (c) presenting the skills that enable healthcare providers to understand and address patients’ needs (Gagneur, 2020).

In the first concept, four elements enable healthcare providers to develop respectful relationships with patients based on empathy: (a) partnership, which involves achieving equality and strengthening collaboration; (b) acceptance, which involves a positive and empathetic attitude that promotes autonomy; (c) evocation, which involves making an individual verbalize the change; and (d) altruism or compassion, which involves acting in a caring way (Gagneur, 2020).

Four successive processes of motivational interviewing enable healthcare providers to develop an engaging relationship with the patient and move towards attaining the desired change
based on the patient’s abilities. The four processes are engaging, focusing, evoking, and planning (Gagneur, 2020). Engaging aims to strengthen the relationship and show empathy and interest. Focusing is aimed at defining and concentrating on the specific target of the change (Gagneur, 2020). The objective of evoking is to identify reasons and abilities for change. Lastly, planning involves detailing specific steps to facilitate the change.

Essential motivational interviewing uses open-ended questions, reflective listening, affirming, and reiterating the statement to the interviewer (Gagneur, 2020). The purpose of open-ended questions is to evoke responses and avoid doubts. Affirmation encourages individuals and identifies their strengths. Reflective listening enables individuals to add nuance to and correct what they have learned. Elicit-share-elicit is a crucial skill whereby the healthcare providers give information to patients by asking patients what they know about the change, providing information or advice about the change, and then verifying what the patient has understood and how they will apply such to make the desired changes (Gagneur, 2020).

To make the CHF management process education simple for the participants to remember, we adapted the AHA (2022) concept of managing heart failure symptoms using the traffic light colors (green, yellow, and red zones; see Appendix H). The zone tool is a low-literacy and self-management tool that helps patients recognize and respond to heart failure symptoms and reduce readmissions (Weiss et al., 2019). This concept was incorporated into the project and served as a resource for educating participants on when to take action based on the CHF symptom severity zone (AHA, 2022).

**Gantt Chart**

The Gantt chart outlines the work to be done and the timeline. Gantt charts are used to visualize the timeline for each project activity, including the start and end dates and their
durations (Shibuya & Chen, 2021). The project phases are represented on the Gantt chart (see Appendix I). The first phase started with a review of literature about the current project topic. The subsequent phases included submitting and approving the statement of determination and manuscript development. Other activities scheduled using the Gantt chart included the project tool creation, project proposal, budget development, and seeking sponsors and stakeholders. After identifying stakeholders, the project manager met with them twice for approval. After gaining initial approval, there was a delay due to the impact of the COVID-19 pandemic. Soon after the approval, the cardiac rehabilitation program at the institution was closed, which caused a delay in the implementation of this project. The project manager sought another site, which took quite some time due to the COVID-19 impact and because most facilities were not accepting student activities during this period. The final site was determined in May 2023.

There was a kick-off meeting with stakeholders and staff for a formal introduction of the project plan. Staff were invited via email to the kick-off meeting. Once the kick-off meeting was concluded, staff were scheduled for training to prepare them for effective implementation. After project approval, the intervention was implemented from June to the end of August 2023.

**Work Breakdown Structure**

A work breakdown structure (WBS) helps divide an entire project into smaller pieces to organize the tasks logically and to make the project more manageable (see Appendix J). The WBS allowed the DNP candidate, as the project manager, to have a step-by-step approach to the project and to enhance the scheduling of activities needed, such as education, communication strategies, meeting schedules, task assignments, and monitoring and evaluation processes. The WBS helped the project manager use time wisely, limiting the workload to activities directly related to goals (Schrager & Sadowski, 2016).
The WBS phases were initiation, planning, execution, monitoring/control, and closure. During the initiation phase, the project manager met with the DNP advisor to discuss the proposed project and to receive approval. A literature review of evidence relevant to the project was performed, goals and objectives were developed, project tools and guidelines were established, and stakeholders were identified. The project was shared with stakeholders to elicit interest and support. A gap analysis was then performed. The planning phase was developing the project proposal, defining the scope, creating the communication and risk plans, gathering information shared with the project team, gathering educational materials, developing the budget, and working with the facility manager to develop the scheduling system. The planning phase concluded with a kick-off meeting with the project team and stakeholders, establishing a project leadership team, and developing a stakeholder engagement process. During the execution phase, the project implementation commenced. In this phase, the patients were scheduled for weekly visits, visits were made through telehealth connection, and the clinician ensured the patients understood the connection and what to do during visits. The clinician interacted with the patient, obtained the patient’s history, assessed the CHF patient and their depressive symptoms, discovered if there were any worsening symptoms since the last telehealth visit or if there had been any hospitalization since the last telehealth visit, performed medication reviews, collaborated with the attending physician if there was need for medication adjustment, adjusted plan of care if needed, conducted health education, answered patients’ questions, connected to community resources if needed, made referrals to appropriate level of care if applicable, advised patient on when the next visit would be, and documented everything in the visit note.

The monitor/control phase that followed involved monitoring and controlling the progress of the project and measuring outcomes. During the monitoring phase, the project
manager (DNP student) collected data from visits by performing chart audits, monitored how many times the patients enrolled in the program were calling for help, monitored when patients were readmitted to hospitals, kept track of positive depression scores for PHQ-2 and PHQ-9, kept track of how many patients were referred to mental health, controlled progress of ongoing care provided to the patient by following up with providers, measured outcomes by evaluating data collected using Excel tools, and measured how objectives were met. The project manager performed one post-mental health referral evaluation of patients to see how they improved. Due to the limited time of this project, given the academic calendar, the monitoring of post-referral evaluation was handed over to the patient’s healthcare provider for ongoing management and follow-up. The patient and family were instructed to go for follow-up appointments.

Project closure was the last phase, when data were analyzed, results produced, a final project report prepared, and the project presented to stakeholders. The closure phase included a meeting with the project team and stakeholders to discuss the project, lessons learned, implications for practice, and recommendations for sustaining or extending the project. An exit meeting was held to close the project officially.

Responsibility/Communication Matrix

The DNP project manager oversaw the general supervision and management of the project and communicated with the project committee. The facility project mentor and CHF RN provided guidance and assisted in selecting patients who participated in the project; facilitated communication among all team members at the facility, including the quality department secretary, who set up several face-to-face and Zoom meeting times; and helped to motivate, give directions and suggestions, and were resources to the project team. The CHF RNs at the facility assisted in participant recruitment, and the DNP nurse conducted telehealth visits. The committee
chair guided and approved various project components (see Appendix K for Responsibility and Communication Matrix).

**SWOT Analysis**

Strengths of the project: (a) the project setting was a large, well-established teaching hospital/tertiary healthcare organization; (b) there was an existing CHF RN who visited patients while they were in the hospital to educate them about their condition; and (c) the healthcare institution’s leadership and project committee approved the project and were willing to participate in the project at the tertiary institution. In recent years, more healthcare institutions are embracing technology and innovation as technology continues transforming healthcare. Starting a telehealth program at the institution was a plus to technology advancement and patient outcomes. A financial strength was the ability to recover the cost of telehealth visits through Medicare and Medicaid reimbursement, the ability to avoid non-reimbursement of funds from Centers for Medicare & Medicaid Services due to an increased rate of 30-day re-hospitalization, and an increase in patient acceptance of the visits due to the ease of not having to leave their homes and navigate heavy traffic. A remarkable strength was the continued and unrelenting support, guidance, and mentorship the project manager received from the project chair, project committee members, and faculty at the University of San Francisco.

Potential threats included the barrier to telehealth technology adoption by technology-naïve patients. Another threat that may have impacted the project’s progress was the threat of some patients who may not have internet or stable WIFI connections at their homes or locations.

Potential weaknesses included budget constraints, which may hinder the full participation of facility staff and delay project adoption at the facility; patients may have technological
challenges; and limited project completion timeline, which is limited to the academic duration of the DNP program and may cause the project to be unfinished.

However, this project came with opportunities and benefits for better care outcomes for CHF patients and eventual cost savings for healthcare organizations/institutions, as evidenced by the reduction of the readmission rate of CHF patients, which Medicare does not reimburse. There will also be an opportunity for further study in this subject area/topic. See Appendix L for the SWOT Analysis.

**Budget and Cost/Benefit Analysis**

There are costs associated with the implementation of a telehealth technological project. The average hourly wage for a telehealth RN in California is $80 per hour per visit. For this telehealth project, each patient will be seen at least three times a month, for $80 x 3 = $240 per month per patient; $240 x 10 patients will amount to $2,400, then $2,400 x 2 months = $4,800. The DNP student’s hours were estimated to be 200 hours, 200 hours x $80 = $16,000. The overall estimated cost of the project was $16,000. The facility did not have a budget for this project, so the facility staff involved in this project got involved during an allocated time of their already paid hours; no separate payment will be made to them for this project.

Current estimates suggest that 6.2 million individuals are affected by CHF in the United States, which is expected to rise to 8.5 million by 2030, which may cause an increased care cost of more than $100 billion per year. Almost 25% of patients with CHF are readmitted within 30 days of discharge, and the estimated readmission cost over each patient’s lifetime is $83,980 (Kilgore et al., 2017). The cost of readmission poses such an economic burden that it warranted the development of a readmission reduction program included in the Affordable Care Act of
2010, as well as the Hospital Readmission Reduction Program, which penalizes hospitals for excessive rates of readmission for CHF (Kilgore et al., 2017).

Given the high cost of readmissions, the benefit of the projected cost of the telehealth implementation project of $16,000 outweighs the consequences and costs associated with CHF patient readmissions. Cost-saving estimation may need to be more accurate given the project implementation and program timeline limitation. However, the projected cost savings for readmission, if less than a 20.7% rate is achieved, will give significant cost savings for the hospital. Available literature shows that each CHF patient’s readmission care cost in 2021 was $10,995 (Kwok et al., 2021). Based on this information, the hospital will save at least $10,995 per patient who is not readmitted. Per data provided by the site, the hospital readmitted over 98 CHF patients in 2022. The site representative stated that the readmission rate is usually higher. However, the COVID-19 pandemic may have decreased the number because some patients were avoiding hospitals and because there were limited hospital beds available. The facility’s readmission rate for 2022 was 20.7% (98 patients readmitted). For this project, the result was a 0% readmission rate for the 8-week duration. However, it is estimated that there will be more than 0% readmissions if the project continues until the end of 2023. Thus, the ROI calculation is based on an estimated 50% reduction in readmissions plus the cost of the RN hours minus the original cost for the 2022 facility (see Appendix M for the Cost/Benefit Analysis).

**Outcome Measures**

The outcome measures included:

- Staff comfort with providing telehealth symptom screening with the integration of the PHQ-2/PHQ-9, as measured by number of times patients were successfully screened by staff with telehealth visits per month.
- Number of clients served in the telehealth depression screening and symptom management program, with tracking of the presenting CHF symptoms and results from the depression screening.
- Client satisfaction with the telehealth depression screening and symptom management program was measured by a post-implementation survey using the Likert survey tool.
- The survey tool results indicated a lower rate of hospital readmission among the participants of the telehealth depression screening and symptom management program.

**Analysis**

Collected data provided quantitative descriptive statistics, which were analyzed using Microsoft Excel tools for organizing data. Likert pre- and post-study surveys were conducted to evaluate participants’ knowledge of telehealth pre-intervention and participants’ satisfaction rate post-intervention. Qualitative data were analyzed using thematic analysis.

**Ethical Considerations**

The USF DNP program approved this project as an evidence-based practice quality improvement project exempt from IRB approval (see Appendix N). The project was additionally approved by St. Joseph’s Medical Center (see Appendix O).

This project aligns with the American Nurses Association (ANA, 2015) Code of Ethics Provision 2.3: Collaboration, which stresses the importance of collaboration among nurses and the healthcare team to achieve shared goals in patient care. Professional collaboration in nursing is fundamental to addressing the healthcare needs of patients and the public. Effective patient care occurs through the interdisciplinary collaboration of nurses in various roles who work
together to teach skills, set standards, manage the healthcare environment, and expand nursing knowledge. According to the ANA Nursing Code of Ethics, nurses should actively promote collaborative multidisciplinary planning to ensure the availability and accessibility of high-quality healthcare services to everyone in need.

This project embraces diversity, meets underserved individuals’ needs, and offers telehealth to bring healthcare to those who reside in remote areas, which aligns with the social justice Jesuit mission. Incorporating the constructs of Orem’s (1971) theory into care practices encourages patient self-efficacy and enables the nurse caring for a CHF patient to focus on the elements of care that provide the most significant value.

**Section IV: Results**

A protocol and workflow were developed for monitoring CHF clients through telehealth (see Appendix P). Ten patients were recruited to be monitored through telehealth visits in this project. Before the implementation, the rate of hospital readmission at the facility was 20.7%. It was planned that the implementation team would conduct at least three telehealth visits per month for each patient enrolled. For all patients, the goal of three visits per month was met. More than three telehealth visits were conducted for the clients who tested positive for depression. The patient who screened positive for depression was identified and immediately referred to a mental healthcare provider. The project implementation period showed that no patients went into the red zone for CHF screening. Before the implementation, the project lead provided training to the facility staff about telehealth workflow and protocol. One facility staff participated in patient recruitment, but due to a lack of budget, the facility staff did not participate in actual participant telehealth visits. However, no patient in the telehealth pilot project was readmitted for CHF during the implementation; therefore, staff comfort could not be measured. Post-implementation
Likert survey revealed that 100% of participants served were very satisfied with the implementation services they received and would love to participate in telehealth monitoring if given the opportunity in the future. The findings demonstrate that the rate of CHF-related 30-day readmission decreased substantially from 20.7% before implementation to 0% after the implementation of the intervention (see Figure 1).

**Figure 1**

*Acute Care CHF-Related 30-Day Readmission Rate*

The protocols and workflows for telehealth monitoring of CHF clients included three main activities: participant recruitment, CHF symptoms assessment, and depression screening. In the first step, the project manager recruited patients discharged at the facility by contacting them and explaining the purpose of the project. The project manager explained to the patients all the procedures and asked if they wanted to participate. For patients who indicated their interest, the project manager asked for their consent before recruiting them for the project. After the recruitment, the project manager scheduled weekly telehealth visits for the recruited patients. A minimum of three telehealth visits per patient per month was required.
The second phase was conducting CHF screening during the scheduled telehealth visits. During the visits, the clinicians interacted with the patient, assessed the CHF patient, and noted if there were any worsening symptoms since the last telehealth visit or if there had been any hospitalization since the last telehealth visit. In addition, patients were educated on CHF management based on the AHA (2022) concept of managing heart failure symptoms (see Appendix Q).

Based on the CHF screening, participants’ symptoms were categorized into three groups—green, yellow, and red. The criterion for categorizing patients into three groups was based on the CHF depression screening scores (see Appendix H). For scores more than two on CHF depression screening, the clinicians were required to notify the primary care provider. In addition, the patients categorized into red and yellow based on CHF symptoms received motivational interviewing. The third main activity was to screen patients for depression using PHQ-2 and PHQ-9 tools. Depression screenings were conducted after the CHF assessment. Patients who screened positive for depression received motivational interviewing about the condition and how they can manage it.

For all eligible patients, a pre-implementation survey was conducted to assess if the participants had ever had a telehealth visit and if they would consent to enroll in the pilot project for CHF telehealth home monitoring. There were 12 eligible patients who completed the pre-implementation survey. All 12 reported that they had never had a telehealth visit by a care provider for CHF monitoring at home. Although all 12 patients qualified for the pilot project, two declined, and 10 agreed to participate. The demographic information for the 10 participants who consented to the weekly follow-up telehealth contacts included age, sex, and ethnicity. The age range was 44 years to 83 years, with eight males and two females (see Figure 2). Ethnicity
was reported as White (three, 30%), Hispanic (five, 50%), and African American (two, 20%; see Figure 3).

**Figure 2**

*Gender*

![Gender Chart]

**Figure 3**

*Ethnicity*

![Ethnicity Chart]

Table 1 displays the weekly data for the 10 participants. During Week 1 and Week 2, all clients were in the CHF screening green zone, and all screened negative on the PHQ-2. Week 3 showed that two clients were in the yellow zone for CHF screening, with eight in the green zone.
following CHF symptom screening. CHF motivational interviewing was conducted by reviewing medication, low sodium diet, fluid restriction adherence, weight gain, timeline to refill medications one week before they run out, and referrals to see their primary care physician (PCP) for the two clients in the yellow zone. Additionally, one of the yellow zone clients also screened positive for PHQ-2 depression screening and was referred to both their PCP and mental health. A follow-up call during Week 3 to the yellow zone patients indicated that both saw their PCP at the clinic. The patients were sent to the lab and had diuretics and other medications adjusted. One patient was reported to be out of medication, and a call to the pharmacy was made to obtain a 3-month refill. Also, a follow-up appointment was made for the patient to return the following week.

During Week 4, all clients were in the CHF screening green zone, with one patient reporting a positive PHQ-2 (the same patient from Week 3), who was still receiving mental health treatment. Weeks 5 and 6 showed all 10 patients in the green zone for CHF screening, and all were negative on their PHQ-2 screenings. During Week 7, it was discovered that one patient had been readmitted for pulmonary embolus, so this patient could not be assessed. The other nine patients were in the green zone for CHF screening, and all screened negative on the PHQ-2. In the final week (Week 8), they demonstrated continued success of the intervention, with all nine patients in the green zone for CHF screening and all negative on the PHQ-2. Therefore, the project implementation period showed that no patients went into the red zone for CHF screening, and none were readmitted for CHF. The one patient who screened positive for depression was identified and immediately referred to mental health.
**Table 1**

*Intervention Screening Results*

<table>
<thead>
<tr>
<th>Week</th>
<th>CHF Screening</th>
<th></th>
<th></th>
<th>PHQ-2 Depression Screening</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Red Zone</td>
<td>Yellow Zone</td>
<td>Green Zone</td>
<td>Negative Screen</td>
<td>Positive Screen</td>
</tr>
<tr>
<td></td>
<td>$n$ (%)</td>
<td>$n$ (%)</td>
<td>$n$ (%)</td>
<td>$n$ (%)</td>
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<tr>
<td>1</td>
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<td>0 (0%)</td>
<td>10 (100%)</td>
<td>10 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>2</td>
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<td>0 (0%)</td>
<td>10 (100%)</td>
<td>10 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>3</td>
<td>0 (0%)</td>
<td>2 (20%)</td>
<td>8 (80%)</td>
<td>9 (90%)</td>
<td>1 (10%)</td>
</tr>
<tr>
<td>4</td>
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<td>0 (0%)</td>
<td>10 (100%)</td>
<td>9 (90%)</td>
<td>1 (10%)</td>
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<tr>
<td>5</td>
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<tr>
<td>6</td>
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<td>10 (100%)</td>
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<tr>
<td>7*</td>
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<td>0 (0%)</td>
<td>9 (90%)</td>
<td>9 (90%)</td>
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<td>8*</td>
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<td>9 (90%)</td>
<td>9 (90%)</td>
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</tbody>
</table>

*Weeks 7 and 8 included only nine participants, as one participant was admitted to the hospital prior to Week 7.

**Additional Observations**

As reported by the spouse of the one patient who screened positive for depression, the patient was not taking his medication, was eating whatever he found, and was not keeping to his heart-healthy diet instructions, as well as fluid restriction instructions. According to his wife, his legs were swollen, and he was having difficulty breathing. However, when the patient was asked directly by the project manager about CHF symptoms, the patient reported that he was doing fine. He denied having edema and shortness of breath despite his wife’s reporting that he had difficulty breathing and that his legs were more swollen than before. This supports the recommendation that in future studies, the patient’s family or contact person must be part of the telehealth program in case depressive symptoms set in. When the patient tends to veer off from reality, the family can help with answering questions and finding help for the patient.
Another observation was that telehealth visits helped to elevate patients’ moods and reduce boredom, as most patients engaged in more conversations with the visiting clinician during each telehealth, with one patient verbalizing how he looked forward to the next telehealth visit.

Section V: Discussion

Summary

The results of this project showed improved care outcomes for CHF patients and eventual cost savings for the healthcare organization, as evidenced by the reduced rate of CHF patient readmission within 30 days of discharge. The host facility was at a 20.7% readmission rate, and project implementation resulted in 0% of patients in the telehealth pilot project being readmitted during the duration of this project. This outcome resulted in change, as it resulted in the facility avoiding losses from Medicare due to non-reimbursement if a patient was readmitted within 30 days of discharge. Lessons learned include (a) more time was needed to screen and monitor the patient on how depression interferes with CHF symptoms, as provided by evidence that the comorbidities of depression and CHF worsen clinical outcomes and QoL for CHF patients; (b) the short duration of this project implementation did not give enough time to monitor patients longer for depressive symptoms; and (c) importance of getting family member’s or contact person’s information and consent, in case the participant is not reached during telehealth visits, a contact person may be contacted.

Interpretation

In this project, the results indicated that telehealth was effective in reducing the rate of hospital readmission in 2 months. The results of this study are supported by other findings in the literature. For example, Xu et al. (2022) found a notable difference in the rate of hospital
readmission among patients with heart failure who received telemedicine (15.0%) and not the follow-up group (23.1%). Different studies reported a significant decrease in hospital readmission rates between heart failure patients who received telehealth follow-up and those who did not (Ramgobin et al., 2022).

In this project, patients were educated about CHF symptom management using motivational interviewing. Cui et al. (2019) evaluated the impacts of nurse-led education programs on self-management and hospital readmission among patients with CHF. Cui et al. found that the mean medical adherence, social support, dietary modification, and symptom control were higher in the intervention group compared to the control group. In addition, there was a higher rate of readmission in the control group (27.1%) than in the intervention group (10.4%), which was statistically significant ($p < .05$). Similarly, Guo et al. (2019) found that a hospital-community-family-based telehealth program was effective in improving self-management among patients with heart failure, including healthy diet, weight management, and adherence to medication.

**Limitations**

Limitations encountered during the project implementation included:

- There needs to be more funding for clinicians to participate in this project. The facility wants to adopt the project, but current budget constraints limit staff training.
- Patients who may be having depression symptoms were not willing to participate in telehealth visit sessions.
- Facility staff could not participate due to heavy work acuity, and no staff could be pulled off the currently assigned duty to participate in the project.
- The project timeframe was limited due to the educational program calendar and timeline.
Conclusions

Findings from this project are consistent with evidence that telehealth monitoring of CHF patients after hospital discharge can reduce the rate of hospital readmission within 30 days of discharge. Findings from the literature review and the results and implications for the practice of this project can be used to guide practice change for the assessment and treatment of CHF patients. CHF still carries substantial morbidity and mortality rates despite recent advances in the diagnosis and treatment (Gensini et al., 2017). Telehealth could be a solution to support and promote CHF patient care over time. Bumper-to-bumper follow-up for the CHF patient population, with a clinician’s ongoing support, education, assessment, screening, intervention, and reinforcement, can improve patient outcomes and reduce the rate of readmission for this patient population.

The facility acknowledges that this is a much-needed intervention. The facility requested and scheduled for the DNP project manager to present this project to the cardiovascular disease committee at the facility and to a group of RNs who care for medical-surgical and cardiovascular disease patients. Project results were submitted to the project chair and to the stakeholders and facility executive members to review for possible budget recommendations. Despite current budget constraints, there are active and ongoing conversations currently taking place at the facility on the value the project brings to patient care outcomes. There is a need for dedicated telehealth CHF nurse training on telehealth monitoring of CHF patients post-hospital discharge to provide staff with the knowledge, confidence, and expertise to provide ongoing care and support for CHF patients post-discharge.
**Recommendation for Future Study**

The recommendation for future studies would be to use a larger population sample and a longer timeframe to allow more time for the study.

**Section VI: Funding**

There was no funding for this project.
Section VII: References


https://doi.org/10.1097/JCN.0000000000000575


https://doi.org/10.1080/08964280903521297


https://doi.org/10.1089/tmj.2013.0336

https://doi.org/10.14745/ccdr.v46i04a06


https://doi.org/10.4300/JGME-D-15-00165.1

https://doi.org/10.17265/2159-5275/2021.03.002

https://www.census.gov/quickfacts/fact/table/stocktoncitycalifornia/PST045222


https://doi.org/10.1161/CIR.0000000000000757


## Appendix A. Evaluation Table

<table>
<thead>
<tr>
<th>Purpose of Article or Review</th>
<th>Design / Method / Conceptual Framework</th>
<th>Sample / Setting</th>
<th>Major Variables Studied (and their Definitions)</th>
<th>Measurement of Major Variables</th>
<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)</th>
</tr>
</thead>
</table>

The purpose of this study was to (1) identify connections between depression and anxiety, (2) examine ways to mediate their relationships and treatment outcomes, (3) evaluate and identify ways to diagnose depression and anxiety in CHF patients, and (4) review existing evidence for treatment of this patient population.

**Design:** Targeted literature review, meta-analysis.

**Method:** The authors performed a targeted literature review on PubMed and Google scholar. The search key words were heart failure, depression, prevalence inflammatory, post-traumatic stress disorder, physical exercise, panic disorder.

**Sample:** Focused literature Meta-analysis of 36 studies 158 patients

**Setting:** Databases were used: PubMed and Google Scholar.

**Independent variables (IV):**

**IV1:** To identify link between depression, anxiety, and heart failure.

**IV2:** Efficiency of CBT over 6 months

**Dependent variables (DV):**

**DV1:** Evaluation of heart failure outcomes on patients with heart failure and depression and patients without heart failure and

**Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR criteria)**

**Narrative Review.**

Depression and anxiety are associated to heart failure and makes it difficult for patients with heart disease to comply with healthy behaviors. Depression and anxiety disorders in CHF population are under-recognized and are connected to increased mortality and more adverse outcomes. In comparison to regular

**Level V/B**

**Worth to practice:** This evidence will be a great tool in treating and coordinating care of patients with CHF, taking into consideration the mental effect of being sick and addressing it will improve care outcome.

**Strength:** The result is generalizable to a wide range of healthcare settings. Study looked at effect of CBT on depression.

**Weaknesses:**

-Study was too broad.

-Due to the heterogeneity of the literature interpretation
<table>
<thead>
<tr>
<th>Purpose of Article or Review</th>
<th>Design / Method / Conceptual Framework</th>
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<th>Major Variables Studied (and their Definitions)</th>
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<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusion criteria: They searched for relevant literature, identified relevant original research articles, full text articles were retrieved, manuscripts and reference lists were also reviewed. Conceptual framework: Integrated care model/collaborative care model was used.</td>
<td></td>
<td>depression or anxiety. DV3: Evaluate effect of CBT on CHF patients with depression and CHF patients without depression.</td>
<td></td>
<td>conventional care, the CBT intervention provided greater improvements in depression. Clinically relevant depressive symptoms affect 21.5% of CHF patients, one-third of these patients reported depressive symptoms on questionnaires and 19% met criteria for depression.</td>
<td></td>
<td>arriving at a result was challenging. Not all articles reviewed were included the manuscript. Feasibility: The ideas are generalizable and relevant to CHF patients Recommendations: Due to the overlap that exists between cardiac and psychiatric symptoms, accurate diagnosis of depression or anxiety disorders in CHF patients is difficult. The knowledge acquired from this project will enable healthcare workers to achieve improved care outcomes for this patient population.</td>
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</tbody>
</table>

Definition of abbreviations: CBT = Cognitive behavioral therapy, CHF = Congestive heart failure, DSM = Diagnostic and Statistical Manual of Mental Disorders
### Purpose of Article or Review

The purpose was to evaluate how depressive symptoms, social support, eHealth literacy, and CHF knowledge affect self-care maintenance and management.

### Design / Method / Conceptual Framework

**Design:** Cross-sectional study  
**Method:** - Data were collected during cardiology outpatient clinic visits from June to December 2017. - Demographic data were collected using custom questionnaires and chart review.  
**Inclusion criteria:** - Age of 20 years or older, - Confirmed documented diagnosis of CHF based on the New York

### Sample / Setting

**Sample:** Total = 143 patients  
Number who did not return questionnaire = 2  
Final number included in study = 141  
**Setting:** Cardiology outpatient clinic of a medical center in Taipei, Taiwan.

### Major Variables Studied (and their Definitions)

**IV1:** - Depressive symptoms  
**IV2:** - Heart failure knowledge  
**IV3:** - E-health literacy  
**IV4:** - Social support  
**DV1:** - Self-care maintenance.  
**DV2:** - Self-care management.

### Measurement of Major Variables

- Health questionnaire-9 (PHQ-9)  
- Multi-dimensional Scale of Perceived Social Support  
- eHealth Literacy Scale  
- Self-Care of Heart Failure Index version 6.2  
- Dutch Heart Failure Knowledge Scale  
- Demographics, including sex, age, educational level, marital status, occupation, income, living arrangement

### Data Analysis

- SPSS 22.0  
- Amos 25.0  
- Pearson correlation  
- Chi-square  
- Path analysis

### Study Findings

**Findings:** Depression resulted in adverse and direct effects on self-care maintenance.  
- E-Health literacy resulted in remarkable positive and immediate effects on self-care management and HF Knowledge.  
Study also showed that self-care confidence mediates the relationship between depressive symptoms and

### Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)

**Level III/B**  
**Worth to Practice:** Knowledge from this review will be beneficial in the treatment of depression in CHF patients.  
**Strengths:** Findings correlate to primary purpose of study. Depressive symptoms negatively correlated with self-care maintenance.  
**Weaknesses:** Generalization bias due to use of self-reported questionnaires, social preference that probably resulted in response bias, and overestimation of actual self-care behavior. Standardized regression coefficients in Path model were lower.

<table>
<thead>
<tr>
<th>Purpose of Article or Review</th>
<th>Design / Method / Conceptual Framework</th>
<th>Sample / Setting</th>
<th>Major Variables Studied (and their Definitions)</th>
<th>Measurement of Major Variables</th>
<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Association (NYHA) classification I to IV. -Clear consciousness and fluency in Mandarin/Taiwanese. -Access to eHealth resources and consent to participate. <strong>Exclusion:</strong> -Patients with dementia, depression, mental illness, and coexisting terminal illness were excluded. <strong>Conceptual framework:</strong></td>
<td></td>
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<td>-Chinese version of PHQ-9 questionnaire. -Multi-dimensional Scale of Perceived Social Support. -Chinese version of the Dutch Heart Failure Knowledge Scale (DHFKS) to assess patients’ HF knowledge</td>
<td></td>
<td>self-care maintenance. -Depressive symptoms in CHF directly and negatively affects self-care maintenance, and accounts for patients’ inability to perform self-care maintenance.</td>
<td>Feasibility: When depressive symptoms increased, self-care maintenance decreases. -Knowledge of heart failure is positively linked with self-care maintenance. This is very vital in the management of CHF patients because patients are partners in their own care. <strong>Conclusion:</strong> Self-care confidence reduces the adverse outcome of depression on self-care. <strong>Recommendations:</strong> Self-care maintenance, self-care confidence, eHealth literacy, CHF knowledge are all important aspects of CHF treatment that will enable achievement of improved outcome.</td>
<td></td>
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</tbody>
</table>
### Purpose of Article or Review

- **Design / Method / Conceptual Framework**
- **Sample / Setting**
- **Major Variables Studied (and their Definitions)**
- **Measurement of Major Variables**
- **Data Analysis**
- **Study Findings**
- **Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /**

**Definition of abbreviations:** NYHA = New York Heart Association, SPSS = Statistical Package for the Social Sciences, NDM = Naturalistic Decision-Making Model, PHQ-9 = Patient Health Questionnaire-Nine Questions, DHFKS = Dutch Heart Failure Knowledge Scale


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<th>Purpose of Article or Review</th>
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<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /</th>
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</table>
| This study focused on the relative contribution of heart failure (CHF) disease severity, depression, and comorbid anxiety to QoL for 96 ambulatory CHF Veterans. | **Design:** Cross-sectional comparison study. **Method:** 4,129 participants were recruited. Participants received mails through postal services to identify those with CHF. Participants were also called by research coordinators through randomly ordered list and screened participants | **Sample:** 4,129 After screening with the mailing and telephone calls, the sample was downsized to 96 participants who had diagnosis of CHF. Out of this 96, 48 of them had CHF with depression and 48 without depression comorbidities. **Setting:** Outpatient of a Veterans Affairs (VA) hospital. Database file | **Independent variables:** Contribution of heart failure disease severity, depression, and comorbid anxiety to QoL. **Dependent variables:** Age, race, marital status, illness burden, anxiety and depression. | To identify patients with depression: -Geriatric Depression Scale (GDS). -Anxiety Inventory (GAI) -Kansas City Cardiomyopathy Questionnaire (KCCQ). -DHFKS -New York Heart Association (NYHA) Functional Classification -Relative Risk Score (Illness Burden) | -Chi-square tests and t-test were used for analysis -Cross-sectional comparison. -Descriptive analysis. | Depressive symptoms significantly affect QoL of CHF Patients, therefore mental health treatment may offer opportunities for improved QoL for this patient population. | Level III/B **Worthiness to Practice:** -Study suggests that practitioners should assess and monitor depression in CHF patients. -According to study findings, it is clear that depression plays a large role in health-related QoL. -There is need for additional studies to examine the impact of depression-based interventions on both physical and emotional health and QoL. -There is need for multifaceted intervention approach for CHF patients with...
| Purpose of Article or Review | Design / Method / Conceptual Framework | Sample / Setting | Major Variables Studied (and their Definitions) | Measurement of Major Variables | Data Analysis | Study Findings | Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /
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<tr>
<td>who showed number down to 96 out of the 96, 48 with depression and CHF -48 CHF and without depression -No Conceptual framework documented.</td>
<td>extraction was performed.</td>
<td>Illness burden was evaluated. methodology (DXCG).</td>
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<td>comorbid depression, anxiety, or both. These interventions will aid in improvement of care outcome. into a behavioral medicine treatment model, may increase engagement in mental health treatment. <strong>Strengths:</strong> A large sample was sought, although a large number was excluded. <strong>Weaknesses:</strong> -Sample size was relatively small and may be limited in its generalizability because sample was primarily male veterans. -Due to self-reported questionnaires, social desirability may have resulted in response bias and overestimation of actual self-care behavior.</td>
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<td>Purpose of Article or Review</td>
<td>Design / Method / Conceptual Framework</td>
<td>Sample / Setting</td>
<td>Major Variables Studied (and their Definitions)</td>
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<td>Cronbach alpha score for DHFKS was low.</td>
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<td>Education level in 43.3% of the participants was junior high school or lower, possibly contributed to an inconsistency in knowledge level of heart failure.</td>
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<td>GAI is a recently developed measure and may require further validation.</td>
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<td><strong>Feasibility</strong>: The ideas are relevant to CHF patient population and can be shaped into practice for better outcome.</td>
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<td><strong>Conclusion</strong>: CHF is a progressive and deteriorating condition that can be debilitating. Mental health treatment will offer opportunities for improved CHF care outcome.</td>
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<td></td>
<td><strong>Recommendation</strong>:</td>
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<td>Purpose of Article or Review</td>
<td>Design / Method / Conceptual Framework</td>
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<tr>
<td>Depression and anxiety, if left untreated, impact the QoL of CHF patients. The knowledge gleaned from this review will inform practice change for practitioners to incorporate depression assessment and monitoring in care of heart failure patients, especially as these symptoms relate to their QoL.</td>
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Definition of abbreviations: DXCG = Diagnostic Cost Groups, GSD = Geriatric Depression Scale, GAI = Geriatric Anxiety Inventory, KCCQ = Kansas City Cardiomyopathy Questionnaire, VA = Veterans Affairs


The purpose of this article was to study and investigate mortality, disability, and health-related QoL in Cardiology Department of a Public hospital in Karachi, Pakistan. |

**Design:** Prospective cohort study.

**Method:** Authors recruited 1,009 patients diagnosed with IV Mortality, disability, and health-related QoL in depressed patients. **DV1** -Beck depression inventory (BDI) -Life events checklist (LECL) -Multi-dimensional

Statistical analysis tools were: -Spearman's rank correlation. -BDI score. -Linear regression for The rate of depression was high among Pakistani patients with CHF and depression severity is Level II/B Worth to practice: Depression severity affects CHF outcome, this calls for clinicians to address depression in patients with cardiac diseases. This will help |
<table>
<thead>
<tr>
<th>Purpose of Article or Review</th>
<th>Design / Method / Conceptual Framework</th>
<th>Sample / Setting</th>
<th>Major Variables Studied (and their Definitions)</th>
<th>Measurement of Major Variables</th>
<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /</th>
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<tr>
<td>depressed patients with CHF in Pakistan.</td>
<td>CHF from public hospitals in Karachi, Pakistan. They scheduled participants for clinical interviews, gave them questionnaires, and followed up with them for 6 months.</td>
<td>Inclusion criteria: Availability of radiology report confirming CHF. Having symptoms such as dyspnea, third heart sound jugular vein, rales, edema, and on diuretics with clinical improvement. Conceptual framework:</td>
<td>-Previous cardiac disease history. -Severity of depression. -Screen for depression in various populations <strong>DV2</strong> -Measure social stress. <strong>DV3</strong> -Measure QoL by assessing pain, mobility, self-care, usual activities, anxiety.</td>
<td>scale of perceived social support (MSPSS) -Euro QoL (EQ-5D)</td>
<td>the continuous outcomes, and logistic regression for binary outcomes. -NYHA class -Pearson correlation. -Mann-Whitney test. -The Kruskal-Wall is test.</td>
<td>related to high mortality rate. The result indicated that 670 (66%) patients were found to be depressed at baseline, and 821 participants completed a 6-month follow-up assessment (retention rate: 81%).</td>
<td>to improve QoL and care outcome. <strong>Strengths:</strong> Researchers used a validated self-report screening tool to screen participants for depression. They also used structured interview to confirm diagnosis. -A large number of samples were recruited and researchers followed up with them for 6 months. -Sample was recruited from cardiology departments in the city of Karachi. -The participants were followed up for six months. <strong>Weaknesses:</strong> Screening tools for depression may cause a bias in the estimates. -Lack of length of hospital stay data caused some uncertainties.</td>
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<td>Purpose of Article or Review</td>
<td>Design / Method / Conceptual Framework</td>
<td>Sample / Setting</td>
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<td>Measurement of Major Variables</td>
<td>Data Analysis</td>
<td>Study Findings</td>
<td>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)</td>
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<td>Naturalistic model was applied.</td>
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<td>Feasibility: This is very feasible and generalizable. Knowledge can be implemented in practice, used for educational purposes, and be used by healthcare leadership to implement measures to improve care outcome. Academic institutional review board at the Dow University of Health Sciences, Karachi approved the protocol of this study. Conclusion: There is link between severity of depression and mortality in patients with CHF. This highlights the importance of identifying and treating comorbid depression in patients with CHF. Recommendation: Mortality rate of CHF patients can be lowered.</td>
</tr>
<tr>
<td>Purpose of Article or Review</td>
<td>Design / Method / Conceptual Framework</td>
<td>Sample / Setting</td>
<td>Major Variables Studied (and their Definitions)</td>
<td>Measurement of Major Variables</td>
<td>Data Analysis</td>
<td>Study Findings</td>
<td>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) / by implementing results from this study.</td>
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Definition of Abbreviations: BDI = Beck depression inventory, CIS-R = Clinical Interview Schedule-Revised, EUROQOL-S = European Quality of Life Scale, LECL = Life events checklist, MSPSS = Multidimensional Scale of Perceived Social Support


The purpose was to evaluate the effectiveness of telemedicine in the management of chronic heart diseases and improvement of various health issues using telehealth technology. 135 were from PubMed. 151 abstracts were reviewed to ascertain their relevancy to the purpose of the research, and 20 articles were finally included in the research. Through MESH, they identified 78 subheadings that were included as key terms for the search. Sample Size: Initial yield was 574 Sample reviewed =151 Included = 20 research articles

**Inclusion criteria:**
- Date range of 2006 to 2015
- Full text and abstract written in English, academic journals.

**IV1:** Effectiveness of telemedicine

**IV2:** Hospital readmissions rate, morbidity, and mortality.

**IV:** Effect of telemedicine management on chronic heart failure patients

- Systematic review
- Meticulous manual reading all evidence and abstracts

Systematic review and meta-analysis standard using PRISMA

Writers found that telemedicine is highly associated with the reduction in hospitalizations and readmissions, increased cost-effectiveness by reducing money spent on readmissions. They also found that telemedicine is promising for the future of healthcare especially rural healthcare; it will help to solve the issue of healthcare accessibility and healthcare disparity gap.

**Strength:**
The inclusion of articles that were 10 years and newer will offer more current and updated information. Academic
<table>
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<tr>
<th>Purpose of Article or Review</th>
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<th>Measurement of Major Variables</th>
<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>cardiovascular disease and telemedicine. No conceptual framework mentioned.</td>
<td>-Relevancy to study. Excluded were 265 that failed inclusion criteria. <strong>Setting:</strong> CINAHL and PubMed.</td>
<td>implementation improved patients; self-care of cardiovascular diseases, thereby improving life.</td>
<td>journals were used. <strong>Limitations:</strong> Limitations, such as publication bias, exist because reviewers were unable to immediately access studies that were unpublished. Limited empirical data exist. There is also a selection bias reported. <strong>Feasibility:</strong> Implementation of telehealth technology is very feasible and it comes with an increase in accessibility and affordability of healthcare, thereby bridging the gap in health healthcare disparity.</td>
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**Definition of Abbreviations:** CINAHL = Cumulative Index to Nursing and Allied Health Literature, PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses, MESH = Medical Subject Headings

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<thead>
<tr>
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**Definition of abbreviations:** ANOVA = Analysis of Variance, EBSCO = Elton B. Stephens Company, AMI = Myocardial Infarction, RevMan = Review Manager.


To assess if positive PHQ-2 depression screen among hospitalized heart failure patients is associated with elevated 12-month mortality.

**Targeted enrollment was employed, they also enrolled in a convenience sample. Nurse recruiter asked hospital staff if they were caring for CHF patients with at least EF of <40%. Then with patient’s consent, recruited, spoke to them, explained the**

**Sample:** Conveniencesampling Initial sample size identified = 857,520 completed screening with PHQ-2. Final size included in the study was 471 with confirmed vital status of up to 12 months.

**Setting:** 4 university-

**IV1:** Screening of inpatients with ejection fraction (EF) of <40% and suspected to be depressed.

**IV2:** Assess participants for depression with PHQ-2 for two weeks

**DV1:** All-cause ratio

**DV2:**

**Two-item Patient Health Questionnaire (PHQ-2)**

**-Kaplan-Meier analyses**

**-T-tests**

**-Chi-square**

**-Log rank test**

**-SAS statistical software**

**-Receiver operating characteristic (ROC) analyses**

**-Among hospitalized CHF patients, a positive PHQ-2 depression screen is associated with an elevated 12-month mortality risk.**

**-Study findings suggest that depressive symptoms may affect patients’**

**Level II/B Strengths:**

- Large sample size
- Randomized sampling
- 12-months follow-up
- Application of validated and clinically efficient depression screening and assessment tool

**Weaknesses:** Patent’s depressive symptoms were in the way for patients to give accurate responses to interviews.
<table>
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<th>Purpose of Article or Review</th>
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<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)</th>
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<tr>
<td>study; if they agreed and met inclusion criteria, they were enrolled in the study. This happened from December 2007 to April 2009. No conceptual framework documented.</td>
<td>affiliated hospitals in Pittsburgh area.</td>
<td>Cardiovascular mortality rate</td>
<td>insight of the severity of their CHF more than its objective severity as measured by their cardiac ejection fraction. -All-cause mortality correlated to the level of PHQ-9 score and an elevated risk of mortality.</td>
<td>Study may be hard to generalize due to unclear validity of study findings. likely due to possible gap in depressed patients getting involved research than patients who are not depressed. <strong>Worth to Practice:</strong> It will help to improve identification of depression in CHF patients and provision of care in accordance to findings. It will enable early detection of depression and permit early intervention to prevent mortality. <strong>Feasibility:</strong> It is feasible for routine clinical application in clinical practice. <strong>Conclusion:</strong> PHQ-2 yields similar results, which means screening can be simplified and make the process easy to follow.</td>
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</table>
## Purpose of Article or Review

The purpose of this study was to evaluate the incidence of diagnosis, neurobiology, and treatment of depression.

## Design / Method / Conceptual Framework

<table>
<thead>
<tr>
<th>Design:</th>
<th>Review of literature</th>
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<tbody>
<tr>
<td>Inclusion criteria:</td>
<td>Journals that were written in English</td>
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<tr>
<td>Sample size:</td>
<td>1,498 article abstracts and 19 articles (meta-analyses).</td>
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<tr>
<td>Setting:</td>
<td>Databases searched were</td>
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## Sample / Setting

| IV: | Review prevalence, diagnosis, and treatment of CHF related to depression. |
| -Medical Outcomes Study 36-item Short Form Health Survey. | -Minnesota Living with Heart |
| Manual review of articles. | |

## Major Variables Studied (and their Definitions)

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<tr>
<th>Measurement of Major Variables</th>
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<tr>
<td>Data Analysis</td>
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<td>Study Findings</td>
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## Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)

This will enable increased screening compliance by clinicians and will increase identification and treatment of depression in CHF patients.

**Recommendation:**
- More patient awareness of the impact of depression on cardiac symptoms and follow-up with clinician evaluations, the more they will have the ability to participate in self-care, thereby improving care outcome of CHF and improve QoL.

---


The purpose of this study was to evaluate the incidence of diagnosis, neurobiology, and treatment of depression.

Design: Review of literature

Inclusion criteria: Journals that were written in English

Sample size: 1,498 article abstracts and 19 articles (meta-analyses).

Setting: Databases searched were

IV: Review prevalence, diagnosis, and treatment of CHF related to depression.

- Medical Outcomes Study 36-item Short Form Health Survey.
- Minnesota Living with Heart

Manual review of articles.

- Depression is linked to poorer QoL, frequent utilization of health facilities, and double the danger of

Level III/B

Worth to practice:

Study indicates that depression increases the risk of CHF.

- Depression is frequently under-recognized and poorly
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<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)</th>
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| linked with CHF.            | language and date range of between January 2003 and January 2013. **Search Keywords:** Congestive heart failure and depression. **Conceptual framework:** Collaborative care, based on Wagner's Chronic Care model. | PubMed, Google scholar. | **DV1:** Major depressive disorder and CHF. | Failure Questionnaire (MLHFQ). | mortality and poor outcome. - CHF patients have clinically notable depression rate of 2 to 3 times higher than the general population, and depression creates a gap to effective CHF. | treated in patients with CHF; therefore, healthcare workers and providers can implement the use of screening tools to improve diagnosis and treatment, where applicable, to potentially improve morbidity and mortality in these patients. **Strength:** The sample size was large and extensive review was performed. Articles were within 10 years of study. **Weaknesses:** Manual reviews were conducted by authors, which may have been time consuming and human error may occur. |}

Definition of Abbreviations: MLHFQ = Minnesota Living with Heart Failure Questionnaire

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<tr>
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</table>

Definition of abbreviations: MD = Mean Differences, CI= Confidence interval, SRQ-D = Self-Rating Questionnaire for Depression, PGWBI = Personality General Well-Being Inventory, SDS = Self-rating Depression Scale, CSPFQ = Cattell Sixteen Personality Factor Questionnaire, EBSCO = Elton B. Stephens Company, AMI= Myocardial Infarction, CABG = Coronary Artery Bypass Grafting, RevMan = Review Manager, HADS = Hospital Anxiety and Depression Scale, AHA = American Heart Association, ROC=Receiver Operating Characteristic, CHF = Congestive heart failure, PHQ= Patient Health Questionnaire
Appendix B. Orem’s Conceptual Framework
Appendix C. CHF 30-Day Readmission

Acute Care - CHF % Readmit within 30 Days – FY 2023

Congestive Heart Failure - % Readmit within 30 Days
7/2022-4/2023 Monthly

<table>
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<th>Period</th>
<th>Numerator</th>
<th>Denominator</th>
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<td>6</td>
<td>66</td>
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<tr>
<td>8/2022</td>
<td>15</td>
<td>68</td>
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<tr>
<td>9/2022</td>
<td>19</td>
<td>81</td>
<td>23.5</td>
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<tr>
<td>10/2022</td>
<td>26</td>
<td>91</td>
<td>20.6</td>
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<tr>
<td>11/2022</td>
<td>15</td>
<td>79</td>
<td>19.0</td>
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<tr>
<td>12/2022</td>
<td>15</td>
<td>94</td>
<td>16.0</td>
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<tr>
<td>1/2023</td>
<td>19</td>
<td>69</td>
<td>21.3</td>
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<tr>
<td>2/2023</td>
<td>21</td>
<td>96</td>
<td>21.4</td>
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<tr>
<td>3/2023</td>
<td>24</td>
<td>93</td>
<td>25.8</td>
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<tr>
<td>4/2023</td>
<td>14</td>
<td>92</td>
<td>15.2</td>
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FY22 - 19.3%
FY21 - 21.4%
Appendix D. Gap Analysis

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<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CHF nurses visit patients in their hospital bed to conduct patient education on how to manage their chronic CHF condition instead of discharge telehealth visits to support them in managing their health condition.</td>
</tr>
<tr>
<td>2.</td>
<td>Clinicians lack knowledge of telehealth implementation for CHF patients.</td>
</tr>
<tr>
<td>3.</td>
<td>Lack of standardized script incorporating CHF screening symptoms and depression screening tool during patient visits.</td>
</tr>
<tr>
<td>4.</td>
<td>Short staff due to chronic staffing shortage issue in healthcare.</td>
</tr>
<tr>
<td>5.</td>
<td>Increase workload / nurse patient ratio, high patient acuity due to short staff.</td>
</tr>
</tbody>
</table>
Appendix E. Patient Health Questionnaire-2 (PHQ-2)

**PATIENT HEALTH QUESTIONNAIRE-2 (PHQ-2)**

Over the last 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Little interest or pleasure in doing things
2. Feeling down, depressed, or hopeless

For office coding: 

= Total Score

The PHQ-2 consists of the first 2 questions of the PHQ-9. Persons scoring 3 or higher should be screened further with the full PHQ-9.

- If patient scores negative to PHQ-2, stop here
- If patient scores positive to PHQ-2, proceed to PHQ-9 Questionnaire
Appendix F. Patient Health Questionnaire-9 (PHQ-9)

### Patient Health Questionnaire-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use “0” to indicate your answer.)

1. Little interest or pleasure in doing things 0 1 2 3
2. Feeling down, depressed, or hopeless 0 1 2 3
3. Trouble falling or staying asleep, or sleeping too much 0 1 2 3
4. Feeling tired or having little energy 0 1 2 3
5. Poor appetite or overeating 0 1 2 3
6. Feeling sad about yourself — or that you are a failure or have let yourself or your family down 0 1 2 3
7. Trouble concentrating on things, such as reading the newspaper or watching television 0 1 2 3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual 0 1 2 3
9. Thoughts that you would be better off dead or of hurting yourself in some way 0 1 2 3

---

**For office copy:**

**Total Score:**

---

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all

Somewhat difficult

Very difficult

Extremely difficult

---

Scores of 6 or greater are positive, please refer patient to Mental Health.
Appendix G. CHF Symptom Screening Tool

**CHFDEP SCREENING TOOL**

**TELEHEALTH VISIT FOR CHF CLIENT’S SYMPTOM SCREENING**

The clinician visiting the patient through Telehealth will ask the following “Yes or No” questions to the patient:

- **First:** Introduce self and politely greet patient
- **Ask how patient is doing**
- **Verify Discharge date**
- **Verify if Medication was picked up from pharmacy**
- **Verify if patient made follow up appointments with their doctors**
- **Ask if they have any questions concerning discharge instructions**

Then dive into questions below:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes or No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you have difficulty breathing while at rest, while lying down, or sitting still?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>2. Do you find yourself sleeping unintentionally daytime while sitting up in a chair?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>3. Do you feel unusually tired, lacking energy, interest, or zest?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>4. Do you have swelling of feet, ankles, legs, or stomach?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>5. Did you gain weight of 3 lbs. in a day or 5 lbs or more in a week?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>6. Are you feeling uneasy or that something is not quite right?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>7. Do you have a dry, hacky cough?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>8. Do you have chest pain?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>9. Do you feel confused or can’t think clearly?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>10. Do you feel dizzy or lightheaded?</td>
<td>Yes or No</td>
</tr>
</tbody>
</table>

*Scores of 2 or greater are positive, please notify provider.*
Appendix H. CHF Patient Motivational Education Tool

What you need to know about managing your condition:
- Weigh yourself daily and record readings in a log
- Check and record your blood pressure daily
- Take your medicines daily as instructed
- Note if you are having shortness of breath
- Check your feet, ankles, legs, and stomach for swelling daily
- Eat a low salt diet, avoid processed foods, canned foods, and packaged foods as they have hidden salt

You are in the Green zone when:
- You do not have shortness of breath, no chest pain
- No swelling in the feet, ankles, legs, stomach, no weight gain and no hacking cough

You are doing a great job, keep up the good work!

You are in the YELLOW zone when:
1. You find yourself having difficulty breathing while at rest, while lying down or sitting still
2. You or your caregiver note that you are falling asleep-sleeping unintentionally while sitting up in a chair
3. Fatigue: If you find that you lack of energy
4. Zeal: If you find that you lack zeal or lack interest in caring for yourself or taking your medicine
5. Edema: Swelling of feet, ankles, legs, stomach
6. Weight gain of 3 lbs. in a day or 5 lbs. or more in a week
7. Feeling uneasy and you know that something is not quite right
8. You have dry hacking cough

PLEASE call your provider if you experience any of these symptoms.

You are in the RED zone when:
- You have chest pain
- Confusion or you just can’t think clearly
- Shortness of breath while sitting still
- Dizziness or lightheadedness

PLEASE go to the Emergency Room immediately or call 911 if you experience any of these symptoms

Review patient’s answers with the zones, a score of 2 or greater from any zones is positive for that zone. Take action!
Appendix I. Gantt Chart

<table>
<thead>
<tr>
<th>TASK/Events</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database/Literature Review</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development of Gantt chart</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creation of project tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creation of Proposal and Budget</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seek for sponsors/stakeholders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting with stakeholders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project team meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Covid Impact and setback</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development of Training plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Implementation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project monitoring and control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrap up project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit final Project for approval</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix J. Work Breakdown Structure

| Initiation Phase | • Identify and evaluate problem  
|                  | • Develop project tools/resources/guidelines/deliverables  
|                  | • Develop project charter  
|                  | • Develop goals and objectives  
|                  | • Literature review  

| Planning Phase | • Submit charter for approval  
|               | • Committee review and approval of project  
|               | • Create preliminary project scope statement  
|               | • Identify stakeholders and team members  
|               | • Analyze system usage and determine practice gap  
|               | • Project kick-off meeting  
|               | • Submit project plan for approval  

| Execution / Implementation | • Kick-off meeting  
|                            | • Verify workability and usability of current dormant telehealth program  
|                            | • Introduce telehealth visit script with PHQ-9 questionnaire incorporated  
|                            | • Develop staff training  
|                            | • Develop a communication plan  
|                            | • Develop a risk plan  
|                            | • Create proposal and budget  
|                            | • Recommend practice change that will enhance CHF patients’ adherence to treatment plan  
|                            | • Kick-off presentation to stakeholders  

| Control / Monitoring | • Supervise and manage project progression  
|                     | • Timely and open communication with team members for updates and to be sure that everyone is on the same page  
|                     | • Team members meeting to update them on project status and to allow members to report any issues encountered  
|                     | • Risk management/mitigate issues  
|                     | • Update team about project progress  
|                     | • Is the project schedule on time and team members on track?  
|                     | • Are team members completing tasks timely?  
|                     | • Are deliverables being met?  
|                     | • Is the team staying within budget?  
|                     | • Data analysis, outcome measure, and success measure.  

| Closure | • Prepare final report  
|         | • Budget and ROI  
|         | • Submit final report for approval |
- Closure meeting with team members for postmortem/debrief
- What went well, lesson learned
- Celebrate success
- Document, store/archive final report
## Appendix K. Responsibility/Communication Matrix

<table>
<thead>
<tr>
<th>Who</th>
<th>What</th>
<th>How</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>Develop project charter</td>
<td>Develop a charter, meet with leadership and stakeholders to gain their interest and approval.</td>
</tr>
<tr>
<td>DM</td>
<td>Coordinate staff at the tertiary health institution</td>
<td>Notify staff about project proposals.</td>
</tr>
<tr>
<td>PM</td>
<td>Develop questionnaire</td>
<td>Develop and incorporate PHQ-9 to telehealth visit script.</td>
</tr>
<tr>
<td>PTM</td>
<td>Attend training</td>
<td>Attend proposed project training staff.</td>
</tr>
<tr>
<td>PTM</td>
<td>Project kick-off meeting</td>
<td>Schedule a meeting once the charter is approved. Send meeting date and schedule to team members and stakeholders via email, conduct meetings via zoom.</td>
</tr>
<tr>
<td>PM</td>
<td>Develop staff training</td>
<td>Coordinate with unit manager to develop staff training.</td>
</tr>
<tr>
<td>PC</td>
<td>Kick-off meeting</td>
<td>Team member kick-off meeting.</td>
</tr>
<tr>
<td>DM</td>
<td>Keep open communication with staff</td>
<td>Communicate and update staff, faculty, and leadership through in-person meetings, emails, and zoom meetings</td>
</tr>
<tr>
<td>PTM</td>
<td>Telehealth visit</td>
<td>Visit patients once a week.</td>
</tr>
</tbody>
</table>

PM = Project Manager, DM = Department Manager, PTM = Project team members, PC = Project committee
Appendix L. SWOT Analysis

SWOT ANALYSIS

**STRENGTHS**
- Supportive Faculty at University of San Francisco (USFCA).
- Well established tertiary health care organization.
- Organization’s willingness to explore evidence-based practice to improve current process.
- Supportive leadership team at the organization.
- In-patient congestive heart failure educator (RN)

**WEAKNESSES**
- Barrier in adoption of telehealth technology by patients who may be technologically challenged.
- Lack of WiFi connection at the patients homes.
- Patient may be too weak to participate due to disease process.
- Patients’ depressive symptoms may create a barrier for learning new technology.
- Lack of motivation from patients due to comorbidities.

**OPPORTUNITIES**
- Adoption of Telehealth technology that cuts across geographical barriers
- Easy access to healthcare clinicians especially for rural residents
- Frequent clinician check-in with patients to reinforce teaching and monitor for signs of exacerbation
- Opportunity for the healthcare provider to take prompt action that will save the patient’s life.
- Expanding professional skills
- Improve self-care and treatment plan adherence
- Reduction in readmission rate
- Improvement of quality of life

**THREATS**
- Stakeholder concern due to timeline
- No budget at this time set aside for telehealth implementation
- Covid-19 affected the momentum of the program and project timeline
- Ability to adopt idea into ongoing practice due to staffing, technological equipment cost, staff and patients training cost.
### Appendix M. Cost-Benefit Analysis

<table>
<thead>
<tr>
<th>RN/Nurse Salary in California</th>
<th>RN $80 per hour</th>
<th>Project RN hours for 10 patients for a period of 8 weeks is estimated to be 200 hours</th>
<th>$80 x 200 hours = $16,000.00</th>
<th>Current Project cost = $16,000.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Readmission to the hospital per patient as of 2022</td>
<td>$10,995 per patient</td>
<td>Cost of readmission for 49 patients in 2023 <em>(based on an estimated 50% reduction)</em></td>
<td>98 patients x $10,995 = $1,077,510</td>
<td></td>
</tr>
<tr>
<td>Total ROI</td>
<td></td>
<td>2022 costs - 2023 costs = ROI</td>
<td></td>
<td>$1,077,510 - ($494,775 + $16,000) = $1,077,510 - $510,775 = $566,735</td>
</tr>
<tr>
<td>ROI based on this project</td>
<td>Based on the facility’s 20.7% readmission rate, 2 participants were prevented readmission 2023</td>
<td>For the rest of 2023, realistically, readmission will not be zero as per project short duration</td>
<td>Facility would have saved $10,995 x 2 = $21,990.00</td>
<td>Total ROI for this project size = $21,990.00</td>
</tr>
</tbody>
</table>
Appendix N. Statement of Non-Research Determination

UNIVERSITY OF SAN FRANCISCO | School of Nursing and Health Professions

Doctor of Nursing Practice
Statement of Non-Research Determination (SOD) Form

The SOD should be completed in NURS 7005 and NURS 791E/P or NURS 749/A/E

General Information

<table>
<thead>
<tr>
<th>Last Name:</th>
<th>Unanwa</th>
<th>First Name:</th>
<th>Akudo</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWID Number:</td>
<td>20575783</td>
<td>Semester/Year:</td>
<td>Summer, 2023</td>
</tr>
<tr>
<td>Course Name &amp; Number:</td>
<td>NURS 749</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chairperson Name: Dr. Alexa Curtis
Second Reader Name: Dr. Trinette Radasa

Advisor Name: Dr. Alexa, Colgrove Curtis

Project Description

Title of Project: Reducing Congestive Heart Failure Readmissions with Telehealth Monitoring

Brief Description of Project

Patients with CHF account for the highest percentage of hospital readmission within 30 days of discharge. Several studies show that this is related to poor adherence to CHF treatment plan. This project is aimed at improving treatment plan adherence in newly discharged CHF patients. DNP student in collaboration with nurses at the tertiary institution will meet in-person and remotely (via telehealth technology) with affected patients at least three times a month during the first 30 days after discharge from an acute care hospital. Main goal is to maintain a readmission rate of less than 20.7% of client enrolled in the DNP EBP project during the duration of the project, this is because the site facility are currently at 20.7% CHF readmission rate. Therefore, this project aims to maintain a rate less than 20.7%

The current proposal with the DNP chair and Quality director at the tertiary institution is to select at least 10 patients with diagnosis of CHF who were recently discharged from the hospital and monitor them using this DNP project plan with the use of Telehealth for at least three times a month. The clinician/DNP student will assess patients during the telehealth visit, screen patients for CHF symptoms. The patients will be asked and guided to do self-check for edema, have patients check weight and blood pressure, review medication and educate patients on diet, exercise, fluid restriction, weight gain, and shortness of breath, identify any sign of condition exacerbations or any health concerns. In addition, patients will be screened for depression with PHQ-2 questionnaire, if the patient scores 3 or greater on PHQ-2, the patient will further be screened with full PHQ-9 questionnaire. A PHQ-2 negative patient will continue to be screened for CHF symptoms only. For any positive findings, clinician will intervene and if needed, make necessary referrals in a timely manner.
AIM Statement:
To improve CHF patients treatment plan adherence by monitoring patients at least three times a month through telehealth visits, reducing re-hospitalization rate and maintain a readmission rate of less than 20.7% of CHF clients enrolled in the program by August, 2023.

Complete the AIM statement by answering the following elements:
What: Telehealth monitoring of CHF patients using scripting.

How much improvement: Maintain a readmission rate of less than 20.7% of CHF clients enrolled in the DNP project program by August, 2023.

For whom: CHF patients enrolled in DNP EBP quality improvement telehealth project.

Where: Virtual-Tertiary Healthcare institution San Joaquin California
By when: By August, 2023

How will this intervention be implemented?
Through telehealth visits to adult CHF patients recently discharged from inpatient stay within the past 30 days. The focus population for the intervention is CHF patients

How will you inform stakeholders/participants about the project and the intervention?
Through in person site visits, emails and meetings.

Outcome measurements: How will you know that a change is an improvement?
Patients in the program will adhere to treatment plan, have adequate symptom control and will not be readmitted to the hospital within 30 days of inpatient discharge and while on this program.

Confidentiality
Participant confidentiality will be maintained by following HIPPA guidelines, using initials instead of full names, assigning a unique numbers to the patients instead of their actual medical record numbers. Dignity electronic health record system is encrypted. Project team will attest to maintaining confidentiality of patients.
### DNP Statement of Determination

#### Evidence-Based Change of Practice Project Checklist*

*The SOD should be completed in NURS 7005 and NURS 791/E/P or NURS 749/A/E*

#### Project Title:

Reduction Congestive Heart Failure patients Readmissions with Telehealth Monitoring

<table>
<thead>
<tr>
<th>Mark an “X” under “Yes” or “No” for each of the following statements:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The aim of the project is to improve the process or delivery of care with established/accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The specific aim is to improve performance on a specific service or program and is a part of usual care. All participants will receive standard of care.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The project is not designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does not follow a protocol that overrides clinical decision-making.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does not develop paradigms or untested methods or new untested standards.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does not seek to test an intervention that is beyond current science and experience.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The project has no funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/or patients.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: “This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board.”</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

#### Answer Key:

- If the answer to all of these items is “Yes”, the project can be considered an evidence-based activity that does not meet the definition of research. IRB review is not required. Keep a copy of this checklist in your files.
• If the answer to any of these questions is “No”, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: http://answers.hhs.gov/ohrp/categories/1569

![UNIVERSITY OF SAN FRANCISCO](image)

DNP Statement of Determination
Evidence-Based Change of Practice Project Checklist Outcome

The SOD should be completed in NURS 7005 and NURS 791EP or NURS 749/AE

☑ This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐ This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

---

Student
Last Name: Unanwa

Student Signature: [Signature]

Chairperson Name: Dr. Alexa Curtis

Chairperson Signature: [Signature]

Student
First Name: Akudo

Date: [Date]

---

University of San Francisco, School of Nursing and Health Professions

REV 07/18/19, 09/18/19, 07/31/20; ed_mil_ted_10-9-20; DNP Faculty Approval 11/19/20

DNP Statement of Determination Form | Page 4
Second Reader Name: Dr. Trinette Radasa Date: 09/15/23
Second Reader Signature: Trinette Radasa

DNP SOD Review Committee Member Name: 

DNP SOD Review Committee Member Signature: Date:
Appendix O. Agency Letter of Support

DNP Project Letter of Support from organization

This is a letter of support for Akudo Udodiri Unanwa who is currently enrolled in the Doctor of Nursing practice-Population Health Leadership program at the University of San Francisco to implement Evidence Based Practice (EBP) comprehensive DNP project Improving Health Outcomes Among Patients with CHF through Implementation of Telehealth CHF and Depression Screening and Symptom Management at St. Joseph Medical Center Stockton California (SJMC). We give her permission to use the name of our agency in her DNP EBP Comprehensive Project Paper and in future presentations and publications.

Signature:

Jacquie DeMellow PhD RN CCNS HACP CPHQ
Director of Quality
Appendix P. Protocols and Workflows

Protocols and Workflows for Telehealth Monitoring of CHF Clients

Enrollment
- Patient recruitment to Telehealth CHF Monitoring
- Explain Telehealth process and procedure to patient
- Assure patient of their privacy and confidentiality
- Ensure patient signs consent form to participate
- Provide patient with educational materials

CHF Screening
- Conduct Telehealth visits at least three times a month.
- Conduct CHF screening using CHFDEP screening tool during the visit.
- Categorize patient into 3 groups:
  - Green: Great job! Continue what you are doing!
  - Yellow: Conduct Motivational Interviewing
  - Red: Conduct Motivational Interviewing

Depression Screening
- Screen patients for depression using PHQ2 and PHQ9 during the Telehealth visit
- Categorize patients into 2 groups based on screening results:
  - Positive: Conduct Motivational Interviewing
  - Negative
Appendix Q. Telehealth Workflow

**Telehealth Workflow**

**Plan for Heart Failure clients Self-Management Education by the Clinician**

**Objective:** To educate patients with CHF on self-care management using the Low-Literacy Zone Tool Through Motivational Interviewing.

**Objectives:**
- To recognize common symptoms of heart failure under zones for self-management.
- To understand actions to be taken based on the presenting CHF symptoms.

**Activities and Motivational Interviewing Content**
- Introduce yourself to the patient and the purpose of the motivational interviewing session.
- Discuss common warning signs such as increased shortness of breath, rapid weight gain, and persistent cough (American Heart Association, 2022).
- Encourage participants to ask questions during the session.
- Use the Low-Literacy Zone Tool to explain the symptoms of CHF and what to do based on each category (see Figure 1).
- Explain why self-monitoring is crucial in managing heart failure.
- Encourage low-intensity exercises that can be incorporated into daily routines.
- Discuss the role of diet in heart failure management, focusing on low-sodium options.