The Development, Refinement, Implementation, and Impact of a Nurse-Led Health Coaching Self-Care Management Intervention for Heart Failure

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Nursing
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Abstract

**Background:** Heart Failure (HF) hospitalizations and readmissions remain unacceptably high despite medical advances and, in spite of the education provided to HF patients regarding the signs of fluid accumulation, HF exacerbations persist. There is a gap between patients recognizing the signs of fluid accumulation and performing timely self-management activities to control it. Currently, there is no standardized approach for nurse-led health coaching to assist patients in HF symptom management oriented to self-care activities within a primary healthcare (PHC) setting. There is a need to better understand how self-care interventions can be delivered within a PHC practice, which health outcomes can be achieved, and what education and system changes are required as a foundation for tailored, person-centered care.

**Methods:** A prospective, non-randomized mixed methods cohort study was conducted to a) refine and further develop a novel nurse-led health coaching self-care management intervention involving a self-care guidebook with an activity of the Adjusted Diuretic Dosing (ADD) tool for people living with HF (Phase 1), and b) examine the feasibility, acceptability, and initial impacts of this nurse-led health coaching intervention from the perspectives of HF patients, their caregivers and nurses who offered the intervention using a PHC approach in PHC (Phase 2). In Phase 2, Interpretive Description methodology was employed using in-depth interviews to explore the experiences of nurses who offered the intervention and patients and caregivers’ experiences who engaged in the intervention. Selected quantitative data were collected from the patients and caregivers using surveys comprised of self-reported measures of health-related Quality of Life (QoL) and Self-Care Behaviours, both pre- and post-intervention. These
data were analyzed descriptively to provide a deeper contextual understanding of the qualitative data.

**Results:** In Phase 1, 10 nurses participated in refinement of the intervention. Only minor revisions were made to the self-care activity tool while providing a process for site readiness to conduct Phase 2. In Phase 2, 4 nurses and 5 patient/caregiver dyads participated in this feasibility study in 3 primary care settings. Nurses often were not working at their full scope of practice being primarily focused on tasks rather than actively incorporating health promoting or disease modifying interventions into their care; this being shaped by the organization of care within these settings. This study enhanced nursing practice in the care of persons living with HF through the standardization of a nurse-led health coaching intervention with tools to support self-care. Overall, patient participants had obtained a therapeutic relationship with their nurse that resulted in positive self-care behaviours; specifically, in the areas of self-care management and monitoring and improved QoL. Caregiver contributions increased in areas involving self-care maintenance and confidence without burden which was influenced by the nurse engagement involving moral encouragement, emotional support, and being an active partner through health education.

**Conclusions:** The findings of this study demonstrated a trend to patient improved self-care management skills and QoL when a nurse–led health coaching intervention was tailored to the patients’ needs. In addition, caregiver engagement was increased without burden. This intervention holds promise in the care of HF patients and there is a need to conduct this work with a larger cohort of people with HF. Future studies should explore the effects of adopting personalized, nurse-led health coaching for patients living with other chronic medical conditions. The results from this study have the potential to
improve the quality and consistency of HF patient care with improved outcomes for persons living with HF.

*Keywords:* heart failure, nurse-led health coaching, weight monitoring, diuretic titration, self-care, self-management, self-efficacy, self-confidence, decision-making, equity, health equity and social determinants of health.
Summary for Lay Audience

Heart Failure (HF) is caused by a weakened heart muscle that results in fatigue, difficulty breathing from fluid accumulation in the lungs, abdomen, legs or feet contributing to weight gain. Despite good medical therapy, this chronic condition has no cure. HF is the leading cause of prolonged hospitalization for the elderly in Canada, causing an increased financial burden to the health care system. It is important that the patient and their support person are well informed about HF management and strategies to stabilize this disease process so improved quality of life (QoL) can be achieved.

Educational materials alone are not sufficient. Implementing strategies that promote self-care skills that are personalized to the patient’s needs are necessary. This study examined a nurse-led health coaching approach that was tailored or “personalized” to the patient and their support person by addressing any health challenges that may interfere in successful participation in HF self-care management. First, a review of all the scientific literature on this topic was completed. Second, nurses who work in family medical clinics were asked to provide feedback on a self-care management tool that was developed to help patients with HF better engage in self-care. Third, the tool was refined and used by nurses supporting patients with HF and their caregivers as part of a nurse-led health coaching approach. Next, patients with HF and their caregivers completed surveys before and after using this approach to assess whether there were changes in their QoL and self-care management behaviours, particularly self-care maintenance, self-care management/monitoring, and self-care confidence. Lastly, the nurses were interviewed to provide feedback about their experiences of using the health coaching approach when supporting patients living with HF, and the patient and their support person were interviewed separately to gather feedback about participating in this nurse-led health
coaching approach that involved the self-care activity of adjusting the fluid ("water") pill to manage their HF symptoms. The findings of the study showed that patients had improved self-care management skills when a nurse-led health coaching intervention was tailored to the patients’ needs and this approach also enabled nurses to practice to full scope. Future studies should be larger to explore the effects of adopting personalized, nurse-led health coaching for patients living with other chronic medical conditions. This type of research is important to promote nurse-led health coaching interventions with a self-care management activity that encourages patients and caregivers to be actively involved with their health care resulting in reducing HF symptoms while improving their QoL.
Co-Authorship Statement

This thesis submission has no papers co-authored by the candidate and others. There is intent to publish this work. Members of the committee Dr. Victoria Smye, Dr. Marilyn Ford-Gilboe, Dr. Robert McKelvie, and Dr. Sonja Reichert will be co-authors on any publications.
Acknowledgements

I would like to acknowledge the following people for their role in my endeavour to obtain a doctoral degree in nursing.

My heartfelt thanks go to the study participants for providing me with the opportunity to share a challenging time in their lives, I am truly grateful for their generosity, willingness to contribute to science and research, and their openness and at times vulnerability. Their stories are heard, valued, and remembered.

Dr. Victoria Smye, thank you for being a supervisor, mentor, role-model, and supporter. We established an instant bond from the first time we spoke on the telephone when determining our research interest and philosophical views align with each other. Vicki, you were always there for me when I needed guidance, direction, and encouragement; often sacrificing your personal time to respond promptly. I appreciate your wisdom in research, academia, dedication to your role, and understanding the importance and influence of family when life events occur. It is without question that you had a significant impact on me personally and professionally. My only hope is that I had a positive influence on you. It has been a pleasure being your graduate student.

I am grateful for Dr. Marilyn Ford-Gilboe who was a co-supervisor. Your expertise and experience on developing and implementing interventions into clinical practice was invaluable. I appreciate your time spent to provide feedback drafting process maps and data charts as we both are visual researchers. Thank you for your support and kindness to ensure I did not get down too many “rabbit holes” or off the beaten track.

I am also appreciative for Dr. Robert McKelvie, and Dr. Sonja Reichert who served as my thesis advisory committee members. Dr. Robert McKelvie, thank you for your depth of HF knowledge, wisdom, and your no-nonsense approach. I appreciate
every time your responded to the group emails with words of encouragement and praise. But most of all, I enjoyed hearing your hearty laugh as it brought happiness and laughter to this daunting endeavor. Dr. Sonja Reichert, thank you for your knowledge, expertise, and wisdom working in primary healthcare and conducting research involving chronic diseases, specifically diabetes. This transferable knowledge was helpful during the intervention’s implementation phase into a primary health care clinic setting.

I would like to acknowledge the faculty and staff at Arthur Labatt Family School of Nursing at Western University for providing me the opportunity to obtain my doctorate and the financial support in my education through the Ontario Graduate Scholarship in Nursing and being a recipient for the Irene Nordwich Graduate Foundation bursary.

Notably, I would like to thank my dear friend Lucinda Kwan for 25 years of unwavering support in my professional aspirations, academia, and her insights and perspective in politics and business. This indeed has contributed to my professional and personal growth and provided me courage to pursue my academic journey.

Lastly, my parents, Louis and Catherine Masse, and my five siblings that have been supportive throughout my life when raising my own family and being a lifelong learner. Thank you for all your love, genuine interest in my career, and instilling the importance of faith and prayer in my life. Unfortunately, my father passed away a few months before I completed my dissertation. I know my dad will always be with me in spirit to provide me the strength to complete this journey and to continue to positively impact the lives of patients while contributing meaningfully to the health care system.

My dear husband Robert Leyser, you have been instrumental throughout my life. I would not have got to this stage in my nursing career or personal life without the
unconditional love, support, patience, and humour by always saying “Yes, dear”. For over 35 years, he has been my rock, voice of reason, and provided encouragement since I began nursing school in 1989. We are blessed with two children, Cameron and Madison who are the center of our lives. Together, we have prioritized the importance of family, tradition, and integrity through a strong work ethic. During this academic journey to complete my doctorate, you have made personal sacrifices and picked up the slack around the home. This has resulted in a stronger bond that is unbreakable.

Finally, I would like to acknowledge my children, who often watched their mom be in school while working full time as a Nurse Practitioner. This schedule, at times, compromised family time with them but they always remained supportive, exercised patience when I was not fully “present”, and provided encouragement not to give up while frequently asking me how the ethic’s process was going. My husband and children understood my passion to provide the best care to patients and their families, the importance of pursuing a doctorate degree to continue to make a positive impact on the nursing profession through my contribution to science and research, and to improve the health and wellness for patients living with heart failure. For that, I am forever grateful and blessed.
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Organization of this Dissertation

This dissertation uses monograph format and is organized into five chapters: 1) Introduction; 2) Literature review; 3) Methodology and Methods; 4) Results; and 5) Discussion and Conclusion. Supporting references, appendices, and documents have been appended as supplementary information.
Chapter One: Introduction

Heart failure (HF) is a complex and progressive syndrome where the heart cannot pump sufficient blood to meet the body’s metabolic demands, causing dyspnea, exercise intolerance, and fatigue (Arnold et al., 2006). In Canada, more than 750,000 people are living with HF and over 100,000 people are newly diagnosed each year (Poon et al., 2022). People living with HF are generally older adults who may have multiple co-morbidities which include coronary artery disease, hypertension, diabetes mellitus, atrial fibrillation, renal insufficiency, or chronic obstructive pulmonary disease (Buck et al., 2015; Harkness et al., 2015; Riegel et al., 2009; Riegel et al., 2022; Vellone et al., 2017). The HF state is never completely stable resulting in unpredictable acute HF exacerbation that can lead to hospitalization and death (Ezekowitz et al., 2017; Goodlin, 2009; McKelvie et al., 2013; Poon et al., 2022; Ziaeian & Fonarow, 2016). In Canada, HF is a leading cause of cardiovascular morbidity and mortality (Poon et al., 2022).

Despite advances in evidence-based HF therapies for the past decade, the prognosis remains poor and there is no cure (Report on the Health of Canadians, 2016; Poon et al., 2022). HF is the leading cause of prolonged hospitalization for the elderly in Canada, causing an increased burden to the health care system (Dai et al., 2012; Poon et al., 2022). Using the same population estimates for the fiscal years 2009/2010 and 2018/2019 from Statistics Canada, the Canadian Institute for Health Information (CIHI) revealed that the hospital readmission rates for patients with HF have remained stable in the last ten years; there was an all-cause 30-day readmission rates of 20.6% (2009/2010) and 20.2% (2018/2019) had been identified, with the majority of readmitted patients having a primary diagnosis related to HF (62.5% in 2009/2010 and 59% in 2018/2019) (Poon et al., 2022). Closer to home, HF readmissions rates in Ontario remained
unchanged from 2006 to 2014, at approximately 21%, followed by a slight decline to 20.8% in 2017 (Poon et al., 2022). In addition, CIHI data revealed the average prolonged length of stay has only changed slightly at 7 days (Poon et al., 2022) from 8 days reported less than a decade earlier (Ambrosy et al., 2014).

These HF hospitalizations are a serious global health and economic burden affecting an estimated 26 million people worldwide (Ambrosy et al., 2014). The HF syndrome may lead to challenges using the existing HF treatment and management, resulting in patients’ inability to manage their HF (Ambrosy et al., 2014; Jaarsma et al., 2021; Riegel et al., 2022). Implementing clinical strategies such as HF best practice guidelines that emphasize self-care skills and activities, early in the syndrome, may provide an opportunity for the patients to gain control of their chronic condition. Positive health outcomes from self-care management practices may help stabilize symptoms, slow the progression of this disorder, and improve the patient’s quality of life (QoL), all necessary aspects of supporting HF patients with chronic disease management (Buck et al., 2012; Buck et al., 2015; Ezekowtiz et al., 2017; Harkness et al., 2015; Jaarsma et al., 2021; Riegel et al., 2022).

Globally, best practice guidelines for HF (Ezekowtiz et al., 2017) suggest that pharmacological solutions on their own are insufficient in preventing fluid accumulation and related complications that result in subsequent hospitalization. Non-pharmacological solutions, including diet, exercise, and weight monitoring, are also suggested by the guidelines. However, education-based interventions alone are also insufficient in improving self-care management and, in fact, can be challenging to offer due to reduced health literacy levels (Harkness et al., 2015; Jaarsma et al., 2021; Riegel et al., 2009) and vision or hearing impairments in this population.
Effective, nurse-led interventions have been developed to support self-care among people living with chronic illnesses including diabetes, chronic obstructive pulmonary disease, and pain (Boehmer et al., 2016; Byrnes et al., 2012; Jaarsma et al., 2021; Lenzen et al., 2018; Linder et al., 2003; Luma et al., 2021; Moreno-Chico et al., 2020; Murphy et al., 2017; Wong-Rieger & Rieger, 2013). While there is a body of research and theory relevant to self-care among people living with HF, the majority of the interventions start in the hospital and transition to home community-based programs (Barnason et al., 2011; Blauer et al., 2015; Buck et al., 2018; Harkness et al., 2015; Juraida et al., 2022; McGeal et al., 2014; Riegel et al., 2011; Riegel et al., 2009). However, few interventions have been specifically designed to assist HF patients to engage in self-care management (herein referred to as self-care) when delivered in primary health care (PHC) settings (Boehmer et al., 2016; Dineen-Griffin et al., 2019). For example, in a recent systematic review (Dineen-Griffin et al., 2019) of 58 studies focused on self-care strategies involving a self-messaging system (SMS) for assisting clients with chronic disease management, the majority of messages were either COPD or diabetes focused; only one study (Dineen-Griffen et al., 2019) was conducted in the PHC setting with the HF population. Dineen-Griffin et al. (2019) compared their study findings with an earlier systematic review conducted by Jovicic et al. (2006) revealing core components of successful self-care strategies that had positive clinical and/or humanistic outcomes such as increased disease knowledge, symptom control, improved self-efficacy, and Quality of Life (QoL).

Given that PHC practitioners are a person’s first point of contact within the health care system (Dineen-Griffin et al., 2019), PHC is a critical context for HF self-care interventions. PHC practice centers on promoting health and preventing and managing
chronic illness (CNA, 2015). The central focus of a PHC approach is to provide equitable, timely, and accessible health care while employing a person-centered approach, i.e., patients are central agents in decision-making processes related to their health issues (CNA, 2015). Care delivery rooted in PHC principles fosters active patient and family participation as partners in health; a necessary component for the success of HF self-care management (Buck et al., 2015; CNA, 2015; Bernard et al., 2023; Dickson & Riegel, 2009; Harkness et al., 2015; Riegel et al., 2011; Riegel et al., 2009).

There is a need to better understand how self-care interventions can be delivered within a PHC practice, which health outcomes can be achieved, and what education and system changes are required as a foundation for tailored, person-centered care (Dineen-Griffin et al., 2019). Nurses have the expertise through specialized knowledge and being leaders within health care to build capacity for self-care through health education and coaching, an activity that is essential for strengthening Canada’s health-care system (CNA, 2015). Therefore, a nurse-led health coaching intervention for HF self-care management within a PHC setting may provide one approach to support people living with this chronic condition (Moreno-Chico et al., 2020).

The Central Problem and Purpose of the Study

HF hospitalizations and readmissions remain unacceptably high despite medical advances (Ambrosy et al., 2014; Desai & Stevenson, 2012; Poon et al., 2022) and, in spite of the education provided to HF patients regarding the signs of fluid accumulation, HF exacerbations occur. Unfortunately, there seems to be a gap between patients recognizing the signs of fluid accumulation and performing timely self-management activities to control it. The current global medical practice asserted in HF guidelines acknowledges that pharmacological solutions on their own are insufficient in preventing
fluid accumulation and subsequent HF hospitalization. As such, non-pharmacological solutions, including diet, exercise, and weight monitoring are suggested (Riegel et al., 2009). However, it is apparent that education-based interventions alone are not sufficient to have a significant role in self-care management and in fact, self-care is often unrelated to knowledge (Riegel et al., 2009) but, rather, affected by motivation, ability or support (Jaarsma et al., 2021). Since self-care is a complex naturalistic process that requires active decision-making and concerted behaviour change, facilitators or barriers for self-care and strategies that patients engage to promote self-care need to be better understood as a foundation for HF self-care management. In addition, few health care providers assess health literacy and appropriately tailor information when interacting with HF patients (Harkness et al., 2015; Jaarsma et al., 2021; Riegel et al., 2009). Therefore, it is necessary for nurses to explore actions and perceptions of HF patients so self-care activities can be adopted successfully. Health coaching is a promising approach that could be used by nurses to support this process. Health coaching is not counseling; rather, it uses the patient’s goals to guide specific conversations and integrates patient education to assist these processes (Huffman, 2009).

Currently, there is no standardized approach for delivery of a nurse-led health coaching self-care management intervention to assist patients to engage in HF symptom management through self-care activities within a PHC setting. To address this gap in the literature, the aims of this research were to: a) refine and further develop a nurse-led health coaching self-care management intervention for people living with HF (Phase 1) and b) examine the feasibility, acceptability, and initial effectiveness of a nurse-led health coaching intervention, involving PHC nurses to assist patients to engage in heart failure symptom management with self-care activities of the traffic light and Adjusted Diuretic
Dosing (ADD) tools with stable HF patients and their caregivers with a PHC approach and within a PHC setting (Phase 2). This study involved exploring the process of health coaching intervention delivery including both how nurses engaged in the decision-making strategies to assist the patient with HF management and how the patients and caregivers experienced it (see Appendix B). The results of this research have potential to contribute to improving the quality and consistency of HF patient care with improved outcomes for persons living with HF.

 Reflexivity and Positionality Statements

 **My Story**

 I am a nurse practitioner who has worked in the highly medicalized world of chronic disease management with a focus on HF for almost two decades. My connection to nursing and to nursing practice has been influenced and guided by the philosophy of Florence Nightingale. I approach my practice from a place of curiosity and critical thinking, and I am sensitive to the health inequities affecting my patients. Florence Nightingale, known as the founder of modern-day nursing in the Western world (McDonald, 2010, McDonald, 2013), provided the model for nurses to critically analyze the care they provide to their patients while being aware of the patients’ social situations (McDonald, 2010). I believe nursing is the pursuit of health and well-being, grounded in evidence and compassion, and should be underpinned by an equity lens. It is my view equity is nursing’s social mandate for the 21st century. Therefore, an understanding of the social and cultural factors that influence people’s experiences of health and health care is a necessity for patient-centered care (Chinn & Kramer, 2015; Jackson et al., 2009).

 My curiosity and desire to improve health outcomes for patients, not only those in my care, led me to become an Advanced Practice Nurse. This advanced nursing role has
allowed me to think and work more independently to examine nursing practice processes and seek explanations when negative health consequences occur. My nursing practice is also rooted in my personal childhood experiences; my family struggled to access specialized health care providers and health resources close to home while living in a rural farming community in Southwestern Ontario, Canada. To this day, the health challenges that my family and community faced have influenced how I care for patients living with chronic illness.

In practice, I use a systematic approach to each patient care based on Maslow’s hierarchy of needs and identifying any health inequities through the lens of social determinants of health. Unfortunately, this approach is often difficult to implement, especially in respect to HF management and treatment, as most persons with HF are older adults with additional comorbid conditions (Riegel et al., 2022) that take significant time to address. In the health care system, the priority of efficiencies sometimes overshadows health care providers’ desire to spend the time required for quality of interactions with patients. This reality motivated my return to school; I had a desire to address the factors contributing to minimal improvement in HF hospital readmission rates which remain unacceptably high despite advancements in both medical and device therapies (Poon et al., 2022). In my years of clinical experience, I have observed that a focus on the individual patient, without also considering the contextual factors shaping health and well-being is common practice, yet this must be a central part of care. The nursing profession is well regarded for nurturing effective nurse-patient relationships, based on the understanding that it is necessary to have discussions with the patient on what they feel their needs are in order to improve health and wellness. For this reason, I am well
situated clinically, professionally, and academically to develop a standardized nurse-led health coaching approach of a specific HF self-care management strategy and activity.

The impact from my nursing perspective and research approach through a health equity lens is driven through my nurse leadership role, which is combined with evidence-based nursing practice. This philosophical approach fostered the development of a standardized health coaching self-care management intervention for HF so that nurses can practice to full scope with a consistent approach that supports the patient towards self-managing their chronic condition. This humanistic approach of identifying health inequities in patients to improve their health and well-being will provide the necessary knowledge that can be applied to nursing practice when caring not only for patients with HF, but patients living with any chronic condition.

“The most important practical lesson that can be given to nurses is to teach them what to observe – how to observe – what symptoms indicate improvement – what the reverse – which are of importance – which are none. All of this is what ought to make part, and an essential part, of the training of every nurse.” Florence Nightingale, 1860

“Let each person tell the truth from his own experience.” Florence Nightingale, 1860
Chapter Two: Literature Review

The purpose of this literature review is to provide an overview of the current state of the knowledge related to chronic disease management (CDM) models and interventions for CDM, self-care theories, self-care management and factors that affect self-care, and the effectiveness of nurse-led self-care symptom management and health coaching interventions for chronic conditions with a focus on people living with HF. As the theoretical and empirical underpinnings of the proposed research, these areas were explored to identify gaps and limitations and to inform how a nurse health coaching intervention could be employed within a PHC practice, and in turn the health impacts of health coaching interventions for people living with chronic illness.

The literature search for this review included EBSCOhost databases from PubMed, Cumulative Index of Nursing Health Literature (CINAHL), and Nursing and Allied Health (ProQuest). The search included abstracts, primary research, and peer reviewed journal articles incorporating research with adults greater than 18 years old, published in English and between 2002-2022 (see Appendix A). This time period was selected to include foundational research on self-care management using a theoretical framework that was specific to the HF self-care intervention. Keywords: heart failure, nurse-led health coaching, weight monitoring, diuretic titration, self-care, self-management, self-efficacy, self-confidence, decision-making, equity, health equity and social determinants of health.

Chronic Disease Management

Chronic diseases are medical conditions that develop slowly over time, sometimes over the course of decades, and are progressive in their severity (Sargious, P., 2007). Chronic diseases include conditions such as cardiovascular diseases, respiratory disease,
cancer, diabetes, arthritis, and chronic depression (Sargious, 2007). Chronic diseases often can be medically controlled and managed, but they have no cure (Sargious).

Ontario provides an ideal setting to evaluate trends in the prevalence of chronic disease because patients have access to a comprehensive set of publicly funded services. The Canadian Institute for Health Information (CIHI) is an independent, not-for-profit organization that has created a system that maps patient diagnosis data from all health care settings to a set of 226 clinically meaningful health conditions, including both acute and chronic morbidity. CIHI’s system has been independently compared with the Johns Hopkins ACG System; CIHI’s system was deemed to be more specific and less sensitive in classifying diagnoses, making it more straightforward in identifying health conditions (Steffler et al., 2021). CIHI data shows that the number of patients with chronic disease increased by 11.0% over a 10-year study period to 9.8 million in 2017/18, and the number with multimorbidity increased 12.2% to 6.5 million. Overall increases from 2008/09 to 2017/18 in the crude prevalence of chronic conditions and multimorbidity have been driven by population aging.

Chronic Disease Management (CDM) and Chronic Disease Prevention and Management (CDPM) are recognized “as a means to an end” in hopes of reducing acute care utilization and primary health care visits (Barr et al., 2006, p.23), while decreasing morbidity and mortality associated with chronic disease. CDM is strengthened when primary health care providers support an interdisciplinary approach to ensure that person-centered goals are considered when developing the care plan and communicated amongst health care providers (Barr et al., 2003; CNA, 2015). A strong PHC system is important to increasing access to community-based care, improving chronic care models and CDPM, and supporting families to care for each other (CNA, 2015). For this reason, the CNA
(2015), advocates PHC as critical in making a connection between the determinants of health and health outcomes, revealing the impact of social inequality on the health and wellness at all levels of the health-care system – individual, community, and population levels. Therefore, every care plan must be developed with the focus as the person receiving care and health professionals and other providers helping to address the patients’ needs, including care planning as it relates to the transition from acute care facilities back into the community (Russell et al., 2009). For instance, an assessment of any challenges related to required resources to address basic health needs (e.g., financial issues, and assessing the person’s ability to self-manage their chronic condition) should be included in their care plan (Sargious, 2007). Chronic disease management research has provided guidance to assist health professionals in understanding and employing key elements of CDM.

**Chronic Disease Management Models and Interventions**

The CDM and CDPM frameworks released by Ontario’s Ministry of Health and Long-term Care in 2007 incorporated an adapted chronic care model by Barr et al. in 2006 entitled the *British Columbia Expanded Chronic Care Model* and best practices for patients living with HF. The expanded chronic care model has elements of community partners engagement and collaboration with the health care system to address population health and clinical outcomes. These elements include strengthening community action, support in self-management and developing personal skills, and delivery system and information system design, with each element interconnected (Barr et al., 2003; 2006). It is an expectation that the expanded chronic care model from the CDM and CDPM frameworks (Sargious, 2007) will support the empowerment of persons receiving care to become equal partners in their health and full collaborators in managing their health.
conditions, while being supported by the health professionals and community health partners. The British Columbia Expanded Chronic Care Model proved to be effective when the CDPM (2007) framework increased attention to the role of public policy and community action to improve chronic disease management (specifically, diabetes and HF). This movement resulted in the publication of a document by Health Canada supported by Primary Health Care Transition Fund entitled, *Chronic Disease Prevention and Management*, that revealed an increase in quality of care by reducing mortality and hospitalizations (Sargious, 2007). It was found that these results were driven by the development of the CPM toolkit that focused on nurse facilitators to support change management through an emphasis on self-care management.

As a result of this work, CDM models have been developed for many chronic conditions. The authors recommended that future research should focus on identifying which components of the CDM and intervention are effective and evaluate their cost-effectiveness as a means of supporting clinical and policy decision-making. For example, a notable component was utilizing allied health professionals to their full scope of practice and abilities (Brand et al., 2014). In my view, this also would apply to nursing; registered practical nurses (RPNs) and registered nurses (RNs) including nurse practitioners (NPs), need to be practicing to full scope.

When focusing on the best practices related to care of the person with HF, it is important to develop comprehensive interventions informed by chronic care models in clinical practice settings, including primary health care. Research has shown that when HF management contains core elements of CDM such as self-care tools and resources for patients, caregivers, and clinicians and collaboration across health professionals, improved quality of care and patient outcomes were evident, particularly when health
professionals took a leadership role in program implementation (Brand et al., 2007). However, the complexities of CDM cannot be underestimated and many barriers exist to operationalizing a CDM framework and chronic care models including a lack of: health professional time and computer skills and resources, and reimbursement or incentives to develop processes to systematically improve chronic care. To support this CDM framework to be implemented into daily work operations, program improvements such as physician education and training in systems approaches for quality improvement and safety, enhanced team dynamics, and clinical leadership development have been recommended (Brand et al., 2007). This recommendation also was supported by other authors who commented that physicians receive limited education either in medical school or in-house staff curricula about self-care and how to support patients in self-care (e.g. Riegel et al., 2009). Nurses have a high level of expertise in the education of patients and families about self-care, but time also is a barrier in enacting their role fully.

The Registered Nurses Association of Ontario developed a best practice guideline entitled, Strategies to Support Self-management in Chronic Conditions: Collaboration with Clients (2010) to support clinical leadership in nursing in this domain of practice. This guideline identifies strategies and interventions to support nurses so they can assist with and enhance a person’s ability to manage their chronic condition. It is an expectation that nurses employ a coordinated interprofessional approach across the continuum of care to assist the person receiving care with self-management of their chronic condition. The findings of other studies also support these approaches. For example, clinical trials of community-based integrated systems of care for HF patients have shown better quality of care, coordination, and continuity, better health outcomes, and equal or reduced overall costs (Ezekowitz et al., 2017). These improved health outcome results revealed in the
Canadian Cardiovascular Society comprehensive update on HF management guidelines program in 2017, focus on three priorities: a) the design and use of standardized tools and resources for patients, caregivers, and clinicians to promote timely and appropriate care; b) improvements in the organization of care; and c) the development of a system of metrics and feedback (e.g., evaluation of the interventions that includes feedback from the health professionals employing the interventions and the persons receiving care so the creation of quality assurance metrics for the health care institution is possible) (Ezekowitz et al., 2017).

Incorporating the CDM and the CDPM frameworks that adopt self-care strategies (as part of the interventions) and employ a person-centered approach to managing HF within the community, is a best practice approach that supports both the HF patient and their support system and/or care givers. As a result, health policy decision-makers will need to understand the contribution of chronic care models and the importance of collaboration with health professionals across health sectors to enhance CDM (Figure 1).
Self-Care Theories and Self-Care Management

**Self-Care Theory and Self-Care Deficit Theory**

A number of theories and concepts relevant to self-care have been proposed and used in previous research studies. Within nursing, the Self-Care Theory and Self-Care Deficit Theory, proposed by nurse theorist Dorothea Orem between 1959-2001 are among the most used theories (Sousa, 2002; Wayne, 2014). The central concept of self-care is expressed in the following statements by the original theorist (Orem, 1980, p.28):

*Self-care and care of dependent family members are learned behaviors, that purposely regulate human structural integrity, human functioning, and human development. The theory of self-care expresses the relationship between the*
deliberate self-care actions of mature and maturing members of social groups and their own development and functioning as well as the relationships of the continuing care of dependents to the functioning and development of these dependents.

According to Orem (1991), self is defined as a “sense of one’s whole being” (p.117) and self-care is “the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being” (p.117); in contrast, self-care deficit theory focuses on the action capabilities of the individuals and their demands for self-care (Orem, 1995; Orem, 1991) which “…delineates when nursing is needed” (Biggs, 2008, p. 201) in the context of illness. As a component of self-care deficit therapy, Orem (1980) developed the concept of self-care agency, one’s capability for self-care practice and for achieving a desired goal-oriented outcome. Persons who engage in self-care agency have the following characteristics: (1) cognitive capabilities to evaluate, judge, and make decisions about personal and environmental conditions and factors relevant to self-care actions; (2) personal interest in performing self-care actions to achieve a desired outcome; (3) physical and psychosocial capabilities to engage in self-care actions; and, (4) personal capability to perform self-care actions correctly (Sousa, 2002, p.8).

Orem’s theory has been used and tested in the HF population by Jaarsma et al. (2000) who developed a supportive-educative program (Jaarsma et al.,1997) to enhance self-care abilities of patients living with HF. To prepare the nurses to deliver this education, 45 nurses received sources of information from journal articles and textbooks on HF self-care demands, reviewed 24 standardized HF nursing care plans, and participated in semi-structured interviews. It was concluded from the interviews that
several foci needed to be included in patient self-care education including: (1) symptom management for dyspnea and fatigue; (2) treatment adherence to diuretics to meet a fluid and sodium diet balance; 3) adequate rest, while also ensuring some social interaction; and (4) seeking medical attention when HF symptoms become unstable (Jaarsma et al., 1997, p.81). During the development supportive-educative program, findings from the nurses’ interviews based on their experiences revealed that patients and their families often face varying self-care demands associated with the instability of this chronic disease. The nurses also reported that, as the disease progresses, and new demands require more complex actions, the capacity and ability to perform self-care activities lessened and this requires adaptability in nursing care to meet the demands for continuing self-care. Through a supportive-educative program, nurses helped HF patients prepare for changes in self-care requirements over time and predict consequences of HF in the physical, personal, and social dimensions. This required nurses to effectively (a) review the self-administration of medication practices, (b) assess the patient’s ability to engage in goal-achieving actions, i.e., assess patient self-care agency, and (c) determine the existence or potential for self-care deficits of HF patients; specifically, every HF patient needed information about fluid balance in their diet (Jaarsma et al., 1997, p.80).

A randomized controlled trial based on Orem’s general theory of nursing tested the effects of this supportive-educative program on self-care abilities, self-care behavior, and quality of life of patients with advanced HF (Jaarsma et al., 2000). The intervention group patients received systematic education and support by a nurse in the hospital and at home, while those in the control group received routine care. The trial included 179 patients (mean age 73 years, 58% men), admitted to hospital with symptoms of decompensated HF. Outcome measures, taken at 3 time points (one, three, and nine
months) included self-care abilities (Appraisal of Self-care Agency Scale), self-care behaviour (Heart Failure Self-care Behavior Scale), three dimensions of Quality of Life (QoL) (functional capabilities, symptoms, and psychosocial adjustment to illness), and overall well-being (Cantril’s ladder of life). In addition, patients and families were asked to reflect on the impact of HF education on various aspects of life to identify actual and potential self-care needs to determine if a multi-dimensional care approach was required (Jaarsma et al., 2000). The results showed no changes in self-care abilities or QoL as a result of the intervention, but self-care behaviour was higher in the intervention group compared to the control group post-intervention. At the 9-month follow-up visit, there was a trend to improvement in self-care behaviours resulting in a decline in symptom frequency and distress in the intervention group compared to the control group but it was not statistically significant. Although this supportive educational nursing intervention was shown to be effective in improving self-care behaviour in patients with advanced HF (New York Heart Association class III-IV), a more intensive intervention was recommended for improving QoL (Jaarsma et al., 2000).

The strength of a nurse self-care management model is that nurses are the consistent health care provider for self-care guidance and education. For example, in the study noted above, nurses established a therapeutic nurse-client relationship over a nine-month period – a reasonable length of time. Other strengths identified were the employment of a person-centered care approach that was tailored to the unique needs of the patient that demonstrated a shared decision-making process and continuing care within a PHC environment, all having promise to improve self-care and other outcomes such as QoL. The limitations of the study described by Jaarsma et al. (2000) were limited
nurse training and patient input, a decrease primary health care focus, and the study took place in an acute care setting.

While Orem’s Self-Care Theory and Self-Care Deficit Theory may have led the way for an increase in patient self-care, authors have argued that these theories are difficult to translate into clinical practice (e.g., Riegel & Dickson, 2008). Further, although these theories have provided a foundation for building the therapeutic nurse-patient relationship, limited shared decision-making opportunities are evident. The self-care theory was developed in an era when patient care was heavily influenced by the medical model and patients were not necessarily encouraged to be an equal partner and advocate for their own care needs. The movement to a PHC approach and to the involvement of patients and families as equal partners in care planning has shifted nursing processes in the self-care management domain. For these reasons, a model of care that involves active patient and family participation, where the patients are engaged in shared decision-making related to identifying and addressing their needs to foster self-efficacy/confidence, is needed.

**Self-Efficacy as a Component of Social Cognitive Theory**

Another well-known theory that has been applied in chronic disease research is Albert Bandura’s theory of self-efficacy. Self-efficacy refers to an individual's belief in their capacity to execute behaviors necessary to produce specific achievements or skills (Bandura, 1977, 1986). Hence, Social Cognitive Theory provides not only knowledge for predicting behavior but also a theory of learning and change. The learning portion of the theory, which is a key feature of the change model, specifies how individuals acquire knowledge structures, cognitive, social, and emotional tendencies, and behavioral
competencies (Bandura, 1986, 1997). This body of knowledge for effecting personal and social change is one of the hallmarks of social cognitive theory.

According to Bandura, self-efficacy is reflected in a person’s confidence in their ability to exert control over their motivation, behavior, and social environment. Self-efficacy is key to engaging in self-care because self-efficacy functions on "motivation and action both directly and through its impact on the other determinants" (Bandura, 1998, p.1). This level of confidence contributes to self-development necessary to be successful in goal setting towards health and wellness.

Bandura (1986, 2012) explained that self-efficacy is fostered in four ways: i) learning from experiences (direct performance), ii) seeing people in similar situations managing well (vicarious experience), iii) encouragement from the person’s support system, and iv) positive physical and emotional responses from succeeding in accomplishing the task. This judgement of behaviour leads to enhanced problem-solving abilities by monitoring and recognizing changes in their health, achieved on their own or with the assistance of other people (Bandura, 2012). This process is seen frequently with people living with chronic conditions. For example, people want to be successful in managing their chronic illness so they will attempt other people’s successful strategies in similar situations. However, people also are easily discouraged if things do not go as planned and they have failed in their attempt to improve their health. The importance of the nursing role is to encourage patients to overcome barriers or obstacles that they may experience and guide them to manage failure or unsuccessful attempts as a learning experience rather than a negative experience.

Subsequently, self-efficacy has been frequently studied within nursing, including to understand what predicts self-care and other health behaviors, particularly in patient’s
living with HF (Clark et al., 2014; Harkness et al., 2015; Riegel & Dickson, 2008; Riegel et al., 2009; Vellone et al., 2015, 2017). For example, self-efficacy was studied through the lens of social cognitive theory in HF patients by Riegel and others (2009b). Here the researchers analyzed counseling techniques such as motivational interviewing and incorporated both social cognitive theory and the stages of motivational readiness for change model. Adapted motivational interviewing techniques were used and resulted in 71.4% participant improvement in HF self-care after receiving the intervention (Riegel et al., 2009b). Another study involved the use of two motivational strategies (supportive-educative and mutual goal setting) compared to the control group who only received instructions on health promotion activities. The results demonstrated no difference between the treatment and control groups in controlling HF symptoms through health promotion activities such as diet and exercise when motivational interviewing strategies were applied but both treatment groups showed more confidence in their understanding of HF self-care management and treatment than the control group (Kline et al., 2007 cited in Riegel et al., 2009). These results support the importance of people’s beliefs related to coping and the capacity mechanisms to engage in self-care activities for chronic disease management that, according to Bandura, are essential elements in the achievement of self-efficacy.

In addition, self-determination theory (SDT) has an influence within self-efficacy theory (SET) because of their common overarching framework. Studies have combined constructs from SDT and SET and uncovered strong relationships between concepts from both theories, revealing a direct relationship between these concepts and self-determined motivation rather than behaviour (Sweet et al., 2012). Furthermore, SDT suggests that basic psychological needs of autonomy, competence, and social relatedness foster
intrinsic motivation and that the satisfaction of these needs is indicative of well-being (Deci & Ryan, 2015).

To add strength to my research study, a nurse-led health coaching approach was employed where there was opportunity for collaborative goal setting with the potential to increase self-care efficacy (confidence) and self-determination in the HF population. This health coaching intervention has the potential to increase self-care with improved health outcomes (Riegel & Dickson, 2008; Riegel et al., 2022).

**Situation-Specific Theory of Heart Failure Self-Care and Caregiver Contributions to HF Self-Care Theory**

Only one theory, the *Situation-Specific Theory of Heart Failure Self-care* (Riegel & Dickson, 2008) has been developed regarding the process patients use to engage in self-care in the context of HF. “The theory has been cited 477 times as of January 2022” (Riegel et al., 2022, p. 515). This *situation-specific theory of Heart Failure self-care* theory provided the theoretical foundation to develop, implement, and evaluate the initial impact in this feasibility study for my dissertation. Figure 2 shows Riegel et al., (2009) theory adapted with the position of the intervention tested in this study (grey text boxes) shown in relation to the theory and the study focus on both processes and outcomes highlighted in yellow.
In the *Situation-Specific Theory of HF Self-Care*, “self-care is defined as a naturalistic decision-making process that influences actions that maintain physiologic stability, facilitates the perception of symptoms, and directs the management of those symptoms” (Riegel et al., 2016, p.226). Naturalistic decision-making theory explains how people make real-life decisions that are meaningful and familiar to them. Therefore, naturalist decision-making involves considering the patient's situation, factors influencing...
the decision-making process, and self-care actions (Riegel et al., 2016; Riegel et al., 2022). Nurses take into account the individual's situation by considering their “personal” circumstances (e.g., level of education, social support, drug coverage, social economic status), their “problem” (e.g., severity of illness, other comorbidities such as dementia or frailty) and their “environment” (e.g., rural vs urban, social support/isolation, transportation challenges) as a means of determining the patient’s self-care management capacity.

Self-care is an activity that requires skill development as the individual adapts to life with a chronic condition (Riegel et al., 2022; Wingham et al., 2014). For example, within the HF population, adaptability to everyday self-care management activity is essential as this chronic disease trajectory is known to be unpredictable and unstable (Goodlin, 2009; Ziaeian & Fonarow, 2016). However, despite research around the importance of patient engagement in HF self-care activities, patients rarely participate in, or are not taught, how to engage with these activities (Riegel et al., 2011; Riegel et al., 2009; Jaarsma et al., 2021). Therefore, to support people living with HF to gain control over their health and succeed, it is essential for nurses to provide information or feedback to them on the positive impacts of active engagement with self-care activities on their health and wellness. Nurses also should encourage patients living with HF to engage in shared decision-making through a health coaching approach (e.g., in responding to fluctuations in weight to self-manage signs of fluid retention or congestive symptoms).

Hence, the Situation-Specific Theory of Heart Failure Self-Care has precise underpinnings for the self-care process by testing the intervention in this study that focuses on the 3 components of this model (situation, processes, action) and integrates a specific activity to assist patients and caregivers to monitor weight and symptoms and
ADD (a feature of self-care) to improve health outcomes such as self-care behaviours and quality of life.

*Situation-Specific Theory of Heart Failure Self-Care* theory has been tested with large samples by other authors and included caregiver contributions to HF self-care (Lyons et al., 2015). In this study of 329 Italian HF dyads (caregivers were either spouses or adult children), both patients and caregivers reported lower-than-adequate levels of confidence with caregivers reporting slightly higher confidence than patients (Lyons et al., 2015). Patient and caregiver levels of confidence were strongly associated with good quality patient-caregiver relationship and better caregiver mental health. Self-care confidence in female patients with lower care needs was significantly higher compared to their caregiver that had poor physical health, leading to increase motivation to do more for themselves. Caregiver confidence contributes to self-care was significantly associated with poor emotional QoL in patients and greater perceived social support by caregivers (Lyons et al., 2015). The findings are supportive of the need for a dyadic perspective of HF self-care as well as addressing the needs of both members of the dyad to maximize optimal outcomes for both. Targeting interventions and practice at the level of the HF dyad may lead to greater optimal outcomes for both patient and caregiver (Lyons et al., 2015).

Vellone et al (2013a, 2015, 2018) applied a similar theory stemming from the *Situation-Specific Theory of Heart Failure Self-care* theory (Riegel & Dickson, 2008) entitled, the *Caregiver Contributions to HF Self-Care theory*. This study was conducted to determine the influence of patient and caregiver mutuality on patient self-care and caregiver contribution to self-care across the dimensions of self-care maintenance, management, and confidence in HF (Vellone et al., 2015). A sample of 366 HF patient–
caregiver dyads were enrolled. The researchers examined a self-care process that was a
dyadic phenomenon in which patients and caregivers were both considered important in
self-care; caregiver contributions had a notable impact on HF self-care activities and
capacities. Outcome measurements included the Mutuality Scale, the Self-Care of Heart
Failure Index (SCHFI) scale, and the Caregiver Contribution to Self-Care of Heart
Failure Index (CC-SCHFI) scale. Results showed that a positive quality of relationship
between the patient and caregiver was associated with the caregiver responding better to
signs and symptoms of exacerbation when the caregiver experienced feelings of
appreciation, help, comfort, confidence, emotional support, and warmth, as measured on
the mutuality scale (Vellone et al., 2013b). Overall, it was suggested that interventions to
improve HF self-care need to be tailored and the importance of caregiver contribution not
only focused on HF management, but they include the relational engagement involving
the patient’s emotional well-being (Vellone et al., 2013b). Of note, the use of
“caregivers” does not necessarily mean the patient is dependent on this support person.
The term caregiver in previous research has been referred to as informal caregivers, such
as family members or friends (Buck et al., 2015; Vellone et al., 2020), or carer (Buck et
al., 2018) to assist in either direct or indirect activities for self-care management of their
chronic condition. In this study, caregiver is used because it is consistent with the same
terminology in the CC-SCHFI self-report measure that was used in the study.

The strength of Situation-Specific Theory of Heart Failure Self-Care is that it is
underpinned by a process-oriented approach and has a strong theory-practice linkage that
is applicable to Nursing; it is a pragmatic approach. In addition, it has been studied with
the HF population and can be implemented by other health professionals (Riegel &
Dickson, 2008; Riegel et al., 2022). The author of this theory also developed a SCHFI
v6.2 scale that has strong psychometric properties for validity and reliability and which has been used in many other HF research studies over the past decade (Riegel & Dickson; Vellone et al., 2013a, b; Vellone et al., 2015). The revised SCHFI v7.2 has similar strong psychometric properties (validity and reliability based on studies conducted in the United States and Italy (Vellone et al., 2020). For these reasons, I drew on this theory to help guide the intervention process and evaluation of outcomes in this study.

**Factors that Influence Self-Care: The patient, caregiver, and nurses’ role, and nurse-led self-care interventions with person [patient]-centered approach**

The concept of self-care has been described using a variety of terms such as self-care, self-management, self-monitoring, self-regulation, adherence, and compliance (Riegel & Dickson, 2008). Self-care or self-management is any activity that we do intentionally to take care of our mental, emotional, and physical health (Koetsenruijter, 2014; Riegel & Dickson, 2008). Although self-care is a simple concept in theory, health care providers often fail to inquire about or address the patient’s ability to carry out such activities that could be challenging due to lack of resources or support (Jaarsma et al., 2021; Koetsenruijter et al., 2015; Riegel et al., 2022) including caregivers’ contribution (Buck et al., 2015; Durante et al., 2019).

The first systematic review (Buck et al., 2015) on caregivers’ contributions to HF self-care examined how caregivers supported HF patients with indirect and direct self-care activities. This review included forty papers from a group of 283 papers. The authors concluded that caregivers contributed significantly to patient HF self-care with direct activities that include assisting with weigh-ins, medication management, symptom monitoring, and preparing low sodium meals to indirect activities such as system navigators of arranging medical appointment or equipment to interpersonal skills of
encouraging the patient to exercise. However, significant gaps were identified in what is known about caregivers’ contribution to patient self-care (specifically in symptom and treatment evaluation process which has been linked to symptom recognition) and how the caregivers contribute to patients’ self-care confidence, an important mediator and moderator of self-care. Only two of forty studies measured the impact of caregivers’ contributions on patient self-care outcomes, suggesting the lack of a rigorous measurement approach. In addition, the clinical implications include practice changes that involve new collaborative models of care that require health care providers to identify barriers to self-care and provide education and support not only to the patient but also their support person or caregiver since this dyad is instrumental to the success of HF self-care. In this first review, limitations of the studies reviewed included: small sample sizes or lack of details about data analysis.

More recently, Durante et al. (2019), conducted a cross-sectional study of 505 caregivers of HF patients to study the impact on them of contributing to self-care (i.e., more exposed to burden). Over half of the participants (52.5%) were women with a mean age of 56.5 (+/- 14.9) years who cared for HF patients that were mostly men (55.2%) with a mean age of 75.9 (+/- 14.9) years. The results revealed that caregiver contributions to HF self-care improve patient outcomes and appears not burdensome for caregivers. These results support that health care providers may consider including the caregiver in the education as a viable option for improving patient outcomes without increasing caregiver burden.

Nurses need to take an active role in addressing the patient’s concerns and needs or requirements to be successful in self-care management and, at the same time, not overly influence the plan with their own understandings regarding what is best for the
patient. The nurse’s role and responsibilities should include advocating for patients who have limited social support, such as connecting them to home care or community agencies, while assisting them to manage their chronic disease. The RNAO’s Best Practice Guidelines (BPG’s) program developed Strategies to Support Self-Management in Chronic Conditions: Collaboration with Clients (2010) to assist nurses to provide guidance for the patient so they feel confident in understanding when, where, and how to seek medical assistance if their chronic condition becomes unstable. In this BPG it is recommended that nurses inform their practice by utilizing the “5 A’s” behavioural change approach which includes the components of assess, advise, agree, assist, and arrange to incorporate multiple self-management strategies when supporting clients with a chronic illness to assist in improved outcomes.

There is some evidence that employing this approach affects patient self-care. For example, in a systematic review on HF self-care management strategies (Harkness et al., 2015), a person [patient]-centered approach was identified as promoting patient success in self-care management activities. Self-care management has been examined over the past decade and found to improve self-confidence, which positively influences the ability for self-care and improved health outcomes i.e., self-care was seen as a moderator of self-confidence (Riegel & Dickson 2008; Riegel et al., 2016; Riegel et al., 2013; Riegel et al., 2022) and self-care maintenance (Riegel et al., 2022). However, self-confidence has also been associated with better outcomes, but only when social support was present (McGeal et al., 2014; Jaarsma et al., 2021; Riegel & Dickson, 2008).

Several conditions have been found to influence self-care/self-care management among people living with chronic illness such as HF. A study of 15 HF patients in Switzerland (Blauer et al., 2015) focused on nursing practice with hospitalized HF
patients. The goal was to achieve improved person-centered care by achieving the ability to cope independently with everyday routines and to experience improved QoL after receiving the education intervention. Researchers concluded that patient self-confidence (i.e., the ability to achieve the feeling of ease with oneself) predicted increased patient confidence in self-care management strategies and activities. In addition, the implementation of a nurse-led education program for chronic HF during hospitalization revealed the importance of nurses ensuring patients feel that they are active participants in their care, and that the achievement of health and well-being needs to be a priority both for the patient and the nurse.

In an integrative review authored by Barnason et al. (2011), interventions promoting self-care in HF patients were identified and included several approaches such as education, counselling/mentoring sessions, or telehealth interactions over a period from two sessions to six months. The authors found that factors such as knowledge of HF, HF self-efficacy (confidence), and beliefs when participating in self-care were associated with success. A limitation of the studies was a lack of description of the patient education programs. Less than half of the studies included self-care measured by self-care maintenance behaviours only (i.e., weight monitoring, medication adherence, low Na diet). However, no studies addressed self-care management behaviours such as decision-making abilities (responding to signs and symptoms of increased weight) or action taking (use of extra diuretic dose or notifying the health care provider of worsening HF symptoms). An examination of health disparities amongst the participants was not apparent in most of these studies and the details of the counselling intervention employed were not well described. In addition, only a few studies examined the impact of health outcomes such as hospital readmissions related to HF.
Lastly, in another important study, Jonkman et al. (2016a/b) identified effective characteristics of self-management interventions in patients with HF that influence health-related QoL, mortality, and hospitalizations. The following were effective characteristics identified with a positive health impact: intensity and duration of the intervention or program, standardized training, multidisciplinary team involvement, keeping logs and goal setting, problem-solving skills, and seeking support whether a caregiver or health care provider. Successful self-care intervention was noted to depend on the participation of the patient and the contribution from the caregiver guided by the nursing role, essential factors that influence self-care.

**Self-Care Interventions**

First, I would like to distinguish between a nursing intervention and an intervention delivered by nurses. These phrases are similar in text but have a notable difference in their meaning and action within the nursing profession (Fulton, 2003). A nursing intervention is part of nursing practice and includes a standardized nursing process that is typically evidence-based, such as best practice guidelines. It involves nurses to think ‘critically’ and apply practices based on client, family, community, or population needs, which adds depth to the scope of nursing in attempts to improve health outcomes. In contrast, an intervention delivered by nurses is often task-oriented and may be directed or ordered by another health care provider such as physician or nurse practitioner (e.g., administrating a bolus dose of Lasix intravenously for the treatment of acute HF). Therefore, a nursing intervention draws on nursing knowledge and skill to promote patient health goals.

In the context of patients living with HF, health coaching is proposed as a nursing intervention to support patient self-care. In employing this health coaching approach, it is
expected that nurses explore self-care strategies or activities to increase the patient’s confidence to manage their HF condition and make timely decisions based on their perception of symptoms, past experiences, and how they feel.

One approach for people living with HF is to manage their disease through adhering to a low-sodium and fluid restricted diet, engaging in regular physical activity daily, and complying with medical therapy. In addition, an essential component is volume control self-care activities through daily weigh-ins and a self-adjusted diuretic dose. Jaarsma et al. (2021) recommended practical self-care HF management behaviour strategies which included a patient-directed flexible diuretic dosing schedule based on personalized variation in fluid-related signs and symptoms that is safe in patients with chronic HF. The goal of diuretic therapy is to achieve and maintain euvolemia (target dry weight) with the lowest achievable diuretic dose. Some patients and families may not feel comfortable about making medication adjustments on their own and the need for support from a health care provider is required. Hence, nurses need to have a deeper understanding of the experiences of HF patients managing their weigh-ins to gauge their desire and ability to self-manage, thereby increasing the patient’s success to employ this self-care management activity.

Accordingly, a central feature of this model is that health coaches must be aware of the contextual features of the patient’s life that may pose a challenge to employing self-care (Linder, 2003) and that the plan needs to be individually-tailored, which has demonstrated significantly higher patient self-care engagement (Moreno-Chico et al., 2020). In addition, interventions provided in primary care that support engagement of self-care management are most effective when they are delivered one-on-one and face-to-face in comparison to being didactic and structured since this approach limits
opportunities for personalizing the intervention becoming less effective (Dineen-Griffin et al., 2019 cited in Moreno-Chico et al., 2020).

This involves the nurse assisting the patient in identifying barriers or challenges of HF symptom management and to advocate for support, including assisting them to get needed resources and connecting with community partners and/or family members so patients living with HF can be fully supported in their ability to engage with self-care. However, this HF self-care approach requires ongoing nurse-patient collaboration to check-in and reassess the patient and caregiver’s situation. The success of self-care management is tied to being able to reevaluate the goals or needs of the patient on a regular basis through health coaching as HF is an unpredictable condition that has frequent events of instability (Moreno-Chico et al., 2020). Therefore, resources and time are necessary for nurses to provide health coaching to support and provide person-centered care which are essential factors that influence self-care.

The constraints of resources and lack of sufficient time allotted to patients with HF were noted in a recent systematic review of HF dyadic self-care interventions (Buck et al., 2018). In this review, the researchers reviewed 18 papers published between 2000-2016 of which 12 were completed interventions studies that involved either education or support or guidance as the intervention component; these were delivered either by face to face, telephone or via technology. If face to face, the intervention was either delivered in hospital or in a clinic ranging from two weeks to 24 months duration. All studies were judged to be of low to moderate quality when compared to the CONSORT guidelines due to missing data and methodological limitations. The outcomes were broad and

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1 CONSORT: Consolidated Standards of Reporting Trials
included cognitive (perceived control, knowledge), behavioural (self-care, attending clinic visits), affective (depression, social support/strain) and health services utilization (hospitalizations, quality adjusted life years) domains. Across all studies, intervention adherence was poor at 50% and deemed a serious failure and a reflection of a lack of stakeholder engagement prior and during the intervention design phase. While developing knowledge enabled patient self-care behaviours at three months, this was not sustained at 12 months. The authors strongly recommend that future self-care intervention studies use a mixed method approach to capture a more holistic picture of effects, particularly QoL, preparedness to care, depression and social support. Recommendations also included strategies for a large sample size that better accounts for attrition (adequately powered) and the use of a detailed implementation process to increase the probability of a successful intervention (Buck et al, 2018).

**Nurse-Led Health Coaching and Heart Failure**

*Health Coaching versus Motivational Interviewing*

Health coaching, also referred to as health and wellness coaching, is a specific coaching application for healthcare providers and those who are looking for guidance as they take a lead in their health and make changes in their lifestyle that will have long-lasting positive effects (CNA, 2013). Health coaching, which originated from the principles of motivational interviewing, can be a highly effective approach to support patients living with chronic illness in self-care, particularly when it focuses on developing or enhancing self-care confidence and skills in problem solving, decision making, and managing cognitive, emotional or social situations (Fulton, 2003; Fulton et al., 2001; Huffman, 2009; Wong-Rieger & Rieger, 2013). When offered alone or with
patient education, health coaching has been found to reduce chronic disease risks and improve health behaviours (Simmons & Wolever, 2013).

There has been confusion within the literature between the concepts of health coaching and motivational interviewing as these behavioural approaches have been used interchangeably (Simmons & Wolever, 2013). Simmons and Wolever (2013), argue that health coaching and motivational interviewing can work together but they are distinct behavioural approaches. Both approaches have origins in behavior change theories and use interpersonal skills that emphasize empathy and person [patient]-centered approaches by recognizing and accepting patients where they are presently at in their life, both physically and mentally. Further, both are useful approaches for helping patients to achieve behavior change in healthcare settings particularly in reducing preventable chronic disease conditions. Health coaching and motivational interviewing both have a focus on self-assessment, personal development, and have the capacity to teach patients lifelong skills when addressing health or other behavior changes (Simmons & Wolever, 2013).

However, these approaches have distinct conceptual foundations. For example, while both approaches use reflection, open-ended questions, and motivational language to support the patient to change behavior, the health coaching approach is a much more comprehensive, holistic approach and supports the patient across the entire behavior change journey (Simmons & Wolever, 2013). For example, the focus on the whole person in health coaching means that patients may establish a goal that is not directly related to a chronic condition, although achieving this goal may be necessary before other goals are addressed so success for improved health is possible (Simmons & Wolever, 2013). Additionally, the authors found that significant attention is given to self-awareness where
the health coach asks the client to choose an area that he or she is most ready, willing, and able to address and goals are created that are specific, measurable, actionable, realistic, and timed (SMART) to sustain a behaviour change while observing if the client’s sense of self-efficacy has improved. Conversely, while motivational interviewing also involves working with the patient to establish a plan for behavior change, it is a communication method and interpersonal style that focuses specifically on helping patients to resolve ambivalence and make a commitment to change. Motivational interviewing is typically a brief time period of one to two sessions compared to supporting the patient longer term, as in health coaching.

**Factors that Affect Health Coaching**

The key feature of health coaching is the collaborative relationship between a nurse and a willing individual (the patient) and sometimes the individual’s family members. Nurses aim to actively engage the patient in their self-care, focusing on the strategy of ‘working with’ rather than ‘doing for’ the individual (CNA, 2013; RNAO, 2010). This is a key role for nurses as health coaching skills incorporated in their daily practice must consist of effective communication and respect for the patient while fostering the therapeutic nurse-patient relationship, so the patient is motivated to achieve better health and overall wellness (CNA, 2013). Furthermore, the importance of caregiver contribution to support self-care is well studied; caregivers are able to enhance confidence and competence in the ability of the individual to self-manage health conditions or make lifestyle changes, particularly for people who are living with chronic disease (Buck et al., 2012; Buck et al., 2018; Clark et al., 2014; CNA, 2013/2015; Harkness et al., 2015; Vellone et al., 2015, 2017, 2018, 2020). With the growing evidence of the importance of the role of family-based health coaching, the nurse is encouraged to
observe closely the relationship between the patient and the caregiver when managing HF and encourage persons living with HF and their caregivers to both engage in shared decision-making skills when responding to HF self-care management (Harkness et al., 2015; Jaarsma et al., 2021; Vellone et al., 2015, 2017, 2018, 2020).

A recent integrative review by Bernard et al. (2023) examined the effectiveness of nurse-led health coaching HF educational interventions for patient and informal caregiver dyads offered by telephone compared to face-to-face. The search yielded 92 articles between 2005-2017. Only eight articles met the integrative review criteria, resulting in the inclusion of seven randomized controlled trials and one pilot study completed with sample sizes ranging from 20-155 dyads. The interventions length varied from one to 12 months. The results revealed that dyads who received family-focused telephone education interventions had positive outcomes for reduced daily dietary sodium intake and decreased urine sodium by learning together about food selection (grocery shopping) and meal preparation. However, the face-to-face coaching provided stronger outcomes for reduction in urine sodium, improved QoL, improved perceived control, and a decrease in hospital admissions for the patients.

The evidence around the impacts of coaching interventions for people living with chronic illness has been increasing over the last decade (Byrnes et al., 2012; Dennis et al., 2012; Dye et al., 2018; Feng et al., 2022; Lenzen et al., 2018; Linder et al., 2003; Moreno-Chico et al., 2020; Sherifali et al., 2021). For example, a systematic review by Linder et al. (2003) of 25 studies on coaching focused on the following areas: 1) disease related education, 2) behaviour change strategies (‘goal-oriented’ or ‘readiness to change’ approach), and 3) psychosocial support. Professional or peer support interventions for chronic disease included diabetes, COPD (Chronic obstructive pulmonary disease) and
heart disease. The majority of the studies were conducted by nurses employing education-based interventions in combination with face-to-face and telephone coaching. This involved counselling in nutrition, smoking, physical activity, and drug therapy for hyperlipidemia. Education-based interventions had a significant role in self-management, but these were not sufficient by themselves. Behaviour change-focused coaching was shown to be an important factor to increase self-care engagement, but not all patients were ready to change or move into the action phase.

Linder et al. (2003) recommended that future research explore coaching strategies that support patients’ self-management when living with chronic illness by: 1) incorporating health coaching into routine health care practices of health professionals, 2) tailoring to individual needs, and 3) involving allied health professionals in health coaching to assist the patient in self-management of their chronic condition. A limitation of the body of research they reviewed included that the majority of the population were diabetic patients without HF.

In addition, a recent meta-analysis (Feng et al., 2022) of studies identified from 5 databases (published between 1999-2022) focused on the influence of self-management interventions on four prognostic indicators: readmission rate, mortality rate, self-management ability, and level of QoL. The analysis included 20 randomized controlled trials involving 3459 patients. It revealed that self-management interventions could reduce HF readmissions rates, improve self-management ability and improve QoL but there was no effect on mortality. It was suggested that by helping patients to develop personalized self-management interventions, health care providers can help patients recognize the symptoms and changes of the disease, guide patients to correct the
behaviour and lifestyle management, and provide them with support and psychological counselling as needed.

Furthermore, Lenzen et al., (2018) examined nurses’ feedback on the effectiveness of health coaching with people with chronic disease and revealed some important factors to consider for delivering a self-care approach in this context. Specifically, nurses reported that health coach training supported them to coach patients to some degree in shared decision-making opportunities, and that they became more aware of their own attitudes and learning needs and had more in-depth discussions with their patients. Overall, nurses gained insights into the patient’s situation leading to identification of barriers to success and the development of more realistic patient-centered goals.

However, nurses also felt there was a gap in implementing this intervention as it was difficult to incorporate health coaching with shared decision-making into daily nursing care for their patients (Lenzen et al., 2018). Nurses concluded working with patients living with chronic conditions can be very complex because the patient may be managing other illnesses and social circumstances that require the nurse’s assistance. The nurses also observed with their patients that they often had significant differences in terms of their identified goals and abilities to perform shared decision-making. The nurses shared that addressing this level of complexity in care requires specialized skills for exploring barriers that may affect the patient’s ability to perform shared decision-making activities. Nurses also voiced a lack of self-efficacy to put the approach into practice because they were still in the learning process (Lenzen et al., 2018). The authors concluded that routine patient care is characterized by a protocol-based system, which conflicts with a holistic perspective. Nurses need to be flexible and able to tailor their
practice to the patient’s needs – this reflects a need for autonomy in their practice. They concluded that future research into the development and evaluation of health coaching approaches focusing on shared decision-making is necessary.

Yet, a recent study (Sherifali et al., 2021) supported the feasibility of implementing a nurse-led health coaching intervention for people living with diabetes in a community setting in Ontario, Canada. The purpose of this study was to evaluate the effect of a 12-month telephone diabetes health coaching (DHC) intervention on glycemic control in persons living with T2DM. In this community-based, randomized, controlled trial, 365 adults with T2DM with a glycated hemoglobin (A1C) ≥7.5% for at least 6 months and telephone access, were enrolled and assigned to either usual diabetes education (DE) (control group) or DHC and access to DE (intervention group). Weekly phone calls by the coach occurred in the first 6 months and monthly phone calls in the last 6 months. The topic or agenda of each telephone call was determined by the participant or as agreed upon from the previous coaching session. The primary outcome was reduced in A1C after 1 year in the intervention group. Secondary outcomes included the score on the 19-item Audit of Diabetes-Dependent Quality of Life (ADDQoL-19) instrument and self-care behaviours. The sample was 50% females with a mean age of 57 years and a mean A1C of 8.98%. The A1C level decreased by an absolute amount of 1.8% and 1.3% in the intervention and control groups, respectively. DHC plus DE reduced A1C by 0.49% more than DE alone (95% confidence interval, 0.80 to 0.18; p<0.01) and improved ADDQoL-19 scores, with between-group differences for the average weighted score of 0.28 (95% confidence interval, 0.04 to 0.52). There were no statistically significant differences between the DHC and DE groups for diabetes self-care activities and subscales. The authors noted that it is conceivable that this tool was
too simplistic and did not reflect more complex self-management behaviours and constructs, such as decision-making, adherence and self-efficacy (Sherifali et al., 2021). Therefore, a more comprehensive assessment of diabetes self-management may be warranted to be able to detect and reflect the impact of health coaching. In addition, there were no differences between groups for proportion of participants having an emergency department visit or hospitalization.

The study’s findings illustrate that DHC is emerging as an effective approach to complement existing diabetes care and the potential of a telephone health coaching intervention for improving clinical health outcomes among persons living with T2DM. However, their findings also highlight the importance of additional research exploring and examining the long-term impact of DHC on clinical health outcomes and health-care expenditures.

The strength of this study was the large sample (n=365) of patients, who were followed for 1 year, and a high percentage of completion (96%) from a community-based trial. Finally, as the study was completed in the community setting, it supports the relevance of diabetes management in a non-clinical or hospital setting. A limitation of the study design was recognizing that DHC is an educational and behavioural change intervention, there is a risk for co-intervention. As such, participants randomized to the control group may have sought out additional DE and support.

**Health Coaching in Primary Health Care (PHC)**

Nurse health coaching in the PHC setting is gaining attention in the literature but at a slow rate. For example, a cost-effectiveness analysis of a tele-based nurse health coaching program for chronic disease among patients with type 2 diabetes, coronary artery disease (CAD), and HF was conducted in a PHC setting by Oksman et al. (2017).
A total of 1570 patients were randomized to intervention (n = 970) and control (n = 470) groups. The intervention group received monthly individual health coaching by telephone from a specially trained nurse for 12 months in addition to routine care. Patients in the control group received usual care. Health-Related Quality of Life (HRQoL) was assessed at the beginning of the intervention and after 12 months. Cost effectiveness was assessed and all direct health-care costs supplemented with home care and nursing home-care costs were included (Oksman et al., 2017). Results of this study showed health coaching improved the QoL of persons with diabetes and CAD with moderate costs, while in the HF group, costs increased with no marked effect on QoL. However, the results are based on a short follow-up period; more evidence is needed to evaluate the long-term outcomes of nurse health-coaching programs.

In an earlier study, researchers examined a nurse-led COPD clinic in a PHC environment (Efraimsson et al., 2008). This study had an experimental design in which 52 patients with COPD from a Swedish primary care setting were randomized into two groups (intervention or control). Both groups received standard care but patients in the intervention group were also offered two visits to a nurse specialized in COPD care. The purpose of the visits was to increase the patients’ self-care ability and their knowledge about COPD. Data were collected using two questionnaires, one pertaining to knowledge about COPD and smoking habits and St. George’s Respiratory Questionnaire, addressing how QoL was affected by the patients’ respiratory symptoms. The intervention and control groups answered both questionnaires on their first and last visits to the clinic at 3-5 months. A statistically significant increase was noted in the intervention group on QoL, the number of patients who stopped smoking and patients’ knowledge about COPD at the follow-up after intervention. However, a confounding factor may have been that one of
the researchers (Eva Österlund Efraimsson), as a nurse in the PHCC, performed the intervention. This implies that patients were in a dependent relationship which may have affected the responses in a favourable direction. The findings show that conventional care alone did not have an effect on patients’ QoL and smoking habits. Instead, the evidence suggests that a structured programme with self-care education is needed to motivate patients for life-style changes. The results of the study led to the conclusion that this approach was cost-effective; this also had been previously demonstrated for asthma clinics (Efraimsson et al., 2008). In addition, the study findings also revealed that patients were significantly more satisfied with nurse consultations compared with physician consultations in PHC, and that patients’ participation in care planning in that context increased their satisfaction (Efraimsson et al., 2008). The authors concluded that nurse-led clinics is a viable alternative in organizing COPD care in PHC clinics. However, more nurses specialized in COPD care and patient education is needed to meet the specific needs of these patients, as well as to plan and implement care. The authors concluded that the limitation is that the studies on the effects of nurse-led clinics in PHC clinics are rare. Therefore, larger randomized controlled trials of such clinics are needed, with particular focus on the effects of self-care educational programs on life-style changes, self-care ability, compliance, and QoL.

More recently, a study conducted in Spain at a primary care center examined the effectiveness of a nurse-led, face-to-face health coaching intervention in enhancing self-care activation for patients with chronic conditions (Moneno-Chico et al., 2020). The study included adult patients over 18 years old and a diagnosis of at least one of the following chronic diseases: diabetes mellitus type 2, hypertension, dyslipidemia, COPD, HF, rheumatoid arthritis or chronic kidney disease. Exclusion criteria were a diagnosis of
advanced chronic disease and or receiving palliative care, severe mental disorder, or
cognitive impairment assessed by a mental status questionnaire, and unable to speak
Spanish. The study design was a two-group quasi-experimental time series trial with 3
follow ups (6 weeks, 6 and 12 months) after baseline (pre-intervention). The control
group (CG; n=60) received usual primary care and the intervention group (IG; n=58)
received a nurse-led individually tailored health coaching intervention involving 4-6 face-
to-face multicomponent sessions covering six core activation topics comprising
educational, behavioral, and affective/emotional dimensions. The number of sessions was
determined by the patient underpinning a patient-centered approach and the authors felt
the patients were ultimately responsible for their health decisions. The intervention was
delivered in a combination of different communication formats (verbal, written, visual)
with an educational, reflexive or skill practice used. Outcome measures were the Patient
Activation Measure (PAM-13), General Self-Efficacy Scale (GSE), Goldberg Anxiety
and Depression Scale (GADS), Morisky Mediation Adherence Scale (MMAS), and the
mental and physical health component scores (MCS, PCS) on a Short Form Survey
named SF12. The primary care nurse who led the intervention was trained and evaluated
as a coach through an external certified program. Before implementation, the intervention
was piloted in a sample of 10 people to explore its adequacy of design and delivery
(Moreno-Chico et al., 2020). During the first session, participants were introduced to the
health coaching intervention and asked to describe how they saw their health at the
present moment. The nurse coach then invited them to discuss their wishes and goals in
achieving a more active health role. Goal setting and action planning was performed and
prioritized if more than one goal was identified. Ongoing sessions for the next two visits
were mandatory and scheduled weekly as goals may have needed to be refined and the
nurse was able to tailor the intervention not only to participants values, strengths, and resources but also to their stage of change and degree of ambivalence, whereas the next two sessions were optional based on the participants needs and preference. In a final session, the coach focused on bringing the program to a close and invited them to describe how they saw their current engagement/participation level and helped them to recognize change. The coach used this opportunity at the end of the study to identify with the patient their strengths and challenges faced during the program (Moreno-Chico et al., 2020). The results demonstrated that the IG had significantly higher patient engagement/participation scores after intervention compared to the CG (73.29 vs 66.51, p = .006) at 6 weeks. However, this improvement was not maintained at 6 or 12 months post-intervention. There were no significant differences in secondary outcomes across the study period (i.e. self-efficacy, QoL, anxiety and depression symptoms, medication adherence, hospitalization, and emergency visits). It was concluded that health coaching may be an effective strategy for achieving short-term improvements in self-care activation with chronic conditions in primary care. The authors concluded that the limitation to this study is that it was single primary care center in a small Spanish town and lack of details on the coaching received in the sessions limited nurse health coaching experience.

**Summary of the Literature**

HF is a chronic disease, most often found in the older adult with co-morbid conditions and is the leading cause of prolonged hospitalization for the elderly in Canada, causing an increased burden to the health care system. Although HF patient self-care management practices have been shown to stabilize symptoms, slow the progression of this disorder, and improve HF patients’ quality of life (QoL), currently, there is no
standardized nursing approach to assist the person living with HF to engage with self-care activities. Implementing clinical strategies or interventions that emphasize HF self-care skills and activities early in the disease process may provide an opportunity for patients to gain control of their chronic condition with positive health outcomes. Hence, nurse-led health coaching holds promise for improving HF self-care.

However, research related to understanding nurse, patient, and caregiver experiences of nurse-led (family-based) health coaching is limited in relation to identifying those factors that both challenge and facilitate self-care for persons living with HF and has not yet been examined within a PHC setting. Therefore, the purposes of this two phase, mixed methods cohort study were: a) refine and further develop a novel nurse-led health coaching self-care management intervention involving a self-care guidebook with an activity of the Adjusted Diuretic Dosing (ADD) tool for people living with HF (Phase 1), and b) examine the feasibility, acceptability, and initial impacts of this nurse-led health coaching intervention from the perspectives of HF patients, their caregivers and nurses who offered the intervention using a primary health care approach in primary health care (Phase 2). The methodology and methods are described in detail in Chapter 3. The results from this research study have the potential to improve the quality and consistency of HF patient care with improved outcomes for persons living with HF while advancing the knowledge based on nurse health coaching interventions in the context of chronic illness.
Chapter Three: Methodology and Methods

Methodology

The methodological framework used for the qualitative element of this study is 'Interpretive Description' (ID), an established approach to qualitative knowledge development within applied clinical fields (Burdine et al., 2020; Theodora et al., 2018; Thorne, 2016; Thorne et al., 1997; Thorne et al., 2003). ID has been used widely by researchers in applied health sciences, particularly in Nursing (Thorne et al., 1997; Theodora et al., 2003; Thorne, 2016). It is a pragmatic method which addresses situations sensibly and realistically in a way that is based on practical considerations. ID as put forward by Thorne shares some features and tools with other traditional methodologies, including some aspects of grounded theory, naturalistic inquiry, and ethnography, drawing on values associated with phenomenological approaches inherent in the methods of data collection (Thorne et al., 2004; Thorne, 2016). For example, in this study, the values shared included the valuing of the participant’s experience and voice, while the tools employed included reflexivity and other similar methods – e.g., in-depth individual and focus group interviews, observations, and analysis practices such as coding and iterative thematic analysis.

Moreover, ID’s strength is its ability to be flexible with an openness to accommodate different approaches to sampling, data collection and analysis that fit with the specific study context. Importantly, the aim of ID is not to theorize the results, but to generate practical understanding and solutions to health problems and/or strengthen health care.

Thorne et al. (2003) argue that “nurse scholars perceived the need to move beyond established qualitative methodologies in order to generate credible and
meaningful disciplinary knowledge, and interpretive description provided a reasonable vehicle for such departures” (p. 3). ID is well suited for the nursing profession which Thorne (2016) describes as “…exquisite in its complexity and its purity of purpose” (p. 28 cited in Sellman, 2011) and necessitating nurses seeking clarity about the patient’s health and illness experiences. ID recognizes and values the full spectrum of “knowing,” including clinical wisdom, and the human diversity that the world presents us as “patient preference” (Thorne, 2018) and draws on these multiple ways of knowing to generate clinically meaningful knowledge that is grounded in experience. Thorne concluded that nurses are in a unique position to thoughtfully develop a care plan that includes patient’s preference or wishes with evidence-informed practice by taking into consideration the unique individual’s social needs or clinical situation. According to Thorne et al., (1997), nurses can establish logical ID that contributes directly to their understanding of how people experience their health and illness and what nursing can do to make a difference.

For this study, the approach to ID was applied as we strived to develop insights about the experiences of participants living with HF, their caregivers, and nurses caring for HF patients as they engaged with the health coaching intervention. The ID approach was appropriate for this study as we sought to understand the delivery of a nurse-led health coaching self-care management intervention from the perspective of nurses, patients, and caregivers, with a focus on whether it is practical or useful in practice. Identifying which features facilitate nurse health-coaching and/or challenged its implementation and those features of nurse health-coaching that were helpful and/or hindered patient experience of self-management.
Methods

Complex Interventions

A complex intervention was developed, refined, and pilot tested in this study. Complex interventions have multiple components or interactions that are informed by many factors such as who is delivering or receiving the intervention, the number of outcomes, the degree of flexibility or tailoring of the intervention and whether or not there is a control intervention (Craig et al., 2019). Complex interventions also can be aimed at various levels such as individuals (patient, nurses, or other health care practitioners), community units (hospitals, clinics, or family health teams) or specific patient populations (HF patients or patients with chronic diseases) (Craig et al., 2008; 2019). Importantly, complex intervention development should draw on extensive knowledge about a problem, using theory and empirical evidence, to develop a strategy or intervention that may lead to an intended change such as change in health behaviours or condition (Kok et al., 2004).

In this study, the intervention was comprised of five elements: it was (1) complex; and (2) nurse-informed and led; and we employed (3) a person-centered and tailored approach (4) education tools, and (5) self-care activities (see below Figure 3).
This was a *complex intervention* that involved the nurse employing the intervention with patient/caregiver dyads within a family medical clinic. The intervention supported nurses’ practice by *providing a structure* whereby there were standardized questions to guide the nurses’ self-care conversations *with* the patient and caregiver to identify any challenges or barriers to engage in HF self-care activities. It was person-centered and tailored because the patients’ expressed needs directed the foci of the visit and the care plan and goals were tailored accordingly with the nurse’s support. *Education tools and self-care activities* included using a traffic light format, a calendar, and an Adjusted Diuretic Dosing (ADD) activity to support the patients and caregivers to learn about, monitor, and manage HF symptoms and weights to promote self-care and achieve HF stability and improved QoL.

In this study, a nurse-led health coaching intervention to support HF self-care management activities was developed with the aim of achieving a practical change in everyday nursing practice to improve care for HF patients and caregivers and, ultimately,
improve important outcomes (self-care and QoL) for patients and caregivers. Its
development was informed by a review of relevant literature (reviewed in Chapter 2),
including the *Situation-Specific Theory of Heart Failure Self-Care* (Riegel & Dickson,
2008).

Drawing on guidelines for the development and testing of complex interventions
(Bartholomew et al., 1998; Craig et al., 2008, 2019; Kok et al., 2004; O’Cathain et al.,
2019), and employing a qualitative approach, i.e., Interpretive Description (Thorne,
2016), a two-phase convergent mixed methods study was conducted to address the study
aims. See Appendix B for a detailed logic mapping of this HF complex intervention
development.

**Intervention Description: “The Starting Place”**

I designed the nurse-led health coaching intervention to improve self-care
management and QoL of patients with HF and their caregivers, informed by the
*Situation-Specific Theory of Heart Failure Self-Care* (Riegel & Dickson, 2008) and
current evidence on HF self-care and principles of health coaching. Featured within this
health coaching approach, I created an original booklet entitled the *Cardiac Congestion
Calendar: Maintain, Monitor, Manage (3Cs: 3Ms)* (see Figure 3). In this context, 3Cs: 3Ms
refers to managing cardiac congestion due to HF while incorporating the 3Ms of
self-care management activities within the calendar.
Figure 4

Cardiac Congestion Calendar: 3C’s: 3M’s

Note: These page inserts from the booklet represent the type of tools to assist patients and their support persons with HF self-care management.

In the design of the 3Cs:3Ms health coaching guide booklet, I (the researcher) used a primary health care approach that included developing questions to inquire about any concerns with the person, situation, or environment using a standardized approach (Figure 5).
Figure 5

*Health Coaching Principles - Conversation Guide and Activities for Identifying Self-Care Management Challenges and Abilities*

<table>
<thead>
<tr>
<th>HEALTH COACHING PRINCIPLES</th>
<th>HEALTH EQUITY: A Primary Health Care Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Nurse will assess facilitators and barriers to self-care and tailor the care plan to meet the needs of the patient at this time.</td>
<td><strong>Situation:</strong> Ability to manage congestion</td>
</tr>
<tr>
<td>The Nurse will demonstrate active and reflective listening and observe the patient’s current situation and problem.</td>
<td>☐ Yes ☐ No Are you currently working?</td>
</tr>
<tr>
<td>The Nurse will assess the patient’s readiness and be mindful that not everyone is ready to change.</td>
<td>☐ Yes ☐ No Do you have drug coverage?</td>
</tr>
<tr>
<td>The nurse-patient will collaborate by asking questions to understand the patient’s current situation.</td>
<td>☐ Yes ☐ No Do you have difficulty buying healthy food or paying for housing?</td>
</tr>
<tr>
<td>“What worries you the most about your health condition?”</td>
<td>☐ Yes ☐ No Do you have a working weigh scale?</td>
</tr>
<tr>
<td>“What would you like to change about your health?”</td>
<td><strong>Problem:</strong> Observe safety with mobility, vision, and mood</td>
</tr>
<tr>
<td>“What can the nurse help with so you are successful with your goals or to improve your health?”</td>
<td>☐ Yes ☐ No Ability to weigh daily?</td>
</tr>
<tr>
<td>The Nurse will integrate HF educational materials to assist with self-care management.</td>
<td>☐ Yes ☐ No Ability to see the numbers on the scales?</td>
</tr>
<tr>
<td>Both the Nurse and the patient will develop SMART goals together through mutual trust and respect.</td>
<td>☐ Yes ☐ No Ability to take medication by self?</td>
</tr>
<tr>
<td></td>
<td>☐ Yes ☐ No Any other illness that may cause difficulty with self-care management?</td>
</tr>
<tr>
<td></td>
<td>☐ Yes ☐ No Any depression or sleep disturbances?</td>
</tr>
<tr>
<td></td>
<td><strong>Environment:</strong> Identify challenges</td>
</tr>
<tr>
<td></td>
<td>☐ Yes ☐ No Do you live in a rural area?</td>
</tr>
<tr>
<td></td>
<td>☐ Yes ☐ No Do you live alone?</td>
</tr>
<tr>
<td></td>
<td>☐ Yes ☐ No Do you have transportation concerns to get to medical appointments?</td>
</tr>
</tbody>
</table>

The researcher’s clinical experience caring for HF patients provided the insights for the design of this guidebook in which I incorporated approaches that have worked well in my own practice, including as an example, linking with community resources to address the social determinants of health, factors that may interfere with successful self-care management. This guidebook is an essential component of the health coaching approach and serves two functions: 1) It *supports nurses* by employing a standardized nursing approach in HF care. It guides the nurses self-care conversations with the patient and caregiver to identify any challenges or barriers to engage in HF self-care activities; to develop goals, action plans, and strategies with the patient through PHC principles; and
to coach on the Adjusted Diuretic Dosing (ADD) activity with patients to promote self-care and achieve HF stability and improved QoL; and 2) It supports patients and caregivers by providing self-care activities and tools through nurse-led health coaching to learn about, monitor, and manage HF symptoms by engaging with the nurse through health coaching; and to develop tailored action plans and goals with nurse support to achieve HF stability and improved QoL.

Furthermore, the initial 3Cs:3Ms tool was inspired by using the traffic light concept to guide the education on how to monitor and manage HF based on type and severity of symptoms (i.e., green light: no symptoms = Good to Go, yellow light: mild-moderate symptoms = Go slow, red light: serious symptoms = Stop to seek medical advice or help) (see Figure 6).

The patient takes the guidebook home and uses the calendar to monitor and record weights and symptoms while being able to refer to the educational components of the traffic lights format. These activity tools help the patient track whether they are maintaining stability in HF management and supports the use of the ADD chart to achieve or maintain their target dry weight (Figure 7).
Figure 6

Watch the Traffic Light – HF Self-Care Management Tool (Refrigerator Magnet)

Good to GO … Maintain every day:
- Write down your weight each day and compare it to the day before
- Take your medications as planned and know why you take them
- Eat a low-salt diet and limit how much you drink
- Balance activity and rest
- No swelling of legs, feet or stomach. No chest pains. No shortness of breath.

Go Slow… Monitor your physical signs and symptoms:
- A weight gain of 3 pounds in 1 day or 5 pounds or more in 1 week
- A harder time breathing
- More swelling in your feet, ankles, legs or stomach
- A new or worse cough (especially when lying down)
- No energy or are more tired than usual
- Dizziness or feel light headed
- Adjust your Lasix dose if you were taught to meet your target weight
- Call your doctor/Nurse Practitioner (NP) for guidance

STOP… Manage your congestion!
Call 911 if you have:
- Chest pain or discomfort
- Severe dizziness
- A hard time breathing at rest or wheezing

Call your doctor/NP if you have:
- Gained 3-5 pounds in 1 day or more than 5 pounds in 1 week despite taking extra Lasix for a few days.
- Can’t lie flat and need to sleep in a chair.
- A lot of swelling in your feet, ankles, legs or stomach.
Alongside my years of clinical experience, this health coaching intervention approach was informed by the literature which underlines the importance of self-efficacy and goal-setting as foundational to health coaching and self-determination related to “(1) a need to feel empowered (autonomy), (2) perceived ability to self-care (competence)
and, (3) their need to feel a sense of belonging (relatedness)” (Eassey et al., 2020, p. 270).

A health coaching approach is also informed by principles of motivational interviewing techniques to assist individuals to determine if they have the desire and ability to commit to behavioural changes to improve their health and wellness (Pantalon & Rollnick, 2014).

The health coaching intervention tool also needs to be individually tailored to the unique goals of the patient that both the nurse and patient have identified to support patient autonomy, competence and relatedness. Similar to motivational interviewing, it is essential for the nurses to document key information pertaining to the rationale for any decision-making strategies or solutions formulated during clinic sessions. These strategies are then expected to be reviewed at the next clinic appointment to determine if further action plan modifications were required. This complex intervention differs from usual care delivery in PHC in which nurses educate patients about the importance of taking their prescribed set diuretic dosing (SDD). In contrast, the approach developed and tested in this study used a standardized health coaching approach that included a focus on self-care management activity for patients using adjusted diuretic dosing (ADD) to manage their daily HF symptoms. In addition, and notably, employing a nurse-led health coaching self-care management intervention requires a fundamental shift in the relational orientation of the nurse; it is relational inquiry that has an intentional focus on attending to those factors that shape the experiences within, between, and around the health care situation. In this case, as one example, working with the patient and caregiver to understand those factors influencing the ability of the patient with HF to self-care manage.

Accordingly, I developed this innovative self-care management guidebook and tool after drawing on previous HF education tools during over 20 years of clinical
experience caring for HF patients. Notably, I stressed the importance of identifying and addressing issues/needs related to the social determinants of health. This health coaching self-care management intervention is not part of usual care.

**Phase 1: Intervention Development and Further Refinement**

Nurses were invited to participate in a focus group which was delivered in a hybrid model with a choice of attending in person at one of the Family Medical Clinics (FMCs) or joining via video conference if working at the other FMCs. This focus group was designed to explore their perspectives of: (i) the essential features of the nurse-led health coaching intervention, including factors that could facilitate or challenge its implementation, (ii) gaps in knowledge or learning needs with respect to their ability to deliver the intervention (i.e., HF management, principles of health coaching with a PHC approach, how to engage in self-care management for patients living with HF, and knowledge about community resources to support patients with medical or social needs); and (iii) what needed to be in place for nurses to be comfortable with the nurse-led health coaching and able to deliver it within their clinic setting (e.g. time and location for nurse participants to receive a training program; and the feasibility of having a lighter caseload to participate in the research activities).

**Phase 1 Research Questions**

1. What are the challenges or gaps in providing care for HF patients within the community and Family Medical Clinic?
2. What do nurses identify as the essential features of the intervention? Are they captured in this tool and if not, what changes can be made to improve the tool?
3. What are nurses’ experiences and perspectives of health coaching and of adopting a health coaching tool in their practice with HF patients?
4. What are the opportunities to further develop the nurses’ role in order to improve HF care for the patient and their caregiver?

Setting

This study was conducted in two primary care clinics located in a large urban setting, within an academic teaching centre affiliated with a large university in Ontario. The clinics were staffed by an interdisciplinary team that included nurse practitioners (NPs – RNs in extended class), registered nurses (RNs), registered practical nurses (RPNs), physicians, pharmacists, dieticians, social workers, and students from various health care disciplines.

Recruitment

All nurses employed in these settings (i.e., RNs, RPNs and NPs) and who were involved in caring for patients living with HF, were eligible to participate in this study. An office administrator sent an initial email to nursing team members inviting them to participate in a voluntary research study, with instructions to contact the researcher if interested. I contacted nurses who were interested in the study to provide more information, answer questions, review the Letter of Information (LOI) and, if they were interested, obtain written consent.

Sample

Of the 19 nurses who were eligible to participate, ten nurses (8 RPNs, and 2 NPs) employed at the two primary care clinics volunteered to participate as consultants within the nursing working group (Phase 1). The nurses’ experience ranged from 2 years to 30 years with an average of 10 years’ experience working on a medical unit, in mental health or the emergency department.

Data Collection
During the nurses’ focus group, a series of questions were posed to explore the nurses’ clinical expertise or experience with self-care management strategies and their experiences using coaching. Fundamentally, the focus group was a strategy to bring primary health care (PHC) clinic nurses together in the form of a working group to understand what they believed to be the essential features of the intervention and the self-care activity tool. Understanding the nurses’ current clinical practice was critical to the refinement of the health coaching self-care management intervention employed in Phase 2, with implications for how to educate the nurses to use this intervention effectively.

**Data Analysis**

Transcripts of the focus group conversation were analyzed by coding them to identify patterns or themes related to facilitators, challenges or barriers of employing the self-care management tool. A member of the research committee was consulted to review and obtain consensus on the identified patterns or themes. Since the primary purpose of Phase 1 was to consult with a group of nurses in order to understand whether or how to refine the intervention before implementation, a robust scientific data analysis was not required. More importantly, the building of relationships/partnerships with nurses within the PHC setting, and the feedback from the PHC nurses during the consultative phase of this study provided the practical information to refine the intervention in preparation for Phase 2.

**Phase 2: Pilot Feasibility Study Implementation and Initial Impact**

A prospective, non-randomized mixed methods cohort study was conducted to examine the feasibility, acceptability and initial impacts of the nurse-led health coaching self-care management intervention from the perspectives of HF patients, their caregivers,
and nurses who offered the intervention. Given that the nurse-led health coaching self-care management intervention had not been previously tested, Interpretive Description (ID) was used to explore the experiences of the nurses who offered the intervention (at study end, using focus groups) and patient/caregiver experiences of engaging in the intervention (when they completed the intervention, using individual in-depth interviews) to gain an understanding of self-care management challenges and facilitators when both the nurse and patient work together towards HF stability. Selected quantitative data also were collected from the patients and caregivers using surveys comprised of self-reported measures of Health-Related Quality of Life (HRQoL) and Self-Care Behaviours, both pre-and post-intervention. These data were analyzed descriptively to provide a deeper contextual understanding of the qualitative data based on the research questions listed below, and to assess trends in variables that were theorized as outcomes that could be affected by the health coaching intervention (See Figure 7).

**Figure 8**

*Phase 2 Study Activities*
Preparing for Site Readiness

A cohort of nurses working in primary care were trained in the delivery of the intervention as part of site readiness; the intervention was then offered to a sample of patients with HF and their caregivers over a period of three months. For example, prior to enrolling patient/CG dyads, I provided an educational module electronically to the nurse participants to provide an overview and update of HF types, common causes, treatment, and management therapies (pharmacological and non-pharmacological). The module also included a review on health coaching principles within a PHC approach; how to support patients with medical and social needs, and how to engage in self-care management for patients living with HF. The module was a 75-minute voice-over power point presentation that the nurses reviewed prior to the enrollment of participants in the study. The nurses also could access this information at any time during the study.

Subsequently, I also arranged one-on-one in-person visits with the nurse participants to review the study protocols and procedures for the clinic visits that took place over a 3-month period (which were combined with some regular appointments). During the initial visit (baseline visit), goal setting and action planning occurred, and surveys were completed then and again at the end of study at the 3-month visit. Telephone visits with the nurse were scheduled at 2 weeks and 8 weeks and goal setting and action planning were reviewed and revised according to the needs of the patient through a health coaching approach. A TIDieR checklist (Template for Intervention Description and Replication) was used to guide in adequate reporting (Sherifali, 2017). See table 1: Intervention Delivery Sessions and Content.
### Table 1

**Intervention Delivery: Sessions and Content**

<table>
<thead>
<tr>
<th>Session 1 (The initial visit)</th>
<th>Participants were introduced to the nurse-led health coaching self-care management intervention and asked to describe how they saw their health at that moment, particularly living with HF. The nurse (coach) invited them to discuss their wishes and any goals related to HF management or life in general that were meaningful for them. An equity orientation that considers the situation of the patient and caregiver in the holistic way is a central aim for this visit and is a key factor to this novel approach of this study. The nurse worked with the patient and the caregiver to develop an action plan that was tailored and practical to help them manage their HF. Any consultation with the interdisciplinary team to aid in successful self-care HF management was obtained with specific care plan decisions formed or resources obtained. The plan was documented on their Cardiac Congestion Calendar, which the patient took home and had a reference or reminder of this patient-centered self-management support strategy. This type of information is important to collect through documentation in the Electronic Medical Record (EMR) so the health care team can reassess whether strategies were helpful or not. At any time, the nurse can reach out to members of the care team to discuss HF management as per standard of care or to discuss adding the ADD tool for further HF management.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>“Why, What, Who”</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 2 (Two weeks):</td>
<td>The nurse made a telephone visit with the patient/caregiver to check in on progress made toward the patient’s goals and to continue to build that nurse-patient relationship. In this visit, the nurse continued to employ a tailored health coaching approach and revised the goal and action plan based on the current needs of the patient. To support this process, the nurse and patient/caregiver reviewed weight records and any HF symptoms and then discuss how the patient had been managing their HF daily. Consistent with a coaching approach, the nurse assisted with any problem solving or decision-making and acknowledged the patient’s and caregiver’s successes in using the ADD to respond to their perception relating to HF signs and symptoms. As part of usual care, a review of any routine blood results and report of any abnormalities to the physician or NP was completed as per current standard of practice. This approach was used at each subsequent visit whether a phone visit or in person.</td>
</tr>
<tr>
<td><strong>“How, where, when and tailoring”</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 3 (One month):</td>
<td>In-person Clinic Visit: The nurse provided health coaching on HF self-care management by reviewing any difficulties or successes of maintenance, monitoring, or managing HF symptoms such as daily weights, ADD, proper diet and fluid intake. There was a review of weight records and any HF symptoms and discussion about how the patient managed their HF daily. The nurse assessed the fluid retention status by auscultating the patient’s lungs, assessing the lower extremities, and obtaining the vital signs such as respiratory and heart rates. The nurse assisted with any problem solving or decision</td>
</tr>
<tr>
<td><strong>How, where, when and tailoring”</strong></td>
<td></td>
</tr>
</tbody>
</table>
making and acknowledged the patient and caregiver for any successful self-care management when using the ADD to respond to their perception relating to HF signs and symptoms. The same approach of goal identification and action plan setting was achieved through the Cardiac Congestion Calendar. The nurse revised the goal and action plan based on the current needs of the patient and the nurse contacted the community services as needed or requested by the patient. Continued relational engagement was occurring between the nurse, the patient and caregiver.

<table>
<thead>
<tr>
<th>Session 4 (Two months):</th>
<th>Telephone visit which was similar to session 2.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 5 (Three months):</td>
<td>End of study (EOS) visit: The nurse (coach) focused on bringing the program to a close and invited patients/caregivers to describe how they saw their current health and overall HF management. The nurse also helped the patient and caregiver to recognize the positive self-care management changes they had made while also identifying any potential challenges or gaps in achieving improved health and wellness.</td>
</tr>
</tbody>
</table>

**Phase 2 Research Questions (Nurse Participants)**

1. What were the nurses’ experiences of offering the nurse-led coaching intervention, including successes, challenges, and facilitators?

2. What are the potential impacts of a nurse-led health coaching intervention, from the perspective of patients, caregivers, and nurses?

**Nurse Participants**

**Setting**

Building on the nurses’ alliance at the Family Medical Clinics from Phase 1, Phase 2 was conducted in three PHC settings, located in the same large urban setting as Phase 1; a teaching centre, affiliated with a university in Ontario. Two clinics that participated in Phase 1 of this study requested to participant in Phase 2 and a third affiliated clinic was added in Phase 2.
Recruitment

In Phase 2, an administrative assistant associated with the FMC sent an email to the nurse participant group from Phase 1 inviting them to voluntarily participate in Phase 2, with instructions to contact the researcher if interested. I contacted nurses who were interested in the study to provide more information, answer questions, review the ‘Letter of Information’ and, if they were interested, I obtained written consent.

Sample

A purposive sample of 4 nurses (1RN, 3 RPNs) was recruited to offer the intervention. FMCs employ a higher proportion of RPNs in comparison to RNs due to the lower acuity working in a community setting. As in Phase 1, nurses were eligible to participate if they were employed in one of these settings and provided care to patients diagnosed with HF.

Patient/Caregiver Dyad Participants

Setting and Sample

A purposive sample of HF patients and their caregivers (dyads) was recruited from the three study sites. Adult patients (age 18 or older) were eligible to take part if they were English-speaking patients registered to the clinic who: i) had a diagnosis of HF documented in their medical record; ii) had no recent hospitalization or emergency room visit for acute signs of HF decompensation for a minimum of 3 months; iii) had a caregiver or support person, defined as someone who provided direct HF support (e.g. medication or meal preparation) or indirect HF support (e.g. emotional support, transportation, assisting with decision-making around symptom perception or management); and where iv) both patient and caregiver were willing and able to
participate in an interview and survey. Patients were excluded if they had significant cognitive impairment that would interfere with their ability to give informed consent, and those with any medical condition with an expected survival of less than six months (end-stage renal disease, end-stage liver disease, end-stage COPD, or end-stage/terminal cancer).

**Recruitment**

Flyers about the study that included the researcher’s name and contact information were posted in the waiting and examination rooms of each clinic. In addition, nurse participants identified patients who had a documented diagnosis of HF from the Electronic Medical Record (EMR) system. The nurse reviewed the medical records of HF patients to determine if they met the inclusion criteria for the study. From the list of those eligible, the nurse approached the family physician to determine if there were any medical reasons not to invite the eligible patient to participate in the study.

From the three clinic sites, 44 HF patients were identified from the clinics’ EMR system since data can be retrieved by diagnosis; specifically, HF. From this patient list, 32 patients did not meet inclusion/exclusion criteria. The 12 patients who were eligible were approached by the clinic nurse and invited to participate in the study by either phone or at their regular clinic visit. Seven patients declined to participate for reasons including a personal preference due to COVID risk, frailty, or transportation issues to get to the clinic appointments. The remaining five patient/caregiver dyads were invited to participate and be enrolled at their next routine clinic visit or at their current clinic visit. If the patient and caregiver were both interested in participating, they were provided with a Letter of Information and Consent (Appendix J) to review and given an opportunity to ask any questions and then, if they agreed to take part, sign the consent. Given that I am
not employed at the primary care clinics, the possibility that participants may have felt coerced to participate was reduced (see Table 2 for Enrollment of Patients and Caregiver Dyads).

**Enrollment of Participants**

**Table 2**

*Phase 2 Enrollment of Patient and Caregiver Dyads Across Three Sites*

<table>
<thead>
<tr>
<th>Setting</th>
<th>Eligible based on Diagnosis</th>
<th>Screen Failed</th>
<th>Declined to Participate</th>
<th>Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMC 1</td>
<td>18</td>
<td>13</td>
<td>3 (1- COVID, 1- moved away, 1- too frail/preference)</td>
<td>2</td>
</tr>
<tr>
<td>FMC 2</td>
<td>16</td>
<td>11</td>
<td>3 (2-preference, 1-reduced mobility with transportation challenges)</td>
<td>2</td>
</tr>
<tr>
<td>FMC 3</td>
<td>10</td>
<td>8</td>
<td>1 (preference)</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>44</strong></td>
<td><strong>32</strong></td>
<td><strong>7</strong></td>
<td><strong>5</strong></td>
</tr>
</tbody>
</table>

**Study Procedures**

Participation for each patient/caregiver dyad lasted approximately 3 months. The overall time to complete the study, inclusive of site preparation, intervention delivery and collection of all data from patients, caregivers, and nurses, was 6 months. Study procedures, including both activities related to nurse participants offering the intervention and data collection such as reviewing any unplanned patient clinic visits (medical instability) and diagnostic test results were collected through Electronic Medical Record (EMR) system to address the study aims (see Table 3 and Appendix C). Notably, a COVID 19 contingency plan that involved shifting intervention and data collection activities from in-person to virtual was developed but never used (Appendix D).
The rationale for five sessions over three months was drawn from reported experience in the literature which pointed out that a 3 to 6 months study duration involving behavioural modifications or practices can be sustainable. For example, a systematic review on health and wellness coaching (Wolever, et al., 2013) reported a wide range for the duration of the entire coaching intervention with almost 50% of the studies having a duration of 5 weeks to 3 months and 3.5 months to 6 months. Many of the studies had weekly sessions, but the longer the study duration, the longer interval between coaching intervention extending to monthly sessions. A more recent systematic review study (Racey et al., 2022) for a diabetes health coach intervention revealed that clinical outcomes related to blood pressure or lipid management may require longer duration studies beyond 6 months to yield observed clinical benefits. Yet, there is limited data on longer term effectiveness of diabetes health coaching beyond 6 months thus making it difficult to understand the impact of diabetes health coaching and the sustained impact on such interventions. The sessions and interactions with the coaches ranged from weekly, to biweekly, to as infrequent as one session every 4-6 weeks. The duration of these sessions varied from 15 minutes to as long as 90 minutes with most averaging 30 minutes. Therefore, given this was a pilot/feasibility study, a minimum duration of 3 months with regular interactions was conducted to determine a clinical impact and effectiveness of this health coaching intervention.
Table 3

Study Activities Flow Chart

<table>
<thead>
<tr>
<th>Period and Study Activities</th>
<th>Screening</th>
<th>Initial Visit Baseline</th>
<th>2wks</th>
<th>1mos</th>
<th>2mos</th>
<th>3mos End of Treatment/Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit</td>
<td>1</td>
<td>2</td>
<td>3 Phone call</td>
<td>4</td>
<td>5 Phone call</td>
<td>6 End of Study</td>
</tr>
<tr>
<td>Week</td>
<td>Up to 2 weeks before Visit 2</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Check whether the study is right for you</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical history</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Medication history</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Questions about your health</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>NYHA class</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Physical examination</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Vital signs</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Copy weight calendar from last clinic visit</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review any lab or test results</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questionnaires: SCHIP, CO-SCHIP, MHI-HR</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive study HF SELF-CARE tool to take home</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inclusion/Exclusion checklist</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consent obtain if participant is eligible and agrees to participate</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EOS interview conducted by researcher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

Data Collection

For both nurse participants and patients/caregiver dyads, qualitative data collection methods were consistent with an ID approach. The ID approach incorporated ethnographic techniques of participant observation (e.g., non-verbal communication, such as postures, facial expressions or emotions), memos, and interviewing that described their experiences. In addition, field notes were used to capture the context in which the focus group interview, or in-depth individual interviews took place (e.g., location, setting, who
was present). Together, these data were used to enhance the rigor of the analysis by reflecting the participants’ respective situations accurately (Sandelowski, 2000). Furthermore, reflective journaling provided a record of how my perspectives evolved and changed during the course of this research and how these changes shaped the data gathered and analysis. Reflective journaling complements other critical ethnographical techniques and enhances the authenticity and trustworthiness of the data (Guion et al., 2002).

To foster enriched conversations and fully explore participant experiences, I used invitational open-ended questions/probes to encourage the participants to expand on their experiences during focus group interviews with nurses and in-depth interviews with persons living with HF. This portion of the study was designed to inform those aspects of the intervention that facilitated nurse health-coaching and/or challenged its implementation and those elements of nurse health-coaching that were helpful and/or hindered the patient and caregiver experience of self-management. The intent of the interviews was to go beneath the surface of ordinary conversation and to examine earlier events, views and feelings. A second interview occurred with a few participants to clarify or debrief from the original interview (see Appendix E: Interview Guides).

Qualitative Interviews with Nurse Participants

I facilitated a focus group interview with nurses who participated in the study to evaluate the feasibility and acceptability of employing the intervention and how they use health coaching principles in a PHC setting. The nurse focus group in Phase 2 took approximately 1 hour and was conducted using video conferencing so the nurse participants from all three FMC sites could join. Recordings were transcribed by the researcher.
**Qualitative Interviews with Patients and Caregivers**

I conducted a semi-structured interview with each patient and caregiver to evaluate the feasibility and acceptability of engaging in a nurse-led health coaching intervention for HF self-care management. Qualitative interviews were conducted within 48 hours of the final study visit in a safe, private room in the clinic or over the phone, according to the preference of participants. With permission of the participants, the interviews were audiotaped. Patients and caregivers were interviewed separately, with interviews lasting 25 to 40 minutes. Topics that were explored included the nurse-patient/caregiver relationship, applicability and ease of use of the self-care management tool, and impact of the health coaching intervention with HF self-care management.

**Pre-post Intervention Surveys with Patients and Caregivers:** In addition, individual surveys were completed by patients and caregivers’ dyads related to HF self-care behaviours and Health-Related Quality of Life (HRQoL) self-report measures at two points in time: baseline (pre-intervention) and at the three-month visit (end of intervention or post-intervention). Surveys were primarily comprised of questions from self-report measures of outcomes theorized to be affected by the intervention.

Four self-report measures were used in this study to measure aspects of self-care and HRQoL, two of these measures with patients and two with caregivers. All of these measures have demonstrated evidence of reliability and validity, with the scores computed from them reflecting higher levels of the construct being measured. The researcher received permission to use Minnesota Living with Heart Failure Questionnaire (MLHFQ) for this research study. See Table 4 to review the interpretation of each of these measures used in the study for HF patients and their caregivers and Table 5 to examine the convergent mixed methods research design for this study.
Table 4

Phase 2 Measures used with HF Patients and Caregivers

<table>
<thead>
<tr>
<th>Concept</th>
<th>Measurement</th>
<th>Range (Min-Max)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-care maintenance (daily routine behaviors)</td>
<td>Self-care of Heart Failure Index [SCHFI]</td>
<td>0-100</td>
<td>Higher scores indicate better self-care.</td>
</tr>
<tr>
<td>Self-care management (symptom recognition and response behaviors)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-care Confidence (certainty or belief in the ability to engage effectively in self-care).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution of caregivers to the self-care maintenance and self-care management of patients with HF</td>
<td>Caregiver Contribution to Self-care of Heart Failure Index [CC-SCHFI]</td>
<td>0-100</td>
<td>Higher scores indicate greater caregiver contributions to support HF self-care.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Higher scores in CG’s confidence increases contributing to SC</td>
</tr>
<tr>
<td>Health-Related QoL (HRQoL): Patient physical and emotional quality of life</td>
<td>Minnesota Living with Heart Failure Questionnaire [MLHFQ]</td>
<td>Physical 0–40</td>
<td>Higher scores indicate worse physical and emotional QOL.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emotional 0–25</td>
<td></td>
</tr>
<tr>
<td>Caregiver Burden (formal and informal). (Part A)</td>
<td>Caregiver Quality of Life [CarerQoL-7D]</td>
<td>Part A: 0-7</td>
<td>Part A: Higher score indicates higher caregiver burden.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Part B: Score 0-10.</td>
<td>Part B: Higher score indicated higher degree of overall happiness.</td>
</tr>
<tr>
<td>Overall happiness (Part B)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 5

**Convergent Mixed Methods Research Design**

| Step: Data Collection | • Quantitative Data: At Baseline visit: descriptive data using self report and Electronic Medical Record (EMR) review  
• Pre-post-intervention surveys: SCHFI, MLHFQ (patients), CC-SCHFI, CarerQOL-7D (caregivers)  
• Qualitative Data: At End of Study visit: Focus group discussion (Nurse participants), Individual in-depth interviews (patients & caregivers) |
|-----------------------|-------------------------------------------------------------------------------------------------|
| Step 2: Data Analysis | • Quantitative Data: Descriptive statistics using SPSS (Patients), Paired t-tests - surveys  
• Qualitative Data: Thematic analysis (Interpretive Description) - sharing their experiences (Nurses employing the health coaching intervention, Patients and caregivers engaging in the health coaching intervention) |
| Step 3: Data Results/Data Merging | • Quantitative/Qualitative: Merging of the results for comparison, contrast, and interpretation of statistical significant information of quantitative variables with qualitative themes analysis |
| Step 4: Data Interpretation | • Quantitative/Qualitative: Discussions of complementarity and methodological triangulation |

**Self-Care Heart Failure Index (SCHFI) Survey**

The SCHFI version 7.2 survey (SCHFI) is a 29-item self-reported scale with three performance-based rating scales measuring *self-care maintenance* (10 items), *symptom perception* (11 items), and *self-care management* (8 items). The *Self-Care Maintenance* scale consists of all items measuring behaviors aimed at maintaining HF stability (e.g., taking medications as prescribed). The *Symptom Perception scale* includes nine items which evaluate how often the patient performs specific monitoring behaviors (e.g., daily weight); the remaining two items assess how quickly patients recognized and
interpreted HF-related symptoms the last time they occurred. For these two items patients can choose “not applicable” (if they did not have symptoms). Lastly, the Self-Care Management scale has all items that measure how likely the respondent would perform some commonly used behaviors to manage HF symptoms when they occur (e.g., contacting a practitioner when unwell) (Vellone et al., 2020).

The SCHFI measure was informed by the Situation Specific HF theory and a naturalistic decision-making process (Riegel & Dickson, 2008; Riegel et al., 2022; Riegel et al., 2004; Vellone et al., 2015). The SCHFI version 7.2 scale includes additional items to assess symptom perception and self-care confidence concepts that align with the qualitative portion of this study which examines the patient’s ability and comfort of identifying HF symptoms to act on them. These are all necessary components of HF management.

For all survey items, patients were asked to rate their self-care behaviours using a 5-point Likert-type scale with response options of either never/always or not quickly to very quickly. These response options were designed to reduce ambiguity and improve clarity and may lead to a more accurate response. Both the total and subscale scores are computed by transforming each raw score to a standardized 0-100 scale using the formula shown below (Riegel et al., 2022).

\[
\text{Transformed Scale} = \frac{\text{(Actual raw score - lowest possible raw score)}}{\text{Possible raw score range}} \times 100
\]
In addition to these continuous scores (ranging from 0 to 100), cut scores can be used to classify self-care behaviour and activity as high or low for the total score and for each subscale (maintenance, management, symptom perception). Higher scores represent increased involvement in self-care behaviours. A SCHFI score of 70 or greater reflects the reference point to evaluate self-care adequacy while a change in a scale score more than one half of a standard deviation is considered clinically relevant (Riegel et al., 2009). Consistent with previous studies, researchers have reported very little missing data (Riegel et al., 2004; Riegel et al., 2019).

The SCHFI version 7.2 has been used in studies with samples of patients with HF from various countries including Italy, Poland, and the United States (Riegel et al., 2019; Vellone et al., 2020; Swiatoniowska-Lonc et al., 2021). All these studies have demonstrated adequate reliability, validity and internal consistency using Cronbach’s α and confirmatory factor analysis. For example, in a study (Vellone et al., 2020) conducted with 280 HF patients from Italy (mean age 75.6 (±10.8); 70.8% in New York Heart Association [NYHA] classes II and III), confirmatory factor analysis (CFI) supported structural validity of the three-dimensional SCHFI v.7.2 scales (CFI from 0.94 to 0.95) indicating the structure fits well with the data results. Internal consistency reliability estimated with Cronbach's α and composite reliability that ranged from 0.73 to 0.88; test–retest reliability over a 2-week period ranged between 0.73 and 0.92. Construct validity was supported by significant correlations between the SCHFI v.7.2 scale scores and measures of quality of life, brain natriuretic peptide levels and NYHA class. These results are consistent to studies testing the SCHFI v.7.2 in the United States (Riegel et al., 2019) and Poland (Swiatoniowska-Lonc et al., 2021).
The updated SCHFI version 7.2 survey (Appendix F) shows similar psychometric properties for internal consistency as the SCHFI version 6.2 but has an added benefit of measuring patient’s perception of their symptoms. It is appropriate for a busy medical clinic setting since it takes approximately five minutes to complete and can be administered in person or by telephone interview (Riegel et al., 2019), enhancing the usability of this measurement tool for this study. This was an important consideration since surveys were conducted both in person and by phone.

Caregiver Contribution Self-Care Heart Failure Index (CC-SCHFI) Survey

The caregiver contribution Self-Care Heart Failure Index (CC-SCHFI) is a 22-item self-reported survey that includes 3 scales: Caregiver Contribution (CC) to self-care maintenance, (10 items), involving symptom monitoring and treatment adherence, CC to self-care management (6 items) involving symptom perception to recognize symptoms of HF decompensation when they occur, to implement treatment in response to these symptoms, and to evaluate the treatments used, and CC to self-care confidence (6 items) that measure caregiver confidence in their skills in helping patients to engage in each phase of the self-care process. CC-SCHFI is informed by a strong theoretic foundation/grounding stemming from the Situation-Specific Theory of Heart Failure Self-care theory (Riegel & Dickson, 2008) and the Caregiver Contributions to HF Self-Care theory (Vellone et al., 2013a, 2015, 2018). Both theories have process-oriented approaches that are pragmatic and applicable to nursing.

There is limited research regarding how patients with HF and caregivers work together, and even less is known about the factors that influence their levels of confidence in contributing to HF self-care (Vellone et al., 2018; Vellone et al., 2013). However, findings that the patient’s perception of the quality of the relationship with the
caregiver was significantly associated with both the patient’s and caregiver’s level of confidence is consistent with both conceptualizations of confidence and previous research in HF (Jaarsma et al., 2021; Vellone et al., 2018.; Vellone et al., 2013).

Each of the three scales uses a 4-point Likert response scale (for self-care maintenance never or rarely, sometimes, frequently, always or daily; for self-care management not likely, somewhat likely, likely, very likely; and for confidence in contributing to self-care not sure, somewhat sure, sure, very sure). Total and subscale scores on the CC-SCHFI are computed by a standardized score from 0 to 100. Higher scores indicate higher contribution to self-care which represents increased engagement to support the patient to self-manage their HF condition.

The CC-SCHFI has demonstrated evidence of adequate construct validity and internal reliability across studies involving caregiver of patients with HF, both in Spain representing a very high reliability to measure the contribution of caregiver to HF patient self-care [n= 220 caregivers, Cronbach α 0.83] and Italy (291 caregivers, Cronbach α 0.90] (Antonio-Oriola et al., 2020; Vellone et al., 2013). Hence, the CC-SCHFI survey (Appendix G) was a good fit with my study as it harmonizes with the patients’ data collection when using the SCHFI survey.

**Minnesota Living with Heart Failure Questionnaire (MLHFQ)**

The MLHFQ (Appendix H) is a 21-item questionnaire designed to measure health-related quality of life (HRQoL), specifically, the effects of HF and its treatment on the aspects of physical, mental, emotional, and social components of quality of life (QoL). It includes subscales for physical (8 items), emotional (5 items), and remaining or other quality of life (8 items) factors (Rector & Cohen, 1992). Higher scores indicate poorer physical and emotional QoL. A 6-point Likert scale (0 = not at all to 5 = very
**much** was used to determine how much each of the 21 items had prevented the patient with HF from living how they would have liked to in the past month. These items were recoded so that higher values were consistent with higher ratings of QoL.

The MLHFQ has been used in many health-related studies. Bennett et al. (2003) conducted a study to compare three quality of life measures in HF patients including the MLHFQ (Minnesota Living with Heart Failure Questionnaire), KCCQ (Kansas City Cardiomyopathy Questionnaire), and CHFQ (Congestive Heart Failure Questionnaire). The psychometric properties included: validity, reliability, responsiveness, and interpretability. Bennett et al. (2003) concluded that most of these measures met minimum psychometric criteria, but the MLHFQ had the strongest psychometric properties, followed by the KCCQ and CHFQ which were internal consistency (validity, reliability) and interpretability. Britz & Dunn (2009), conducted a study in the United States and enrolled admitted patients with HF (n=30) who completed SCHFI and MLHFQ surveys. The results showed promise as self-care confidence and perceived better health were found to be significantly related to improved HRQoL. A recent study (Napier et al., 2018), had similar findings where internal consistency was good and comparable for MLHFQ and KCCQ domains measuring similar aspects of HRQoL at baseline. However, MLHFQ were slightly higher in some domains including the MLHFQ physical (Cronbach's α = 0.93) compared with the KCCQ clinical summary (α = 0.91), and the MLHFQ emotional (α = 0.92) compared with the KCCQ quality of life (α = 0.87).

**CarerQOL-7D**

The CarerQOL-7D (Appendix I) (7-item) survey measures the burden experienced by caregivers (formal and informal) along seven positive and negative
dimensions. caregiver fulfillment (+), rational problems (-), mental health problems (-), problems with combining daily activities (-), financial problems (-), social support (+), and physical health problems (-) with options “no”, “some” or a “lot” and total maximum score is 10, with the higher score representing a higher caregiver burden (Hoefman et al., 2013). The survey also includes an 8th item that measures overall QoL in terms of happiness which is a broader measure of well-being on a visual analogue scale (VAS), with options that range from 0 to 10. Higher scores indicate a higher degree of overall happiness (Hoefman et al., 2013; Voormolen et al., 2021).

This survey was used in a study conducted in the Netherlands that enrolled 1244 caregiver participants describing themselves as either caring for their partner or parent (Hoefman et al., 2013.) The mean CarerQol-7D score was 79.1. Most caregivers derived a lot of fulfillment from caregiving. Problems most often encountered were their own physical health problems and problems with their own daily activities. Around one third of the caregivers had relational, mental health or financial problems. Most of the caregivers experienced only mild problems. Just over one fourth did not receive support with caregiving when needed. The mean CarerQol-VAS score was 7.1; reflecting a higher score for caregiver burden.

Another cross-sectional study revealed data from a sample of 451 respondents in eight European countries concluded that this instrument has adequate psychometric properties and clinical validity (Voormolen et al; 2020). Almost all caregivers experienced at least some fulfilment from caregiving and three out of four received at least some support with carrying out their care tasks when needed. Comparable proportions of approximately 60% of caregivers reported some or a lot of problems with their own mental or physical health, in their relationship with the care receiver, or
combining care tasks with their daily activities. The majority reported to have no financial problems, but 5% of caregivers had a lot of financial problems due to caregiving. The average CarerQol-VAS (visual analogue scale) score (or happiness) was 6.4 (Voormolen et al., 2020). Clinical validity was analyzed by bivariate and multivariate analyses. Convergent validity was evaluated using Spearman correlation coefficients. Convergent validity was supported by positive associations of CarerQol-VAS with the two positive CarerQol-7D dimensions (fulfillment and support) and negative associations with the five negative CarerQol-7D dimensions (relational problems, mental health problems, problems combining daily activities, financial problems and physical health problems). Moreover, CarerQol-VAS was negatively associated with other instruments measuring caregiving burden (Voormolen et al., 2020). This supports the clinical validity of the CarerQol instrument (Appendix G) and reflects similar findings in my study for the internal consistency.

**Data Analysis**

**Qualitative Data Analysis**

Each interview transcript was reviewed separately through the lens of the Interpretive Description (ID) analysis framework. The process of interpretation requires the processes of logical inquiry and does not solely depend on coding, sorting, and organizing the data (Thorne et al., 2004). This involved the researcher frequently exploring the data and asking questions such as “What does it mean?” and “Why is this happening?” in order to uncover what is important in the research data. For example, in this study, we began data analysis by reading the entire text of each transcript to develop a preliminary sense of participants’ responses before progressing to coding.
Coding is a technique used to categorize overall ideas (rather than line by line coding) to recognize patterns or themes. Thorne et al., (2004) suggest avoiding excessive detailed coding such as word-by-word or line-by-line which can diminish the capacity to see patterns and moving in and out of the detail frequently asking, “What is occurring here?”. In this process, some of the initial codes were eliminated by the researcher if they were not prevalent or did not fit into any concept. Once these initial concepts or beliefs/views were formed, we labeled and combined them into categories and finally grouped categories to generate themes. The themes for both nurse participants, patients and caregiver data were negotiated and verified with the supervisor and committee members as part of a consultant process as a way of evolving and deepening understanding of each. For example, after further discussions we verified and revised an overarching theme for the nurse participants from “Practicing full scope: The Organization of Care” to “Re-discovering ‘How to Nurses’: The Organization of Care”. This refinement more accurately represents the nurses’ experiences from the data collected. Analysis was completed when sufficient understanding had been generated from the data to answer the research questions.

During data analysis, it was important that I avoided selecting themes to match my preconceived notions and depict the meaning of the data through inductive reasoning, i.e., I needed to be aware of my assumptions when organizing the data. The use of clinical judgement, wisdom, and relevance was necessary to inform and gain insight during data analysis. This process is referred to as self-reflexivity (Palaganas, et al., 2017). For example, in this study I needed to ensure an ID focus and always ask myself if the text rung true for me and if the theory had been changed by the logic of the data. As a nurse and researcher, I could relate to the nurses’ clinical experiences and allowed myself
to be open minded to their perceptions when caring for patients living with HF. While at the same time, understand the nuances of nurses working in a primary health care (PHC) environment, and patients being cared within a PHC setting to determine if the theoretical underpinnings align with the data being collected and analyzed. It was only at this point that I determined if the themes or patterns matched with the research question(s), i.e., revealing clinical relevance (Thorne, Sally, communication on March 6, 2020). All data were analyzed manually and identified themes were revealed through a descriptive analysis of the reflective experiences of the self-care activities for HF patients.

**Analysis of Quantitative Survey Data from Patients and Caregivers**

Data were analyzed by using the Statistical Package Social Sciences (SPSS) v.28.0. Descriptive statistics were used to summarize all variables according to the level of data. Categorical variables (such as gender, marital status) were summarized using frequencies and percentages. For continuous variables, means, median, and standard deviations (SD) were computed. Normality of a distribution was displayed by skewness (degree to which a variable’s distribution is asymmetrical) and kurtosis (an indicator of the peak and tails of the distribution) (Knapp, 2017). To know whether a distribution was skewed or kurtotic, the value was set for normal distribution being between 1.0 and -1.0 and all other values outside these parameters were non-normal distributions. With a sample of 5, non-normal distributions are expected as there are too few cases to approximate a normal curve. Paired t-test were used to evaluate whether scores for self-care activities, confidence, and HRQoL, created from the four outcome measures used in this study, changed significantly between baseline (pre-intervention) and 3 months later (post-intervention), with a t value >2.0 and a one-sided p-value set to <.05 to show if the pre-post difference was significant or not. Given the small sample of patients and
caregiver who took part in this study, pre-post scores between all subscales were graphed for each case in order to visualize changes in self-care and HRQoL for each case. Insights from these results were useful in contextualizing the qualitative analysis of interviews from patients and caregivers.

The convergent mixed-methods research design represents a concurrent triangulation strategy (Figure 8) that reveals how collecting and analyzing the quantitative and qualitative concurrently and independently and then comparing or relating the results can add a breath to the existing literature (Doyle, Brady, and Byrne, 2016). The purpose of this design was to validate, confirm or corroborate the findings from different data sources through synthesis and integration from the patient/caregiver dyads’ surveys and the interviews with both the nurse focus group and the patient and caregiver participants. The triangulation strategy will be discussed in further detailed within this section.

**Figure 9**

*An Diagram of a Mixed Methods Design: Concurrent Triangulation Strategy*

(Creswell and Plano Clark 2007)
Summary of the Methodology and Methods

The information gathered from Phase 1 of this study further developed and refined a nurse-led health coaching self-care management intervention that informed the further design and readiness for Phase 2 of the study. In Phase 2, a convergent mixed methods study design involving the implementation and initial impact of a nurse-led health coaching self-care management intervention for HF self-care management examined self-care behaviours and QoL. Through in-depth individual interviews, I explored patient and caregiver dyad’s self-care management experiences and examined their self-care behaviours (self-care maintenance, self-care monitoring, self-care confidence), QoL and caregiver’s contribution towards HF self-care. Therefore, drawing on the Situation-Specific Theory of Heart Failure Self-care (Riegel & Dickson, 2008) and using a naturalistic decision-making process through health coaching, I explored nurse and patient and caregiver experiences using an interpretive descriptive approach to address current gaps in the literature.

Ensuring Scientific Quality

As with other qualitative methods, establishing rigor is important as it is the ability for the data to establish (external) validity, credibility, and trustworthiness. I ensured that I spent sufficient time with the nurses and each participant to learn and understand the social or in this case the clinical setting and situation. This prolonged engagement (Lincoln & Guba, 1985) allowed me to take into account any challenges for participants in managing their primary health care needs or for nurses to identify facilitators and challenges for patients to self-manage their HF. My actions fostered the development of a good rapport with the participants and built trust, which ultimately informed the credibility or “interpretive authority” (Thorne, 1997; Thorne et al., 2004, p.
6) of the results of the study. The precise awareness of the researcher as interpreter is an essential element in generating the findings from the data that are not ‘facts’ but ‘constructed truths’ (Thorne et al., 2004, p. 6). To generate this constructed truth, it was important to avoid assumptions or over-determination of patterns i.e., where features that occur frequently are assumed to be relevant to the issue under investigation. I drew on an interpretive lens and analytic logic to go beyond what the individual said about their current situation to understand commonalities to validate the constructed truth (Thorne et al., 2004).

**Trustworthiness and Credibility**

Lincoln & Guba (1985) encourage the researcher to provide each participant an opportunity to review a copy of their interview transcript and analysis and challenge any incorrect interpretations of what has been said (known as “member checking”) to enhance credibility to the data analysis. Thorne et al. (1997) disagree with this approach and argue that member checking is generally insufficient to confirm validity. Sandelowski (1993) noted that member checking can create contradictions within the process of developing knowledge because the participant is only focusing on their individual data whereas, the researcher begins conceptualization by representing the entire sample. For this reason, a summary of the findings was shared with participants who were then asked to reflect on how this summary fit with their perspectives. In regard to the nurses focus group, a similar process occurred by sharing the results from the nursing focus group interview to determine if the analysis accurately reflect the nurses’ experience employing the health coaching intervention involving HF self-care management. This kind of member checking improves confidence that the conceptualizations are grounded in construct truths and properly represented, creating a rigorous and credible methodologic adaptation.
Credibility was also enhanced through a rigorous analysis of the transcripts by the researcher and an independent researcher from a different discipline within the health care system. This independent researcher was a pharmacist who worked in an acute care hospital in Cardiology. She reviewed the transcripts separately and then jointly reviewed my analysis relating to the initial codes, categories, and themes that were mutually agreed upon (Lincoln & Guba, 1985).

**Dependability**

Dependability is demonstrated through assurances throughout the study that the findings were established through well-developed protocols to guide the study and following them carefully. Overall, dependability reveals study findings to be consistent and repeatable. In this study, dependability of the study findings was promoted by using an interview guide with instructions and questions to foster a consistent approach to the interview (Polit & Beck, 2016). Dependability was reflected in my study by a pattern of findings that is consistent with the responses of different participants and in the repetition of the themes across data provided by individual participants. In addition, within the study protocol, the health coaching guidebook provided a standardized approach with the patient/caregiver dyads at each encounter to ensure the study activities were being followed while allowing a tailored approach to patient care. This type of intervention gives promise that other researchers can replicate this study to other chronic disease conditions in addition to the HF patient population.

**Rigor and Reflexivity**

According to Thorne, et al. (1997) the researcher must accurately account for the influence of bias on the findings as attempts to eliminate all bias on their part is not
realistic. The authors believe that there are inherent biases in research that takes a nursing perspective (e.g., value of a common social good, the view that all people are deserving of the resources for health, the belief that suffering can be improved) (Thorne, et al., 1997). Since this perspective is integral to the nursing philosophy, such views can be hidden as factors that share research data interpretations.

Reflexivity, it is a strategy to promote rigor. Reflexivity is both a concept and a process that involves self-awareness, recognition that as researchers, we are part of the social world that we study, and subjectivity in the research process (Palaganas et al., 2017). The concept of reflexivity is embedded by understanding the principles of qualitative inquiry which include the researcher ensuring cohesion, working inductively, acquiring adequate and appropriate sample, and adhering to ethical protocols (Palaganas, et al., 2017). The authors stated that this reflexivity research process and outcome contributed to the data process in this study to be open and transparent while ensuring the rigor of reliability and validity processes were present. These actions resulted in enhance data integrity.

Therefore, to minimize this inherent bias risk, I used reflective journaling to document the reactive processes of interpreting within the research process. In addition, field notes were taken to capture the observations made during interviews to contextualize the data during analysis. I also captured non-verbal communication, annotation of emerging themes, and changes in ideas or personal responses to the ongoing research (Theodora et al., 2018; Thorne et al., 1997). These measures helped maintained the integrity of the participants’ stories and provided consistency throughout the analytic process.

**Triangulation**
There are three different forms of triangulation. In this study, methodological triangulation was used; this refers to the use of both qualitative and quantitative methods or data sources in qualitative research to develop a comprehensive understanding of the focus of the study (Carter et al., 2014). Secondly, data source triangulation was used. As Carter et al. (2014) noted, data source triangulation can be used to test validity through the convergence of information from different sources. Data source triangulation involves the collection of data from different types of people, including individuals, groups, families, and communities, to gain multiple perspectives and validation of data. In this study, patient/care-giver dyads and nurses were interviewed. According to Carter et al. (2014), data triangulation using focus groups or in-depth individual interviews in qualitative inquiry may result in a broader understanding of the phenomenon of interest. Lastly, investigator’s triangulation was employed which involves have members of the research team review and analyze the data. In this research study, data was collected from the self-care and QoL surveys for both patient and caregiver dyads. In addition, I drew on a focus group interview with nurses who had employed the self-care intervention and conducted separate interviews for the patient and caregiver dyads who were recipients of the self-care intervention in order to enrich understanding of the feasibility, acceptability and initial impacts of the nurse-led health coaching self-care management intervention. Finally, my research supervisor reviewed the interview transcripts and corroborated with me to identify common themes and patterns for this study.

**Ethical Considerations and Protection of Human Rights**

The protection of human rights when conducting research is a critical element in any study (Creswell, 2007). This study was designed and conducted using TCPS2 principles including but not limited to privacy, confidentiality, obtaining consent,
voluntary and ability to withdrawal at any point in the study. Ethics committee approval was granted by the Institutional Research Ethics Board (REB) at Western University and the Lawson Health Research Centre at London Health Science Centre.
Chapter Four: Results

This chapter presents the study findings, based on both the qualitative and quantitative data collected and is organized according to the study phases (1 & 2).

Phase 1: Nurse-Led Health Coaching Self-Care Management Intervention in HF - Refinement and Further Development

A focus group meeting with nurse consultants (n=10, [4 RPNs, 4 RNs, 2 NPs]) from two primary care clinics in Southwestern Ontario, Canada was conducted in person or via video conference to gather information to refine and further develop the nurse-led health coaching self-care management intervention re: HF self-care management. The 45-minute meeting was audiotaped and transcribed verbatim to ensure all participants' feedback was captured accurately.

The essential features of nurse-led health coaching intervention for HF self-care management and the elements that facilitated the nurse-led health coaching and/or challenged its implementation of the intervention were identified by nurses in the focus group. Specifically, the organization of care was identified as a barrier that prevented nurses from working to their full scope and being fully engaged with the patients. However, nurses in this phase of the study noted that the research study would provide them with an opportunity to utilize their skills and participate in patient care more meaningfully through a more holistic lens and allow nurses to play an integral role within the team. In addition, there was consistent agreement that the nurse-led health coaching self-care management intervention employing a self-care management tool would provide a more consistent approach to caring for HF patients and help nurses identify possible health inequities or challenges for patients that could interfere with self-care
management practices. A summary of findings from Phase 1 focus group interviews is provided in Table 6.

**Table 6**

*Summary from Phase 1 Nurse Focus Group: Description of Views, Opinions, and Ideas*

<table>
<thead>
<tr>
<th>Challenges/Barriers</th>
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<tbody>
<tr>
<td>• The institutions’ daily operations involved prioritizing learning opportunities for Medical Residents to assess and treat patients which limited the nurse’s role and work within a primary care clinic.</td>
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<tr>
<td>• A busy clinic to implement research studies that involved a health coaching intervention.</td>
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<tr>
<td>• Social circumstance: patients with HF are often older adults, and may live alone, increasing social isolation. Some patients have no drug plan, financial constraints (limiting opportunity to access gym or purchase healthy foods), leading to increase non-adherence to HF guideline therapy.</td>
<td></td>
</tr>
<tr>
<td>• The patients are often overwhelmed with the amount of information they receive since they are often managing other comorbidities, such as depression/anxiety, or mild cognitive impairment.</td>
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<table>
<thead>
<tr>
<th>Essential features of the Intervention</th>
<th></th>
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<tbody>
<tr>
<td>• The self-care management tool was simple and easy to follow (clear/concise) with a good font size, and appropriate literacy level. Colour coded charts made it easy to follow.</td>
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</tr>
<tr>
<td>• The cardiac congestion calendar (tool) is user-friendly for patients and nurses and could be completed with limited time.</td>
<td></td>
</tr>
<tr>
<td>• The ability to track weights and symptoms with the traffic light system makes it easy to follow and could enhance adherence while allowing more opportunity for the patient to self-manage HF.</td>
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<tr>
<td>• The structured questions about the ‘person, situation and environment’ assisted in identifying any health inequities and provided a guided approach through the nurse-led health coaching intervention to identify goals and create an action plan with patient involvement.</td>
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</tr>
<tr>
<td>• The clinic has the structure and support of a multidisciplinary team needed to implement this type of intervention. Nurses need to be able to schedule the necessary time required to employ and tailor the delivery of care based on the patient’s needs.</td>
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</tbody>
</table>
| Opportunities | Nurse-led health-coaching self-care management interventions for self-care HF is not part of usual care. This intervention can engage nurses in learning about and employing a health coaching approach.  
| | There are few self-care management HF tools to self-adjust their diuretic, even though this is a cornerstone to HF care. This tool could provide a standardized approach.  
| | Promotes nurses to work to their full scope of practice while enhancing their knowledge in HF treatment and management.  
| | Could increase nurses’ confidence by utilizing nurses’ past experiences from acute medicine or mental health (identifying symptoms of depression or anxiety).  
| | The nurses felt comfortable and confident with the health coaching approach and saw it as complementary to the holistic approach that is foundational to nursing care.  
| | This intervention could be transferable to other chronic diseases such as hypertension, diabetes, and chronic obstructive lung disease (COPD). |
| Refinement | Add the traffic lights to the first page of the colour zones to provide consistency of the theme throughout the tool.  
| | Convert the symptoms and action plan page into a fridge magnet.  
| | Add a column to capture “what is going well?” so the nurse can end the clinic visit on a positive note to assist in promoting patient confidence.  
| | Consider translating this tool into multiple languages. |

The focus group lasted 60 minutes. The meeting was audiotaped and transcribed to ensure all participants' feedback was captured accurately. The information gathered from Phase 1 included feedback related to the central features of the health coaching self-care management intervention; specifically, the initial self-care management tool, the nurses’ experiences of caring for patients with HF, their gaps in their knowledge and practice, and their perspectives about the essential elements of a health coaching self-care
management intervention including feedback on the HF self-care management guide and cardiac calendar activity tool. It was necessary to understand its relevance for everyday practice of nurses supporting HF patients and caregivers with self-care management activities; all factors needed for refinement before implementation for Phase 2. In addition, I was informed what the nurses required for site readiness to implement this intervention into clinical practice such as education, reviewing study materials, and the creation of study activities at each visit. The implications for refinement were very minor and mostly involved formatting revisions.

**Feedback Gathered**

The nurses provided feedback on the health coaching self-care management intervention and overall, little adjustments to the intervention and guidebook were suggested. Most of the feedback was related to format adjustments to improve clarity and conciseness. One suggestion by the nurse focus group was to remove the traffic light symptom tracker (see Figure 5) from the calendar and create it as a magnet tool to place on the refrigerator so both the patient and caregiver can see this frequently throughout the day as a reminder to assist in self-care management. In addition, the nurses suggested to end each health coaching patient visit on a positive note by adding a page at the back of the guidebook to identify an activity or action and ask them to describe “What went well?” and “Why.” This self-reflection provides information regarding the patients’ and their caregivers’ awareness of recent positive experiences, while informing the nurse of the patient’s problem-solving and decision-making abilities. Also, the nurses provided feedback on what they needed for “site readiness” to implement the health coaching self-care management intervention (Phase 2). The nurses requested an educational module to provide an overview and update of HF types, common causes, treatment, and
management therapies (pharmacological and non-pharmacological) to enhance the nurses’ knowledge when caring for patients with HF. Nurses also identified the need to review the clinic feasibility for the nurse to have a lighter caseload in the clinic if enrolling a patient in the study so the nurse can have adequate time to participate in the research activities designed for the study. Lastly, it was revealed that no one was certified as a health coach. However, all the nurses had been involved with informal counselling, education, or mentoring since the nurse participants worked in either mental health, emergency departments or palliative care and utilized similar approaches. They felt they did not need any further support but did appreciate the health coaching principles outlined in the guidebook.


The recruitment occurred from April to June 2022 and resulted in five dyads eligible to participate in the study for the duration of three months from enrollment. All 5 patients and 5 caregivers consented to participate, completed pre-post surveys, and there were no missing data. The CONSORT (Consolidated Standards of Reporting Trials) chart reflects enrollment and attrition from groups (Appendix C). There was no attrition with no deaths, loss to follow-up or missing data for the dyads group. To address fidelity of the study, I keep a study record for each nurse participant indicating they completed the educational module prior to participant enrollment and the dates when they conducted each clinic visit according to study protocol. This information was obtained by the nurse notifying me by email that the patient’s scheduled visit was completed and having regular debriefing sessions either in person or over the phone.
Demographics and Patient Clinical Characteristics

The baseline demographics and characteristics of the patient participants were collected by self-report and the patient’s Electronic Medical Record (EMR) by the nurse participant and summarized by the researcher using descriptive statistics. Of the 5 patient participants who completed the study, only one (n=1) was male. The mean age for patients was 75 years of age. Only one patient lived with their caregiver or support person (i.e., his wife), while the remaining 4 patients lived alone and identified a daughter, sister or friend as their caregiver. Caregivers were anyone that was identified by the patient that had a significant role in supporting them with HF management such as meal preparation, transportation arrangements, attending medical appointments or medication administration.

In addition to HF, patient participants were living with three or more comorbidities such as hypertension, hyperlipidemia, atrial fibrillation, diabetes, or stroke. All had been diagnosed with non-ischemic cardiomyopathy with the majority reporting New York Heart Association (NYHA) functional class II symptoms (n=4); symptoms with usual activity. The majority of participants (n=4) had a documented left ventricular ejection fraction (LVEF) of 45% measured by echocardiogram, at the baseline study visit. The mean estimated glomerular filtration rate (eGFR) was 51mls/min/1.73m squared on entry to the study and eGFR post study (pre- 50.6 ml/min/1.73m squared, post 52.4 ml/min/1.73m squared). Finally, no patients reported emergency visits or hospitalizations in the previous six months (See Table 7 for complete details relating to patients’ baseline demographic and clinical characteristics).
### Table 7

*Patients Baseline Demographic and Clinical Characteristics*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)/Range [Min-Max]</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (Male)</td>
<td></td>
<td>1 (20)</td>
</tr>
<tr>
<td>Age (years)</td>
<td>75(11.31)/[63-93]</td>
<td></td>
</tr>
<tr>
<td>NYHA class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>1 (20)</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>4 (80)</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>LVEF (%)</td>
<td>45 (6.12)/[40-55]</td>
<td></td>
</tr>
<tr>
<td>&gt;50%</td>
<td>1 (20)</td>
<td></td>
</tr>
<tr>
<td>40%-49%</td>
<td>4 (80)</td>
<td></td>
</tr>
<tr>
<td>Non-Ischemic</td>
<td></td>
<td>5 (100)</td>
</tr>
<tr>
<td>HF meds as per guidelines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angiotensin-converting enzyme</td>
<td></td>
<td>5 (100)</td>
</tr>
<tr>
<td>Beta Blocker</td>
<td></td>
<td>5 (100)</td>
</tr>
<tr>
<td>Mineralocorticoid Receptor Antagonists (MRAs)</td>
<td>2 (40)</td>
<td></td>
</tr>
<tr>
<td>eGFR (ml/min/1.73m squared)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>eGFR-pre</td>
<td>50.6(6.84)/[44-62]</td>
<td></td>
</tr>
<tr>
<td>eGFR-post</td>
<td>52.4(7.96)/[40-62]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LVEF (Left Ventricular Ejection Fraction)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYHA (New York Heart Association)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Survey Results: Patient/Caregiver Dyads

Tables 8, 9, and 10 present descriptive statistics for each subscale of the SCHFI (patient self-care) and CC-SCHFI (caregiver contribution to HF self-care), and for patient Health-Related Quality of Life (MLHFQ) and Caregiver Quality of Life (Carer-QoL). As
expected with a very small sample, the distributions of many variables deviated from normality. In addition, paired t-tests examining whether there were significant pre-post changes in any of these outcomes were calculated and presented.

**Changes in Self-Care**

**Patient Participants**

For patients, mean scores for self-care maintenance were adequate (according to scoring conventions for the scale) both pre-intervention (M = 78.00, SD = 16.24) and post-intervention (M = 85.00, SD = 8.48), although there was no significant pre-post difference in the scores (t = 1.58, p = .095). In contrast, *pre-intervention* means scores for self-care management (M = 51.50, SD = 24.88), self-care monitoring (M = 52.14, SD = 19.63), and self-care confidence (M = 67.50, SD = 22.22) were all inadequate within the self-care range. Subsequently, after participating in the nurse-led health coaching, the *post-intervention* scores for self-care management (M = 81.80, SD = 18.8), self-care monitor (M = 81.66, SD = 11.79), and self-care confidence (M = 91.00, SD = 8.4) improved and were all in the adequate self-care range. However, only the improvements in self-care management (t = 4.33, p = .006) and self-care monitoring (t = 2.53, p = .032) were significant. Complete results are shown in Table 8 and displayed graphically in Figure 10.
Table 8

Paired Comparisons for Patients Pre-Post Nurse-Led Health Coaching Self-Care Management Intervention (N=5)

<table>
<thead>
<tr>
<th>SCHFI subscale</th>
<th>Mean (SD)</th>
<th>t</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maintenance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>78.00 (16.24)</td>
<td></td>
<td>-1.16#</td>
<td>0.79</td>
</tr>
<tr>
<td>Post intervention</td>
<td>85.00 (8.48)</td>
<td>0.19</td>
<td></td>
<td>-2.23∞</td>
</tr>
<tr>
<td><strong>Pre-Post Maintenance</strong></td>
<td>7.00 (9.91)</td>
<td>1.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>51.50 (24.88)</td>
<td></td>
<td>0.92</td>
<td>-1.07∞</td>
</tr>
<tr>
<td>Post intervention</td>
<td>81.80 (18.80)</td>
<td>-1.26#</td>
<td></td>
<td>1.75∞</td>
</tr>
<tr>
<td><strong>Pre-Post Management</strong></td>
<td>30.3 (26.80)</td>
<td>4.33*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>52.14 (19.63)</td>
<td></td>
<td>1.47#</td>
<td>2.85∞</td>
</tr>
<tr>
<td>Post intervention</td>
<td>81.66 (11.79)</td>
<td>0.07</td>
<td></td>
<td>-2.03∞</td>
</tr>
<tr>
<td><strong>Pre-Post Monitoring</strong></td>
<td>29.52 (15.24)</td>
<td>2.53*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Confidence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>67.50 (22.22)</td>
<td></td>
<td>-0.26</td>
<td>-2.45∞</td>
</tr>
<tr>
<td>Post intervention</td>
<td>91.00 (8.4)</td>
<td>-0.38</td>
<td></td>
<td>-1.91∞</td>
</tr>
<tr>
<td><strong>Pre-Post Confidence</strong></td>
<td>23.50 (26.14)</td>
<td>2.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: * p < .05 (t > 2.0); # = skewed distribution; ∞ = kurtotic distribution

Figure 10:

Graphical Display of Mean Pre-Post Nurse-Led Health Coaching Self-care Management Intervention Scores for Patients (N=5)
Caregiver Participants

Caregivers’ pre-intervention mean scores for all self-care subscales were low, indicating little contribution to the patient’s self-care. This included self-care maintenance (M = 13.98, SD = 12.34), self-care management (M = 40.00, SD = 12.75), and self-care confidence (M = 43.34, SD = 15.41). However, after participating in the nurse-led health coaching intervention, caregivers mean post-intervention subscale scores were higher, suggesting greater contributions towards the patients’ self-care behaviours. Changes in self-care maintenance (M = 23.98, SD = 14.81; t = 2.18, p = .047; and self-care confidence (M = 68.90, SD = 14.81; t = 2.63, p = .029) were statistically significant, while improvement in self-care management was not significant (M = 58.00, SD = 27.75; t = 1.99, p = .058). Results of paired t-tests of pre-post intervention changes are shown in Table 9 and graphically displayed in Figure 11.
Table 9

*Paired Comparisons for Caregiver Contributions for Patients’ Pre-Post Nurse-Led Health Coaching Self-Care Management Intervention (N=5)*

<table>
<thead>
<tr>
<th>CC-SCHFI subscale</th>
<th>Mean (SD)</th>
<th>t</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maintenance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>13.98 (12.34)</td>
<td>1.06#</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td>Post intervention</td>
<td>23.98 (14.81)</td>
<td>0.72</td>
<td>-2.68∞</td>
<td></td>
</tr>
<tr>
<td><strong>Pre-Post Maintenance</strong></td>
<td><strong>10.00 (10.24)</strong></td>
<td><em>2.18</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>40.00 (12.75)</td>
<td>0.91</td>
<td>2.00∞</td>
<td></td>
</tr>
<tr>
<td>Post intervention</td>
<td>58.00 (27.75)</td>
<td>0.68</td>
<td>-2.32∞</td>
<td></td>
</tr>
<tr>
<td><strong>Pre-Post Management</strong></td>
<td><strong>18.00 (20.19)</strong></td>
<td>1.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Confidence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>43.34 (15.41)</td>
<td>-1.88#</td>
<td>3.75∞</td>
<td></td>
</tr>
<tr>
<td>Post intervention</td>
<td>68.90 (23.09)</td>
<td>-0.16</td>
<td>-1.73∞</td>
<td></td>
</tr>
<tr>
<td><strong>Pre-Post Confidence</strong></td>
<td><strong>25.56 (21.71)</strong></td>
<td><em>2.63</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: * p < .05 (t > 2.0); # = skewed distribution; ∞ = kurtotic distribution
Changes in Level of QoL: Patient and Caregiver Participants

The patient participants’ level of QoL revealed significant changes post-intervention while Caregivers’ QoL was not changed but the degree of happiness revealed significant changes of overall happiness post intervention (Table 10). The patient and caregiver group scored normality in QoL with skewness and kurtosis if values calculated were between -1.0 and 1.0. On the contrary, non-normal distribution for QoL will have values calculated outside of -1.0 and 1.0.

In relation to QoL, higher MLHFQ scores indicate more patient burden and, thus, lower QoL. Pre-intervention (M = 45.40, SD = 20.21) and post intervention (M = 26.00, SD = 15.10) were statistically significant different in the direction of improved QoL (t = 2.5, p = .033). For caregivers, there was not change in QoL pre-intervention (M = 42.00,
SD = 31.14 versus post intervention M = 44.00, SD = 34.35; t = 1.0, p = .187). However, there were significant improvements in caregiver’s mood from pre-intervention (M = 80.00, SD = 14.14) to post intervention (M = 86.00, SD = 11.40, t = 2.45, p = .035) which aligns with the patients having increased engagement with self-care management behaviours.

Table 10

Quality of Life (QoL) Patient and Caregiver Carer-Mood (N=5)

<table>
<thead>
<tr>
<th></th>
<th>MLHFQ - Patient QoL</th>
<th>Carer - QoL: Caregiver</th>
<th>Pre-Post CG QoL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>45.40 (20.21)</td>
<td>42.00 (31.14)</td>
<td>2.0 (4.47)</td>
</tr>
<tr>
<td>Post intervention</td>
<td>26.00 (15.10)</td>
<td>44.00 (34.35)</td>
<td></td>
</tr>
<tr>
<td>Pre-Post Patient QOL</td>
<td>19.3 (17.25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carer - QoL: Caregiver</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post intervention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Post CG QoL</td>
<td>2.0 (4.47)</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Intervention</td>
<td>-0.61</td>
<td>-0.47</td>
<td></td>
</tr>
<tr>
<td>Post intervention</td>
<td>0.57</td>
<td>-0.1</td>
<td></td>
</tr>
<tr>
<td>Pre-Post Patient QOL</td>
<td>2.5*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carer - QoL: Caregiver</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>-0.60</td>
<td>2.37∞</td>
<td></td>
</tr>
<tr>
<td>Post intervention</td>
<td>-2.30#</td>
<td>-1.52∞</td>
<td></td>
</tr>
<tr>
<td>Pre-Post CG QoL</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Carer -Mood: Caregiver</th>
<th>Mean (SD)</th>
<th>t</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Intervention</td>
<td>80.00 (14.14)</td>
<td>-0.88</td>
<td>-1.75∞</td>
<td></td>
</tr>
<tr>
<td>Post-Intervention</td>
<td>86.00 (11.40)</td>
<td>-0.41</td>
<td>-0.18</td>
<td>-0.18</td>
</tr>
<tr>
<td>Pre-Post CG Mood</td>
<td>6.00 (5.48)</td>
<td>2.45*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: * p <.05 (t > 2.0); # = skewed distribution; ∞ = kurtotic distribution

Qualitative Findings

A thematic analysis was conducted from focus group and individual interview data collected with three participant groups: nurses, patients and caregivers. Through interpretive description methodology informed by ethnographic techniques, I explored (i) nurses’ experiences of the feasibility, acceptability, and initial effectiveness of the nurse-led health coaching intervention involving a self-care activity (ADD) with patients with
stable HF within a primary health care setting; (ii) patients’ experiences (part of a patient/caregiver dyad) with the nurse-led health-coaching intervention for HF self-care management involving a self-care activity tool; and iii) caregiver experiences (part of a patient/caregiver dyad) of supporting the patient receiving the nurse-led health coaching intervention. Themes identified for each group are shown in Table 11 and described in the section that follows.

Table 11

Themes According by Participant Group

<table>
<thead>
<tr>
<th>Nurse Group Experiences</th>
<th>Patient Group Experiences</th>
<th>Caregiver Group Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re-discovering ‘How to Nurse’: The Organization of Care</td>
<td>Relational Engagement: Supporting Health Promoting Practice</td>
<td>Relational Engagement: Moral Encouragement, Emotional Support &amp; Structure (through Nurse Consistency and Stability)</td>
</tr>
<tr>
<td>Relational Inquiry: Authentic/meaningful relational engagement: Moving beyond the tasks</td>
<td>Social Support: The role of the caregiver – Someone who ‘gets it’</td>
<td>Caregivers as Active Partners in Self-Management</td>
</tr>
</tbody>
</table>

Nurses Experiences of Delivering the Health Coaching Self-care Management Intervention

Four nurses representing the three primary care clinics that served as the settings for Phase 2 of the study, took part in a 40-minute, post-intervention focus group. Overall, the nurses reported that they implemented the health coaching intervention with ease and increased confidence and felt that both they and their patients worked well together to
improve the patient’s wellness during the study. Three overriding themes were identified:

(i) Re-discovering ‘How to Nurse’: The Organization of Care; (ii) Supporting Patient Agency: Person-Centered Care, and Self-Care Management; and (iii) Relational Inquiry: Authentic/meaningful Engagement.

**Re-discovering ‘How to Nurse’: The Organization of Care**

Nurses interviewed spoke to the use of the guidebook (tool) in relation to common practice in the clinic setting and the underpinning of limitations related to practicing to full scope. For example, the organization of care impacted how the nurses perceived their role within the Family Medical Clinic (FMC). Nurses described lack of time to spend with patients and their caregiver or family member as they were often busy doing tasks “to the patient” (drawing blood tests, giving vaccinations) rather than “being with the patient” to explore how they were managing their health. Nurses also voiced privileging the medical resident’s role over the nurse’s role with the patient due to having an academic affiliation with the FMC clinics for learners to obtain clinical experience. This often led to the lack of professional agency/voice as the nurses did not speak up to administration or other health care providers to advocate for their role as important for the patient’s and family’s experience and well-being. The nurses described that this research study provided opportunities for the nurse to practice ‘nursing’ to full scope. As one nurse noted,

_I feel we definitely could dig deeper to use this tool...I feel I would use that same system, because I like structure, and I like the flow and organization of the tool that you gave us. I would love to incorporate that into my practice moving forward._ (N1 L92)

Here, the nurse is referring to the health coaching tool and the employment of more
structure in the patient interaction through the use of the tool. Another nurse described her experience at the end of the study as role fulfilling in the following, 

*It was a very good feeling, but you were providing holistic care and you were addressing the needs of the patient, right? You were focusing on their priorities and being able to encourage what other health care providers have established for the patient .... and the guidelines. So, to being part of that was very satisfying.*

(N4 139)

Practicing to full scope as an integral member of the health care team was important to all of the nurses in this study. Role fulfillment was achieved by including the experience of working as part of a team to assist the patient in meeting their goals. In a slightly different vein, another nurse speaks to nursing practice in the following:

*Obviously, as a nurse we are teachers regardless and I didn’t think I knew as much about CHF as I did, so it pushed me to refresh my memory on things, so I did go ahead and read on it. I pulled out my old school notes that I still had hanging around.*

(N3 L173)

In this case, the nurse speaks directly to how the use of the coaching tool as an educational tool also prompted her to refresh her knowledge regarding HF. All of the nurses in the focus group voiced the benefits of using the health coaching tool; use of the tool resulted in increased confidence to teach, competence, and general knowledge related to the health coaching approach and the self-care activity (ADD) involving the health promotion tool. Prior to this experience, the nursing role involved primarily task-focused activities, rather than working in a more fulsome way to address patient goals. However, nurses also spoke of the challenges of employing the health coaching tool due to limited nursing time scheduled with the patients and often completing tasks instead of
relationship building and coaching. A nurse participant speaks to her role in the following,

*I can see this being very valid health coaching tool in the future. I too, wish that there was more time for me in my role as a family practice nurse to do things like this... we do tend to do more tasks.* (N4 L130)

Here the nurse identifies time constraints and the routine task responsibilities of the nursing role – tasks such as obtaining lab samples, measuring a blood pressure or weights, and administering vaccines that, while important, are limited in scope and take a narrow focus. Another nurse also speaks to this as follows,

*There are days where we struggle...that it is more task and not [a] patient focus, but we are trying to move away from that...Obviously with us being a teaching facility, the residents take priority when it comes to (nurses) being involved in appointments, so they have that learning opportunity.* (N1 L98-103)

Nurses voiced the challenges with the current clinic practices that have a direct effect on their capacity to work to full scope of practice. This participant is speaking to the organization of care within the clinic whereby medical residents’ experiences are a priority to ensure they are obtaining a learning experience, often compromising the nurse’s ability to use their knowledge and expertise to fully perform their role. This organizational structure often resulted in nurses not taking the initiative to participate more fully in direct patient care in the clinic. In addition, nurses spoke about the need to be more involved in supporting all the patients that visit the FMC, not just the HF patients. They discussed approaching the office management team to have further conversations about their role and responsibilities working in the FMC and their current dissatisfaction with their current role.
Supporting Patient Agency: Person-Centered Care and Self-Care Management

In this study, nurses interviewed were generally positive about the health coaching tool and their role in self-care management. For example, nurses assumed an active role in cultivating person-centered care. The nurse-patient therapeutic relationship further developed resulting in feelings of professional fulfillment because the nurses could see how health coaching benefitted patients. This appeared to positively influence the patient/caregiver dyads self-care behaviour when managing HF. In the following interview excerpt, a nurse also shares her experience,

*I found the tool itself; the booklet very helpful, because seeing your values and your weights right in front of you, especially for my patient specifically, was very motivating for her...in terms of weight loss goals and making sure her health was in check...It was very rewarding especially seeing how much the patient enjoyed the outcome and how invested she was. And liking the positive progress that she is making, and feeling she was in control again in her health. That was very rewarding to see.* (N1 L28, L213)

Here the nurse shares a response to the patient’s engagement with self-care management activities and in particular, the motivation and sense of control seen in the patient to further their investment in their health. Another nurse similarly shared a similar experience in the following,

... *a lot of the times, (the patient) would decide whether or not she was taking the Lasix, not just by her weight and blood pressure, but also how she was feeling and she would document it .....in her journal.* (N4 L67)

The nurses in the study found that their patients were eager to employ the tool as part of their self-care management experience – a person-centered approach was employed –
tailoring care to fit with patient experience and need was an important aspect of this approach. Patients also found the tool supported their agency to achieve their goals. As one nurse noted, “My patients said that they felt the booklet (tool) was great and that they were able to follow along and monitor and [that it] held them more accountable” (N3 L167).

The patient and care giver self-management scores were in keeping with what the nurses said about the health coaching tool and self-management. Patients in this study were able to make informed decisions when self-managing their HF based on previous experiences through situation awareness stemming from initiating recognition and perception of their symptoms and its degree of severity. As a result, they had a sense of regaining control in making choices and decisions about their health that included feeling in-control and taking control through an increased body awareness. These actions are consistent with both the patients and caregivers/support person scoring adequately on the quantitative self-report self-care measures (SCHFI or CC-SCHFI). In addition, all nurse participants voiced the benefits to nurses by adopting a more active nursing role in supporting patients living with HF. The nurses spoke about the ease in incorporating health coaching approaches in their daily practices and using a tone that reflected confidence, increased motivation and a renewed passion for the nursing profession. In the following interview excerpt, a nurse shares her experience,

...the tool is very user friendly and very relevant to people....So, I can definitely see incorporating this as well as in some of my other jobs or roles that I have outside the clinic here. So, I just think that it is something that I can incorporate easily into my nursing practice. (N5 L115, L117)

Nurses in this study found they were able to support patient agency to achieve their goals
through the use of the health coaching tool; support was person-centered and accordingly
care planning was tailored to fit the needs of the patient.

**Relational Inquiry: Authentic/meaningful Engagement**

Nurses in this study spoke to the importance of a health promoting stance that
involved moving beyond the tasks at hand to be more relationally engaged and focused
on the contextual features of their patient’s lives. One nurse articulated this sentiment in
the following:

*I think I am more involved now (than before the study). I wouldn’t necessary have
asked them [the patients] about their extracurricular activities or what they enjoy
to do to keep physically active and stuff. I come in and usually asked them ‘what
brings you in?’ If I am helping out my doctor, I do a quick head to toe and
whatever needs to be done and then I walk out. But I don’t really sit down and ask
them what their hobbies are or what they like to do to help them decrease their
weight.* (N3 L182)

Here the nurse participant speaks to the limitations of ‘usual practice’ and the under-
utilization of nurses’ knowledge and expertise in primary care settings given the current
organization of care and routine.

Another nurse shares an extra-clinic experience in the following,

*So, I also work as a parish nurse (in addition to the clinic) …I am visiting a lot of
the seniors that belong to the church and there are a whole bunch of them that
belong to congestive heart failure clinics. …I would talk to some of them and
asked if they were monitoring their weight, and how they were feeling. So, even
coaching them to do their weights, anticipating that they will get that phone call
from the clinic and for some it was a monthly phone call. So, encouraging them*
that if they had a sudden weight gain and they needed to call someone, I would encourage them to call this clinic. (N4 L121)

This nurse participant also was engaged in parish nursing where she often meets people also living with HF; her experience with the health coaching tool in this study resulted in expanding her reach to those outside her clinic work – relational engagement in this context meant she was health promoting and supportive across several dimensions of being – physical, emotional, mental, and spiritual.

Doane and Varcoe (2015; 2018) describe relational inquiry in nursing as a kind of lens you can use to perceive the world. Relational inquiry brings into focus the internal dialogue of the patient, their social system, and the broader context that influences their actions and the actions of the nurse. This approach to communication is important because it can help the nurse understand the patient’s situation more fully, focus on what is important to them and collaboratively work with the patient to integrate this knowledge into care.

Nurse participants in this study shared that often their existing role and responsibilities in the clinic involve less focused patient interactions. They identified that the nurse-led health coaching intervention fostered a deeper therapeutic relationship whereby the incorporation of the self-care management tool cultivated an increased patient understanding and awareness for the importance of daily HF monitoring and management and personal agency. Nurse: patient relational engagement meant a more active role in supporting the patient to manage their chronic illness with notable improvements in patient outcomes relating to self-care behaviours and QoL.

Patient Interviews
The second participant group in the study was the patient participants. All five patients were interviewed via in-depth individual interviews. Three themes were identified including (i) *Relational Engagement: Supporting Health Promoting Practice*; (ii) *The Traffic Lights Tool: Weight and Self-care Management*; and (iii) *Social Support: The Role of the Caregiver – Someone who 'gets it'.*

**Relational Engagement: Supporting Health Promoting Practice**

In this study, patient participants placed high value on nurse-led health coaching to promote health promotion while incorporating disease-modifying strategies or prevention approaches. As one patient noted,

*It (nurse-led health coaching) actually reinforced what I was already doing. After 5 years you kind of get ‘I can’t do this today’ and ‘do I have to do this again today?’ So, I think it (the nurse) helped me reinforce that what I was doing was good and helping me stay focus[ed] and ‘don’t ditch this now because you will really pay the price if you do.* (P03 L126)

Here the patient refers to the reassurance and encouragement acquired through the support provided by the nurse-patient relationship. Similarly, a couple of other patients explained their involvement with their nurse. For example, patients described a sense of relief when they called the clinic knowing who to ask to speak with; “their nurse,” and that they would be able to assist them readily since their nurse already knew their medical condition and health status. However, since the study, patients explained that their nurse relationship was different, describing the nurse as more involved with their health and well-being. This was reflected in the following,

...*I have known her (the nurse) for over 20 years. But this is a different thing.*

*Like you know, before I would come in and she would go take my blood pressure,*
and the doctor would come in and see me and that’s it. Now, it’s a bit more involved. But, if I have a problem I would say to her (the nurse) that this is what is happening. Now, it is a different relationship, I think it’s even closer... (P05 L69)

and

I think I knew she was there if I needed to make any changes and I would go through the interview; the phone ones, to see what was going on and she would reassure me that was the right thing to do. And that’s why I knew the day to put it up to 60mg (Lasix) after I had Chinese (food) then it was back down to where it (weight) was. I think being able to sort of to know how my weight was going, how it was going with my medication I was changing. I found it uhm very helpful and I felt comfortable at any time to be able to call her. I know if I left a message she will call me back with the answers. And I think that is the biggest thing with heart failure when you first get it, I had someone who came every day for a month and they kind of just went over things and I asked questions. So, I almost felt like that again, not that I contacted her like that but knowing that there was someone there and not necessary to make a doctor’s appointment. (P02, L11)

Here the participants describe a different depth of experience with their nurse and the use of the health coaching tool to assist with self-adjusting diuretic therapy based on weight changes and perception of the signs and symptoms of HF. Moreover, the nurse: patient connection had a broader impact on health promotion such as the importance of a low sodium diet; an essential part of HF management and reviewing the patient’s decision-making skills surrounding self-care management strategies. The nurse: patient relationship was not limited to tasks, rather health promoting activities were supported
through relational engagement engendered by the use of a health coaching approach. In addition to the importance of the nurse being accessible, continuity of care assisted in building trust that generated confidence in patient. Another participant shares a health promoting experience in the following, 

_She made sure that we weren’t having any problems. She went over my health routine, like my daily routine….She was asking me questions what I watch for, like my fluid buildup. She was quite concerned about that and she would explain what could happen._ (P04 L3, L13)  

In this interview excerpt the participant notes the importance of health promotion for their well-being and the knowledge provided about the HF disease process and common HF symptoms when not adhering to both pharmacological and non-pharmacological therapies. The depth of engagement supported the self-care management experience. The relational orientation attached to the use of the nurse-led health coaching tool was intentionally focused on health promoting practice. According to Doane and Varcoe (2021) “This close attention serves to increase our ability to respect, honor, and promote people’s health and healing and effect positive changes. Importantly, this also allows us to more consciously relate to other’s experiences and suffering” (p. 90). Another patient shared her experience of the relational aspect of care in the following, 

_(The nurse) was good to talk to me; eye to eye, very slowly, being willing to repeat them for me and readjust so I can understand a bit better” ...She (nurse) would say How are you doing? Are you weighing? Is it ok? How are you sleeping at night – are you doing ok? Are you taking your medications all the time? and I would say, yes, I am. That sort of thing. I only need something simple. I am only_
talking about myself because I don’t know other people. Myself, I need something simple, and that is what she did. (P01 L23, L70)

In this study, the patients spoke about the nurses being more involved in their health needs through the nurse-led health coaching intervention with a focused and more tailored approach; this fostered a close nurse: patient relationship. Through the nurse: patient interaction, the patient gained knowledge regarding their chronic health condition and how to daily self-manage their health which resulted in increased confidence. This type of relational engagement supported patient participants to assume an active role in self-care by understanding the “why” of their disease trajectory and a supported a readiness to act on the “how to” related to self-care HF management through increased certainty and reassurance by the nurse (See Appendix J – SCHFI results– Patient 01).

The Traffic Lights Tool: Weight and Self-care Management

All of the patients in this study noted improvement in their ability to self-manage with the use of the health coaching tool. The patients demonstrated being more active in taking on the ‘work’ of maintaining, monitoring, and managing, such as ADD, while seeking support when needed.

A patient provides an example of this in the following,

*I found the guidelines on the chart that I have on my fridge called ‘Watch the traffic light’ explained everything in good detail. The one that particularly interested me was the yellow light that said if you gain 3lbs in one day or 5lbs in more than one week you can adjust your Lasix dose. So, you want to know what, I actually did it for two days where I took a second Lasix dose in the afternoon by the calendar chart where you take it morning or afternoon. There was a couple of days where I did fall in that category and I did adjust it and things (my weight)*
even out. I actually showed this to my Cardiologist. (P03 L12)

Here the participant points directly to the use of the tool and its impact on self-care management and the patient’s agency in utilizing the tool for weight gain management – an essential element in HF management. The participant’s confidence was boosted to the point of wanting to share how this had worked with the cardiologist. Other patients share similar experiences as follows,

I went away for a week’s holidays, and I took my scales with me… I just felt that it was important that I did do it (weigh daily)… Setting goals and sort of knowing that I have (increased) Lasix 20 to 40mg and the nurse reassuring me that it was the right decision for that situation… (P02 L 41 & L122)

and

I have been watching my diet a little bit more, I have been taking less salt in my diet, and trying to eat more healthy foods; like fruit and vegetables and stuff like that” (P04 L93)

and

But now that she (the nurse) has said to me to watch that (weight) ongoing, that would have made a big difference. No one told me to get a scale and weigh myself before now. (P01 L94)

Patients articulated that through the nurse-led health coaching intervention, self-care gaps were identified, and goals and strategies were developed and implemented to support a fuller engagement in self-management HF practices. Through the use of the health coaching intervention, patients felt they were able to engage meaningfully with the nurse to support their knowledge development and successfully manage their HF through gained confidence in decision-making skills. Patients revealed that through this nurse-led
practice they were able to develop strategies and then tailor these strategies to manage and monitor their HF in a focused and purposeful manner. Patients expressed an increased confidence to be active participants in managing their health. Through this naturalistic decision-making process, feelings of being in-control and taking control through symptom perception awareness led to active HF maintenance activities such as recording daily morning weights, assessing for signs or symptoms of congestion or fluid build-up, and self-adjusting their diuretic to obtain a target weight.

Social Support: The Role of the Caregiver – Someone who 'gets it’

The patients in this study whole heartedly appreciated their caregiver(s)/support person(s) as noted in the following,

*I have all the faith in her (wife- caregiver). She watches over me and making sure I take my pills, and she cooks for me. She is a retired nurse herself and she knows what to look out for if I did have problems. She has always been very supportive.*

(P04 L126)

and

*Having my daughter on a regular basis to pop in for the last 5 years, especially is helpful because again I don’t understand medicine.*

(P01 L123)

and

*My friend is the first one that would say to me, ‘remember, you were busy yesterday’. And she always provided me with, uhm, even if she doesn’t necessary know about congestive heart failure but knows when I said I have done these things (then she will say) you need to take it easy tomorrow and pace yourself. She provides me the encouragement and the support.*

(P02 L203)
You know what, my sister and I have a very special relationship. I can honestly say that neither one of us would be alive if it wasn’t for the other one. We both have long term health issues, and we have all the love and support we can give each other. We get it (understand) when the one is not feeling well. (P03 L172)

In this study, most of the caregiver participants did not live with the patient, yet they were able to have regular contact and provide encouragement, assistance, and/or guidance re: self-care management. Essential elements of support were being dependable, compassionate, trustworthy, and positive in addition to assisting with problem solving. All patient participants voiced that the support of others, whether direct or indirect involvement, influenced HF self-care management in a positive way.

**Caregiver Interviews**

Three caregiver participants were interviewed separately for approximately 25-minute interviews. The remaining two participants provided answers to the interview questions by submitting notes to the researcher. Three themes were identified including (i) Relational Engagement: Moral Encouragement, Emotional Support and Structure (through Nurse Consistency and Stability); (ii) Health Education and Self-Care management; and (iii) Caregivers as Active Partners in Self-Care Management.

**Relational Engagement: Moral Encouragement, Emotional Support & Structure (through Nurse Consistency and Stability)**

Consistent with nurse and patient experiences, caregivers reported relational engagement as central to the positive effects of nurse-led health coaching. For example, as one caregiver noted, “Nurse’s involvement in mom’s overall care has been useful, efficient, and most helpful and reassuring. She’s provided excellent moral encouragement...
(and) emotional support” (V01 L20). This caregiver participant underlines the important role that relational engagement plays in the health coaching domain and the positive impact it has on its patients and caregiver. Another caregiver adds to this perspective as follows,

I think the study really helped her [the patient]. She seemed a lot more confident with her doctor’s visits and consults with the extra support person [nurse] there...Talking with them (the nurse) before and after seemed to help her comfort level with the appointment. At the clinic, she doesn’t always see the same doctor. So, I think your team offered some consistency and stability to her visits. (CG02 L36)

Here the participant points to the importance of consistency and stability; working with the same nurse before and after appointments was helpful to creating comfort and building the patient’s confidence. In a similar vein, another caregiver reports the following,

We felt fortunate we could go to the clinic if we needed to, but still we didn’t have that connection with a doctor but now we have [the nurse], a face, and a person that we have met and that we have confidence in now. So, if we ever had a problem, I would definitely call her [the nurse] and ask her but before with the[medical] residents, we wouldn’t be as eager… (CGP04 L8)

The caregivers experienced the nurse’s involvement similarly; the nurse brought knowledge and a consistent, empathetic, and person-centered approach – resulting in a strong relational element for both the patient and the caregivers. The presence of the nurse increased confidence leading to improved self-care management skills and an increased likelihood of the patient accessing care when necessary, instead of waiting for a
Health Education and Self-Care Management

Caregivers consistently noted the impact of the educational component of nurse-led health coaching on self-care management. The following interview excerpts provide a few examples,

He really did not like taking the diuretic and sometimes I had a hard time convincing him to take it. So, but now he knows the importance of the diuretic and he takes it. [Before the study] if we are going to a place where it is going to be difficult to be able to hit the bathroom all the time, he will not take it, but he does take it now right away. Now, he knows the importance of it... he is more conscience of watching that [the symptoms] by himself and watching those signs of fluid buildup. ... Today [the nurse) explained to him about the fluid, it’s not just in his legs he is having but if he was in heart failure, a problem where that fluid could go all the way up in his chest, and it doesn’t take very long. And I said, that is why it is so important to take that diuretic and we don’t get that fluid around your heart. Your heart can’t work that hard. So, I think he understands better the importance of it. And when [the nurse] said today, about when that swelling goes above your feet, and your legs, and you are gaining weight, (then) that is when you need to be concerned and definitely to call in to explain what is happening so we can get the proper advice. And if we had to change the dosage [the diuretic) or whatever, we can do that. Hopefully, we don’t ever get into that situation.

(CG04 L30 & L100)

Fluid management is a key element of HF self-care management; a factor this caregiver and the patient have been made acutely aware of through health teaching. A relationship
with the nurse was identified as a key element in supporting self-care management (see Appendix K: CG-SCHFI 04 - Increased self-care management displayed by data line graph).

In a similar vein, another caregiver participant speaks to the impact of health education in the following,

*(She) does seem more confident in understanding her medical situation at this point in time. She talks about making healthier choices with her snacks, especially on games night. COVID has been very hard on (her). She followed the rules and was very careful staying inside. But that meant she wasn’t eating right and wasn’t getting much exercise. She got very down on herself. That has been her biggest challenge the last couple of years. Before that (COVID), she was getting out walking with friends. I believe she felt good about herself and was making healthy choices. I think being a part of this study helped her to refocus after COVID and understand the things with her health that she has let slipped and that needed to be a priority.* (CG02 L41)

Here the participant acknowledges the impact of COVID on the experience of living with HF. The caregiver points to the importance of connecting with the nurse and the educational component of health coaching to reinforce prior learning.

The caregivers in this study witnessed how the nurse-led health coaching intervention reinforced the importance of self-care management for the patient. It was evident to the caregivers that the nurse had a significant role in assisting with strategies to refocus on recognizing HF symptoms, understand the perception of their symptoms and to encourage or provide reassurance to be active participants in their health such as adjusting diuretic dosing based on weight change.
Caregivers as Active Partners in Self-Care Management

The caregivers in this study expressed a desire to be involved in supporting patient self-care management. In the following interview excerpt a caregiver shares an example of their involvement,

*But when she left the hospital, she was 180 pounds. I call it her sliding scale Lasix. Her Lasix is gear for 180 (pounds). I wish someone would revamp it because she told me she is 168lbs the other day. So, if they took it down to 170 and say forgot about your 180; you are not that anymore. Now at 170, if you are 3 pounds less, you need to be concerned. If you are one pound or 2 pounds up you take one Lasix, if you are 3 pounds up, you need to take 2 lasix.*” (CG05 L17)

For this participant, the sharing of knowledge and then actively engaging in assisting was supportive of self-care management. Another caregiver shares their experience as follows,

*I become more involved with things she was saying, she was doing, and why she was doing it. It just sort of feels a little more supportive, if that makes sense.”* (CG04 L10)...I never really looked at the chart. Maybe the support person should be given some information as well (CG04 L15)... I have been with her all along the way from the beginning of all of this. So, I am keeping up with that and she has her appointments, and she tells me and how the results were, but I have no guidelines, I am just here (for her). (CG04 L26)

For this participant, more active engagement with caregivers/support persons would be supportive of patient self-care management – health coaching involving the dyad was seen to be a positive. Often caregivers/support persons are in the dark in relation to what is happening – they are reliant on what is shared by the patient. As another participant
notes in the following, being in the dark (unaware) can create unnecessary worry, “It just makes me feel better that I know he is doing all he can and he is taking his pills as he should, whatever, which makes it better for me and I don’t have to worry so much” (CG04 L52). And as another participant shares, “(Having) the pamphlet outlining comprehensive and specific heart symptoms and treatment options for each one would be extremely valuable for me and mom” (CG01 L18) – a simple sharing of information was also felt to be helpful.

The caregivers in this study spoke about the importance of being an active participant in care provision for people living with HF. Increased involvement and knowledge related to HF management provided the caregiver with the ability to support health promoting activity. In addition, some caregivers suggested that having the self-care tools would have been beneficial to enhance the support and involvement because they do not live with the patient. They suggested that if they were provided with the same information, they would have been better informed about HF management and treatment enabling them to guide their loved one more effectively and consistently.

**Summary of the Mixed Methods Data Findings**

The purposes of this two phase mixed methods study were to: a) develop and refine a nurse-led health coaching self-care management intervention for people living with HF (Phase 1), and b) examine the feasibility, acceptability, and initial impact of a nurse-led health coaching intervention, involving a self-care activity of the Adjusted Diuretic Dosing (ADD) tool with stable HF patients and their significant others with a PHC approach and within a PHC setting (Phase 2). The results from this research support the idea that this nurse-led health coaching self-care management intervention has the potential to improve the quality and consistency of HF patient care with improved
outcomes for persons living with HF while advancing the knowledge based on nurse health coaching self-care management interventions in the context of chronic illness.

In this study, a methodological triangulation approach was used by collecting both quantitative and qualitative data (mixed methods) to strengthen the findings and gain a more comprehensive understanding of the potential impact of a nurse-led health coaching tool in to support HF self-care management. The results from the quantitative portion of the study are limited due to the small sample size; however, we were able to see a positive trend in relation to increase self-care management behaviours, specifically, maintenance, self-care management, and self-care confidence while improving QOL, which fit with the experiences of patients and caregivers in our qualitative findings.

These observations were supported by the qualitative interview data in a few ways: (1) the patients engaged in self-care behaviours and actions; (2) the caregivers reported they were all further engaged with the patients’ self-care behaviours and actions by being more fully informed and knowledgeable on the HF syndrome and trajectory, treatment, and management; and (3) both patients and caregivers voiced that they gained confidence to engage in self-care assistance or advice while providing encouragement to the patient participants. Upon assessing study feasibility, each patient and caregiver completed an end of study feasibility questionnaire. All participants scored 4-5/5 indicating high satisfaction for the number of required visits, the type of visits (telephone or in person), and the duration of the study was appropriate to meet their health and wellness needs.
Chapter Five: Discussion, Implications and Conclusions

The findings of this study suggest that nurse health coaching is a promising intervention that could positively affect HF self-care management behaviours and aspects of QoL for both patients and caregivers. In spite of the small sample, for patients there were significant pre-post changes in a number of the self-care behaviour outcomes such as self-care management and self-care monitoring. Further, for caregivers, there were significant pre-post changes in self-care maintenance and self-care confidence. Noteworthy, the patients and caregivers improved in different aspects of self-care behavior, and that this pattern of change might support the importance of each contributing to supporting the patient’s management of their health. Furthermore, my qualitative findings underscored relational engagement as a key element of nurse-led health coaching that made a difference to the patients and their caregivers.

Drawing on the *Situation-Specific Theory of Heart Failure Self-Care*, HF management underpinned the development of a health coaching tool that was then reviewed by nurses working in PHC (Phase 1), revised, and then employed by nurses to assist patients to engage in HF symptoms management with self-care activities within a PHC setting (Phase 2). Riegel et al. (2016) define self-care as “a naturalistic decision-making process that influences actions that maintain physiologic stability, facilitates the perception of symptoms, and directs the management of those symptoms” (p.226), i.e., how people make real-life decisions that are meaningful and familiar to them. The nurses used a health coaching tool (guidebook) to assist their patients with HF to identify barriers to self-care and develop goals to successfully engage in HF self-care strategies. It was through using the health coaching intervention that nurses explored the patient’s
knowledge, skills, experience, and values and beliefs and decisions that were made accordingly (i.e., they were situation-specific and personalized). For example, one of the central activities of health coaching in this study was attention to weight and fluid retention and the challenges and facilitators of weight/fluid management; patients were taught to self-adjust their diuretic based on signs and symptoms of cardiac congestion and weight changes. The health coaching tool was designed specially to shift attention beyond usual care to the social determinants of health; commonly referred as health inequities, to identify any factors that may interfere with being successful with self-care management. However, the current organization of care delivery within this environment (i.e., medical resident learning as a priority), did not promote or enable nurses to fully enact their role. Rather than simply task-based nursing responsibilities, successfully delivering care to full scope requires the restructuring of the nurses’ role in this context. For example, in this study nurses were able to relationally engage with their patients by employing the health-coaching tool; using a caring and compassionate approach, they came to better know their patient and their situation and how they were managing their physical and mental health. Nurses’ advocacy for the patient and their family to achieve and maintain wellness is supported by addressing health inequalities (Harkness et al. 2015; Jaarsma et al., 2021; Riegel et al., 2022). Creating harmonious health care teams by re-organizing the structure of care may foster nurses’ engagement in health promotion and disease prevention interventions that promote nurses to work to their full scope of practice and has promise to influence change in the current organization of care to ensure person/family-centred care.

To further understand the feasibility, acceptability, and some degree of effectiveness of the implementation of the health coaching intervention, the REAIM
framework by Racey et al., (2022) may have provided some insight. The RE-AIM (Reach, Effectiveness, Adoption, Implementation, and Maintenance) represents a reporting structure consisting of 62 criteria for examining five elements to optimize implementation of an intervention. This framework was designed to improve the transparency in reporting of the essential components of intervention, while supporting the adoption and implementation of evidence-based interventions and generally used as a planning tool for expanding and sustainability. While I did not utilize this framework, I incorporated many elements within this reporting structure. For example, Reach was reported through described target population, demographic information, recruitment strategies, inclusion/exclusion criteria, and sample size; Effectiveness was through QoL metrics, attrition rate at program completion, and report meditators or moderators, unintended consequences or results; Adoption (setting) was captured through eligible and invited settings (FMC), number of participating settings, description of targeted location, and method to identify the setting (i.e., PHC setting), average Adoption (provider) was identifying the number of nurse participants, level of expertise, method to identify target provides, inclusion/exclusion criteria for providers, qualitative methods to measure adoption through nurse focus group interviews and patient/CG interviews; Implementation was identified through theory based, engagement to inform intervention (Phase 1), number, tailoring, timing and duration of intervention (Phase2) consistency of implementation across the different sites (standard approach of the self-care booklet), and qualitative methods to measure implementation via nurse, patient and caregiver interviews, and Maintenance was informed through attrition/loss to follow-up of individuals.

Relational Inquiry and Engagement
The findings of this study suggest that relational engagement employed through the use of nurse-led health-coaching had a positive impact on patient self-care management behaviours such as increased self-confidence, self-care monitoring, and competence and ongoing self-care management. According to Doane & Varcoe (2015, 2021), relational inquiry is “a very purposeful and explicit relational orientation that focuses nurses’ attention and action on the interplay occurring at and between the intrapersonal, interpersonal, and contextual levels of health care situations (Doane & Varcoe, 2021, p. 31); although all nursing is relating practice, a relational inquiry approach is more than simply a ‘relating practice.’ As the qualitative findings reflect, relational engagement was essential to the creation of meaningful conversations and connections with the patient and their caregivers and the context of their lives, that aided in relational orientation that included a person-centered, tailored HF self-care management approach. According to Doane and Varcoe (2021), relational inquiry is a pragmatic approach and “the way to foster knowledgeable and competent nursing practice is to develop a more conscious, intentional, and responsive way of orienting, questioning, and acting” (p. vii). Our study demonstrated how these relational practice elements shaped nursing practice in an intentional manner. Similar to a scientific inquiry, inquiry-based nursing practice involves being in that in-between relational space of knowing or not knowing, being curious to seek what seems significant and examining the interrelatedness between elements and significant interrelationships (Doane and Varcoe, 2014).

The findings of this study are consistent with existing literature that supports little impact on cardiovascular disease management if underlying health inequalities are not addressed (Jaarsma et al., 2021; Riegel et al., 2022). Furthermore, beyond improved
access to care is the importance of effective primary prevention strategies at earlier stages of the disease continuum and incorporating these into current best practice of cardiovascular disease management (Beauchamp et al., 2010; CNA, 2015). Research has shown that preventive strategies with a focus of contextual barriers are necessary to achieve positive health outcomes such as reduced HF readmissions and relieving congestive symptoms through increased knowledge of HF signs and symptoms and understanding when to respond for medical advice or assistance (Buck et al., 2015; Buck et al., 2012; Ezekowitz et al., 2017; Harkness et al., 2015; Jaarsma et al., 2021; Poon et al., 2022; Riegel & Dickson, 2008). Findings of this study reinforce the potential of nurse-led health coaching to achieve these positive health outcomes.

Therefore, it is equally important not to only consider primary prevention strategies but secondary preventative strategies when considering previous experiences of the patient living with a chronic disease like HF. This foundational practice to inform the decision-making processes influences the ability to practice HF self-care management strategies of symptom management (Riegel & Dickson, 2008; Riegel et al., 2013). A naturalistic decision-making process for HF self-care engages nurses to develop goals with the patient by delivering person-centred care and asking difficult social questions to understand facilitators and challenges of self-care and negotiate a self-care plan that fits the patient’s needs.

**Medicalization of HF Care and the Organization of Care**

In this study, it was evident that the full contribution of nursing care had been eroded through the medicalization of HF care. Nurses in this environment had become task-focused rather than health promotion and prevention-focused. For example, medical resident education was given primacy and care was organized around that focus. The
nurses’ perception of their ability to work to full scope of practice based on their
credentials, education and competencies was evident when providing the nurse-led health
coaching intervention. Consistent with previous studies conducted in Canada (Oelke et
al., 2008; White et al., 2008), common barriers that nurses reported as affecting their
ability to practice to full scope included heavy workload, busy clinic environment, time
constraints, staff shortages, and organizational structures. International research studies
have revealed similar challenges related to incorporating health coaching with shared
decision-making into daily nursing care, as well as a lack of self-efficacy among nurses
related to implementing coaching into practice (Brand et al., 2007; Lenzen et al., 2018;
Sargious, 2007).

It is important to understand how nurses describe what it means to work to full
scope of practice and what they recommend as strategies that enable them to better utilize
their skills. In research conducted by Lundgren and Segesten (2002) and White (2008),
nurse participants shared that they felt limited in their contribution to patient care
decisions and had lack of understanding relating to their role with other health care
providers resulting in lack of collaboration, and inability to work effectively within a
team. It is critical to understand the context of nursing care and consider the work
environment including the available organizational support and explore workload,
including patient complexity, and their ability to meet the needs of the patients. All
factors that can foster a healthy workplace environment if adequately supported. In my
study, as nurses rekindled their knowledge regarding ‘how to nurse,’ increased
confidence was apparent as they reestablished their role within the health care team.
These findings were relevant through the relational orientation between the nurse, the
patient/caregiver dyad, and the medical team resulting in fostering an authentic
therapeutic relationship through the strength of this nursing philosophy and approach.

A Person-Centered, Tailored Approach

An exploration of nurses’ experiences employing the health coaching tool intervention, and the experiences of patient/caregiver dyads suggest that this approach was effective for patient’s living with HF. A central feature of the nurse-led health coaching intervention included a self-care management guide tool that provided a consistent approach to identify barriers specific to social determinants of health that allowed the nurse to be flexible when implementing this intervention. As a result, the nurse had the opportunity to tailor the care plan according to the unique needs and goals of the patient and develop strategies with the patient to meet their specific needs and those of the caregiver based on the information they provided and their goals while further developing a relationship with the patient/caregiver dyad. For example, health inequalities such as not having a weigh scale due to financial constraints or psychosocial challenges such as anxiety or depression due to social isolation were identified. The nurse connected with community resources through established partnerships to support this health challenge of obtaining a scale. It is through the nurses’ knowledge, experience, and building trusting patient relationships that the nurse could effectively support them to self-manage their health and well-being while living with HF.

Lastly, we cannot underestimate the added value of having the same “primary nurse” that fosters the further development of the therapeutic nurse-patient relationship. Both the nurse and patient participants stated that their clinic visits were focused and efficient because both parties were aware of the current situation and what goals were being achieved from the last clinic visit; truly representing person-centred care. Furthermore, due to the low dyad recruitment, a consideration to deliver this health
coaching intervention in different modalities or approaches may be more acceptable to the patients and caregiver dyads, resulting in an enhanced feasibility of this study. For example, offering this intervention remotely through a web base model such as a zoom or facetime platform, home visits, or all visits were offered telephone based.

**Caregiver Involvement**

It was apparent in my study that caregiver contribution had a positive impact on the patient’s ability to engage in self-care management practices. Consistent with the findings of this study, growing evidence supports the importance of family-based health coaching (Harkness et al., 2015; Vellone et al., 2017, 2018) and the contributions of caregivers’ contributions in supporting patient self-care management (Buck et al., 2012; Buck et al., 2018; Clark et al., 2014; CNA, 2013/2015; Harkness et al., 2015; Lee et al., 2014; Vellone et al., 2013a 2015, 2017, 2018, 2020).

A recent cross-sectional study of 505 HF caregivers was conducted whereby CC-SCHFI surveys were employed to determine if assisting with HF self-care increases caregiver burden (Durante et al., 2019). This study revealed that there is evidence that caregiver contribution to self-care does not predict caregiver burden but does lead to improved patient outcomes. Caregiver contribution to self-care maintenance was associated with reduced clinical events such as mortality, hospitalization, and access to the emergency department (Durante, et al., 2019). The authors recommended that healthcare providers ask caregivers to take an active role in contributing to patient self-care.

My research study aligns with the existing literature (Buck et al., 2012; Buck et al., 2018; Clark et al., 2014; CNA, 2013/2015; Harkness et al., 2015; Lee et al., 2014;
Vellone et al., 2013a 2015, 2017, 2018, 2020) that has shown benefits to including caregivers or their support person in education and health-coaching intervention. For example, in my study the patient/caregiver dyads felt the patient could be better supported if both the patient and caregiver were informed about the importance of daily engagement of self-care behaviours and provided information regarding when to contact a member of the health care team if the patient’s health become unstable; self-care confidence to manage a living with HF was enhanced. Specifically, my study revealed statistically significant pre-post change in caregiver contribution to both SC maintenance and confidence, as well as happiness while not demonstrating an increased burden. However, it is important to point out that the characteristics of the patients and caregivers might have affected the results; the patients in this study lived with relatively stable HF, the average age of the patients was 73 and they were independent and most of the caregivers did not live with the patient but had daily contact with them.

These study results add to the recent literature (Jaarsma et al., 2021; Riegel et al., 2022) supporting that a nurse-led health coaching intervention for HF self-care management has the potential to be a viable intervention for patients living with HF and their caregivers. In this study, I employed a standardized approach to chronic disease management tailored to the needs of patients and caregivers to achieve the desired benefits. Furthermore, my findings suggest that current chronic disease management frameworks may not be adequate and new elements need to be added. For example, the complexities of chronic disease management (CDM) cannot be underestimated, and many barriers exist to fully operationalizing a CDM framework and chronic care models. In particular, the primary care environment continues to have significant challenges when it comes to the feasibility of nurses offering coaching interventions, particularly in
medically driven health care settings where the autonomy of nurses may be seized. Time constraints and role clarity are also factors that shape CDM; many nurses are performing primarily task-related duties instead of spending the necessary time to engage with health promoting and prevention activities in their care and authentic relational practice necessary to promote trust and empowerment, so patients and caregivers are equal partners in the health care decisions involving their health. Nurse-led health coaching self-care management interventions hold promise in this domain of practice demonstrating the importance to explicitly take an equity orientation that considers the situation of the patient and caregiver in the holistic way, representing a novel aspect of my study’s intervention.

**Limitations and Strengths of Study**

Although the quantitative results related to pre-post intervention changes in outcomes are limited by the small sample size, they harmonize with the qualitative finding of this study related to the benefits of health coaching identified by patients and caregivers. Given this was a feasibility study of a new complex intervention, we employed a ‘proof of concept’ approach. However, when assessing feasibility, which was a goal of the study, a high percentage of potential participants screened failed for a variety of reasons, including difficulty coming to the clinic. Perhaps the inclusion criteria of patients were too rigid, such as needing to be on-site, limiting the number of dyads recruited. As noted above, if I were to replicate this study, I would consider alternate modalities for intervention delivery including the possibility of virtual visits.

This study was conducted during the COVID-19 pandemic (Phase 1: 2021, and Phase 2: 2022) when there was a nurse shortage due to fatigue and burnout creating challenges in recruiting patients and caregivers. This was most often due to the time
commitment; nurses noted they felt overwhelmed by the extra research activity responsibilities and duties within their current work routine schedule. Nonetheless, the nurses who did participate were engaged in the study and seeking a change to get back to some normal (pre-COVID) clinic activities. Patients and caregivers who participated in the study reported they were eager to get back into the clinic to be seen, assessed, and heard in person. Human interaction and personalized care were what these groups voiced they have missed during the COVID-19 pandemic. Of note, recruitment of both nurses and patients were also affected by COVID-19 precautions and restrictions. For example, nurses expressed work fatigue and did not want to add any further responsibilities to their current daily work. Some did patients voice concerns about coming to the office in person and being exposed to more people and COVID-19.

I acknowledge that the results from the quantitative analysis are limited due to the small sample size, and the non-normal distributions of many variables. These deviations are normally expected in a small sample but still need to be considered. These results also cannot be generalized to the general population. However, these positive trends from many outcomes combined with rich description of the benefits of nurse coaching for nurses, patients, and caregivers suggests that larger studies testing the benefits of the nurse-led health coaching self-care management intervention are warranted.

**Clinical Significance and Implications**

**Implications for Health Care**

Health coaching self-care management interventions to promote HF self-care need to address the contextual features of a patient’s life that shape their goals and their ability to meet them; a primary health care approach means nurses need to be prepared to address the social determinants of health. While contextual factors of health equity are
recognized in health policy as being an important aspect of intervention research to measure and understand, many practitioners fail to tailor care self-care management planning by considering the unique features of patients’ lives (e.g., the social conditions that influence their health and well-being and the patient goals).

In this study, another factor that positively influenced HF self-care management behaviours and attitudes included a strong patient-nurse relationship throughout the health coaching intervention. Patients and caregivers acknowledged the importance and impact of the relational orientation of the nurses. The nurse-client relationship is an essential part of patient-centered care which is foundational to delivering holistic family-centered care, particularly in a busy family medical clinic. Therefore, support from the management team or the organization will be necessary to ensure that nurses have enough allotted time during scheduled clinic appointments to support the patients.

**Implications for Clinical Nursing Practice**

The findings of this research have potential to enhance nursing practice for persons living with HF through the standardization of nurse-led health coaching interventions and self-care tools to support self-care. Opportunities for nurses to take a leadership role within multidisciplinary teams in chronic disease management is a strategy that has potential to improve patient health outcomes not only in the HF population but other chronic diseases while generating health cost savings that may reduce HF readmissions or emergency room visits (Ezekowitz et al., 2017, p. 1412). The results from this nurse-led health coaching self-care management intervention revealed positive outcomes to both the patient and their caregivers of increased self-care behaviours and quality of life (QoL). Through a person-centered, tailored approach and the development of a therapeutic relationship, a trusting environment was established.
whereby the challenges/barriers to self-care management could be addressed. Nurses demonstrated the ability to apply in-depth knowledge and support when caring for patients living with HF; an approach which could be applied more broadly to nursing practice with patients living with any chronic condition. A recent systemic review and narrative analysis by Barr & Tsai (2021), revealed that health coaching provides a platform for nurses to build on the strength of individuals which aligns with theories involving holistic care and Orem’s Model of Nursing that focuses on the principle of patients being as independent as possible with their own self-care needs. Despite health coaching being well suited for nurses based on their education and skill set, the authors raised concern that there is no commitment to regulate formal health coaching education. They recommended that coaching training should be based on research evidence, not just customer satisfaction for coaching as many unregulated education businesses tend to use. Yet, more research is required to determine if there is sufficient evidence to include nurse coaching as best practice (Barr & Tsai; 2021). It is my view that my research will add to the existing literature and support the benefits of nurse-led health coaching in the context of chronic disease that aligns with many aspects of nursing philosophy and lenses. Perhaps, one day it may be part of standard of care.

**Implications for Education**

This study highlighted the need for creative development of HF self-care programs, specifically nurse-led interventions to support patient’s decision-making skills when managing chronic illness. Much of the health coaching literature is consistent with the increasing adoption within nursing education of relational inquiry as an approach to nursing practice (Doane & Varcoe, 2021). A recommendation for nursing schools is to add principles of health coaching to the curriculum as another modality for supporting the
goals of patients and families. In addition, a focus on shared decision-making with patients and family needs to be incorporated into clinical learning experiences more fully. This could include having nursing students practice patient and family meeting simulations to gain confidence in advocating for their patients to be active partners in the treatment decision for health and wellness.

**Implications for Policy**

Health coaching takes time and draws on considerable expertise. Nurses need to ensure they are at the policy table to advocate to work to full scope of practice and get nurses back to “how to be a nurse”. Policy makers are urged to hold health care organizations accountable to ensure nurses and other healthcare disciplines can work to the scope of practice that reflects their education, training, and professional standards, particularly given the current healthcare workforce crisis, including the nursing shortage. Often the organization of care limits nursing roles, particularly in institutional settings where a focus on completing tasks rather than working to full scope, limits professional autonomy (Gottlieb, et al., 2021; Pursio et al., 2021). Determined to advocate, Murphy et al., (2021), recently published ‘Investing in Canada’s nursing workforce post-pandemic: A call to action’ that supports the relationship between the nurse working to full scope and nurses taking leadership roles. Murphy et al., state:

“Advancing Canada’s response to ensuring a strong nursing workforce, can greatly benefit from recognizing the importance of global and regional strategies for strengthening our nursing workforce, the role nursing leaders play in leading quality improvement, utilizing the evidence and lessons from research and innovation for removing barriers, and how the health system benefits from strong nurse leaders, particularly when dealing with surges in health care, such as during the COVID pandemic”.
Nursing professional organizations have an important role in advocating these types of changes. This includes infrastructure that allows sufficient time to deliver health-coaching interventions which is affective in chronic disease management and to ensure their role – whether RN, RPN, or NP – is fully utilized, particularly in the primary health care setting. Together, this may result in nurses having a strengthened involvement with direct patient care, particularly in primary care and chronic disease management. Therefore, it will be necessary to incorporate health coaching self-care management intervention for HF self-care management into national and international HF guidelines and support a focus on person/family- centered tailored care in this domain of practice.

**Implications for Research**

Although the findings of this study are promising, further research is needed to test the effectiveness of the nurse-led health coaching self-care management intervention for HF patients with larger, more diverse samples. Further research on the effectiveness of a nurse-led health coaching self-care management intervention re: heart failure self-care management is required. In addition, the transferability of nurse-led health coaching self-care management with different patient populations living with chronic illness (e.g., COPD, Diabetes, and Stroke) and in diverse settings (e.g., acute care, home, and community care) should be considered.

**Dissemination and Knowledge Transfer Plan**

The results of this research study have significant implications for nursing practice and improved self-care HF management. Knowledge dissemination will include sharing the results to the nursing participants within the Family Medical Clinics (FMCs) that participated in the study and see how they might like to disseminate this study results within their FMCs. Further dissemination of this research will include publications of the
results in peer-reviewed journals such as nurse leadership and cardiac care journals. In addition, submission of poster and oral presentations abstracts at provincial, national, and international conferences such as the Canadian, American, and European HF Society, as well as Nurse leadership conferences specifically Sigma Theta Tau. Publications and sharing the study results globally will increase both professional and public awareness of a nurse-led HF self-care management health coaching intervention that is viable and effective with promise to improve both the delivery of health care and clinical outcomes such as reduced hospitalizations and increased quality of life for patients living with HF. I anticipate that the findings of my study will influence future work with persons living with HF as well as with those persons living with other chronic conditions.

Conclusions

In this study, the nurse-led health coaching self-care management intervention and self-care activity tool (booklet) enhanced nursing practice, i.e., the nursing role became clearer, and nurses were enabled to practice to full scope within the clinic setting. In addition, nurses reflected on the limitations to their scope of practice within the clinic setting and how implementing a health coaching approach that incorporated the self-care activity tool helped them gain confidence in working to full scope of practice. It was through a consistent health coaching approach that was practical and incorporated a person-centred, tailored approach that focused on meeting the unique needs and goals of patients living with HF. Nurses’ extensive knowledge base and education combined with working to full scope of practice demonstrated health benefits in the HF population studied due to improved uptake of self-care management strategies, and most importantly, promoted trust in the nurse-patient and caregiver relationship. The findings
of this study suggest nurse-led health coaching self-care management intervention is promising with patients living with HF. Further studies are needed at a larger scale and a more diverse population to confirm validity and feasibility to the general population. Nurses need to continue to advocate to ensure they are working to full scope within their respective practice settings and continue to contribute to shift the organization of care to ensure this happens.
References


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https://doi.org/10.1067/mhl.2000.108323


Appendix A

Procedure for Literature Review/Scoping Review

To minimize not identifying important research articles by searching all key constructs at once, only two to three concepts were initially used for search then additional key words were added to the search during the time period 2002-2023. Afterwards, a hand search was conducted to determine if the articles were appropriate.

Within PubMed, CINAHL, and Nursing and Allied Health databases, HF and self-care concepts were applied, and 675 articles were yielded. All these articles were hand searched and duplicates and culturally specific region articles were removed or results not relevant such as articles focusing on leadership, case management, pain management, pharmaceutical HF management, acute care HF management, other medical diagnosis other than HF such as diabetes or COPD management, caregiver or pediatric population, or no mention of HF and self-care management which are the major concepts for the research study. As a result, 384 articles were removed yielding 291 articles remaining for this literature review. To further refine the literature results, inclusion and exclusion criteria were applied. The exclusion criteria included heart attack, heart failing, major focus on caregivers, pediatrics, in addition to editorials and dissertations papers. The inclusion criteria included the following key words ‘heart failure” which was expanded to “chronic heart failure,” “congestive heart failure”; self-care,” “self-management,” which expanded to “self-efficacy”; “weight,” “weight monitoring”; “self-medication,” “self-administration”; “nursing role,” “nurses role”; and “coaching” which expanded to “health coaching,” “teaching,” “mentoring,” and “support”; “problem solving,” “decision-making,” “judgement”; equity,” “health equity,” and “social determinants of health.”

As a result of applying limitations, inclusion, and exclusion criteria with a narrow focus to address the proposed research hypothesis for Nurse-led health coaching with an equity lens for self-care HF management strategies 20 articles were yielded. The final section of articles included nine systematic reviews, one randomized control trial, four quasi-experimental studies, three non-experimental study, two integrative review and one state-of-the-art journal.
Major Search:
K=675 articles

Inclusion & Exclusion:
K=291  K=384

Refinements: K= 97

Included: all main concepts
K= 20
Evidence

PubMed: HF(majr) + SC = 269 articles.
CINAHL: HF(majr) + SC = 336 articles.
Nursing & Allied Health: HF(majr) + SC = 70 articles.
TOTAL: 675 articles

PubMed: Removed 173 articles.
CINAHL: Removed 177 articles.
Nursing & Allied Health: Removed 34 articles.

Inclusion/Exclusion criteria:
Total: 291 articles

Refinements: 87
Total = 20 articles
with the main concepts of
HF + SC+Nurse+Equity
+/- Health coaching

Adapted: Johns Hopkins Nursing Evidence-based Practice (JHNEBP) Synthesis and Recommendations Tool (2013)
## Selected terms used for the literature search

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<td>Heart failure[majr] M OR heart failure[ti] M OR congestive heart failure[ti] M</td>
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<td>Self-management M OR self-care M OR self care M OR self efficacy M OR self medication M OR self administration M</td>
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<td>Nursing role M OR nursing OR Nurse OR nurses OR nurse's role M OR nurse role</td>
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<td>coached OR coaching OR support OR supporting OR supports OR mentor OR mentors OR teach OR teachers</td>
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Appendix B

Logic Mapping for Complex Intervention Development of a Nurse-Led Health Coaching Approach for HF Self-Care Management

Concept Development:

Needs assessment:
- Literature review identified gaps in the literature of health coaching intervention for self-care HF management in a PHC setting.
- Increase HF hospitalization despite medical therapy and medical advances in technology.
- Need to utilize nurses to their full scope of practice and provide patients with support, collaboration, and health coaching to meet the patients’ needs for improved engagement in HF self-care management.

Theory-based methods and Practical strategies or approaches:

Theory based/framework- Draw on existing theory
- Orem's Self-care theory
- Bandura's theory of self-efficacy
- Situation-Specific Theory of Heart Failure Self-care theory
- Situation-Specific Theory of Caregiver Contributions to Heart Failure Self-care
- Primary Health Care approach (Contextual factors such as health equity that shape these theories and continue to test the theory and refine the intervention throughout the development phase.
- Interpretive description methods employed to refine and further develop the health coaching intervention in HF self-care management.
- Qualitative research methods with quantitative measures will be used for primary data collection and understanding context.

Phase 1:

Program plan/design:

- After obtaining approval from ethics to conduct this study in the FMCs, the researcher reached out to the FMC’s office administrator to send out an email request on my behalf briefly describing the research study and to seek nurses’ interest to participate. If interested, my contact information was provided for them to inform me of their willingness to volunteer in this study. Three FMCs will be approached. The researcher sent an email to the nurses who agreed to be contacted and a "letter of information" was attached to this email to provide some background information about this research study. The nurses then sent me an email reply if they were interested in volunteering to participate.
- A focus nurse working group who have agreed to participate was arranged at the FMC at a time preferred by the group (e.g., before work) with access to attend via...
video conference if working at the other sites. I facilitated the working group which was audio-record and field notes were taken by the researcher.

- The focus working group occurred at the beginning of Phase 1 to seek feedback on the refinement and further development of the HF self-care management intervention and the implementation process. – e.g. What do you believe are the essential features of the intervention including the self-care management tool named “Cardiac Congestion Calendar”?; Are they captured in this tool and if not, where might I make changes?; What are the nurses’ experiences using coaching techniques with their patients?; Inquire if the nurses actually use health coaching techniques but were not aware they did it. Explore the nurses’ thoughts on using this health-coaching intervention with the self-care management tool? What are the challenges or current gaps providing care for HF patients within the community and FMC?; and Draw from their clinical expertise or experience, insight and feedback. This type of understanding is critical towards the refinement and further development of the intervention so the researcher can gain insight and how to ‘train’ the nurses to use the intervention in their practice.

- Also, an exploration of what would need to be in place for nurses to deliver the intervention of nurse-led health coaching was obtained for site readiness (e.g. will involve nurse participants to receive a training program, clinic feasibility for the nurse to have a lighter caseload if enrolling a patient in the study so the nurse can have adequate time to participate in the research activities designed for the study.

- The plan involved training only the nurses within the FMC and those nurses to deliver this intervention; including the self-care tool of ADD to the HF patients who meet the criteria and agree to participate. Data collection measures was in place to track the use of the intervention in the clinic and which patients participated.

**Phase 2**

Site Readiness:

- The training program module was based on the needs of the nurses that were collected from the interview. For example, the module may include a review on HF management, health coaching with a PHC approach, how to support patients with medical and social needs, and how to engage in self-care management for patients living with HF.

- To obtain comparative data, the data will be the before and after study group design by collecting the SCHFI, CC-SCHFI, MLHFQ, CarerQOL-7D and conducting separate interviews with the patients and caregivers. The outcome data will be pre-post intervention differences in self-care confidence and QoL.

- Developing study protocols and procedures for the clinic visits (which can be combined with some regular appointments) for a 3-month period. During the initial visit (screening and baseline visit), goal setting and action planning will occur, and surveys will be completed at the baseline visit and the end of study at the 3-month visit. Telephone visits with the nurse is scheduled at 2 weeks and 8 weeks.
Adoption and Implementation Phase:

- Obtained consent from patients and caregivers to participate in the study and offer the intervention (invited to complete any study assessments such as surveys, questionnaires, and individual/dyad interviews).
- Nurses employed tailoring health coaching strategies to support specific individual needs and preferences that are important to that patient needs at that time; a holistic approach with PHC focus so barriers and facilitators to self-manage are identified (= Change objectives). A tool of adjusted diuretic dosing (ADD) was incorporated to help patients with self-management of HF which was part of the larger nurse coaching intervention.
- Performance objectives = Engaging shared decision-making so patient's ability to self-management successfully was incorporated.
- Testing the intervention, estimating recruitment/retention, sample size.
- Qualitative and quantitative data methods allowed testing of the hypothesized pathways and to measure contextual factors of implementation.
  - Enhanced care plan so as to understand the nature of the interactions amongst the various inputs and outcome measures (increase self-care confidence and QoL) before finalizing the protocol for the main evaluation.
  - Providing greater confidence through this pilot study about the effectiveness by assessing the quality of what was delivered and assessing the generalizability of its effectiveness by understanding the role of context in the real world.
- Adopt and Implementation protocols and procedures (see Appendix I: Letter of Information and Consent - Table: Flow activity sheet).
- Develop linkage systems - consider community-based participatory research (Community Health Centres and Family Health Teams) - incorporate the health coaching approach for the self-care intervention into the HF guidelines.
Appendix C

Phase 2: Nurse-Led Health Coaching Self-care Management Intervention - Participants Recruitment and Study Activities

Nurse participants completed study intervention (5 nurses)

HF patient/CG dyads: Assess for eligibility (n= 5 dyads) *CG = caregiver

Pre-screening 44 potential patients Excluded (n= 32)
*Not meeting inclusion criteria
Declined to participate (n= 7)
• Relocate (1),
• COVID (1),
Enrolled: 5 dyads

Pre-intervention (n= 5)
• Baseline visit – patient’s demographics, medical history, NYHA class, current weight, recent blood work results, and goal setting/action plan will be recorded.

Enrollment

Pre-Post Intervention = Convenience Sampling

Allocation

Post-allocated to intervention (n= 5)
• Received allocated intervention (n= 5)
• Did not receive allocated intervention (give reasons) (n= 0)

Study activities

Lost to follow-up (n= 0)
Discontinued intervention (n= 0)

Analysis

Qualitative methods with quantitative measures: Analysed (n= 5)
*Excluded from analysis (give reasons) (n= 0)

End of Study

• Record the patient’s NYHA class, current weight and labs.
*Conduct a semi-structured interview with each patient and caregiver dyad separately.
• Conduct a semi-structured focus group interview with nurses.

Evaluate the initial impact of pre-post outcomes study of the differences in self-care confidence and quality of life. While examining feasibility, acceptability, and impact of nurses employing the intervention and patient/CG engaging in the intervention in a Primary Health care setting.
Appendix D

Research Protocol/Overview for COVID-19 Contingency Study (Activity) Plan

**PHASE 1: Intervention Refinement and Further Development**

- An Information Letter about the study will be sent by email to the nurse consultants at Thames Valley FHT that agreed to be contacted through email.

- The researcher will arrange a virtual Zoom or WebEx meeting for the nurse participants. During this meeting: (1) Feedback on the refinement and further development of the nurse-led health coaching HF self-care management intervention and tool will be explored. (2) An exploration of the nurse consultant's needs on various subject matter to support the delivery of the intervention (i.e., review on HF management, principles on health coaching with a PHC approach, how to support patients with medical and social needs, and how to engage in self-care management for patients living with HF may be presented. (3) An exploration of what will need to be in place for nurses to be trained and to deliver the intervention of nurse-led health coaching within their clinic setting (e.g. determine a time and location for nurse participants to receive a training program, and clinic feasibility for the nurse to have a lighter caseload to participate in the research activities designed for the study). The focus group format will be audio-record.

**PHASE 2: Feasibility - Initial Implementation and Impact**

- The researcher will arrange a virtual Zoom or WebEx meeting to the nurse participants to provide training on the study intervention.

- The nurse and researcher (via Zoom or WebEx) will pre-screen HF/Caregiver dyads from the FHT pods at SFJMC that meet study eligibility based on inclusion/exclusion criteria.

- During the initial (in person) visit (= baseline visit), the patient’s demographics, medical history, NYHA class, recent blood work (lab) results, and current weight will be recorded. The nurse will employ a tailor health coaching intervention using the HF self-care management tool called Cardiac Congestion Calendar at baseline, 1, 2-4-month visit & during the phone visit @ 2 weeks and 3months. Surveys (SCFHI, CC-SCHFI) and questionnaire (MLHFI) will be completed by the patient and caregiver dyad at baseline and two and four month visits. If the caregiver is not present in clinic due to COVID-19 restrictions, then the caregiver's survey will be given to the patient to take home to be completed or the researcher can conduct the caregiver's survey over the phone. Telephone visits with the nurse will be scheduled at 2 weeks and 3 months to check in and obtain weight records.

- If the patient/Caregiver dyads is having a virtual visit then all the data can be collected over the phone and a lab requisit can be sent to the lab as an outpatient if no recent blood work (greater than 2 months) has been collected. If the self-care activity is being used then it will be mailed out to the patient and participant and an explanation of how to used the tool will be done over the phone. The questionnaire and surveys can be mailed out to the dyads or the researcher can administer the survey by phone.

- The end of study visit will be at four months with the researcher. At this time, the researcher will conduct a Virtual visit (if in person research visits are restricted) which will involve a semi-structured interview with each patient and caregiver dyad to evaluate acceptability and feasibility of engaging in a nurse-led health coaching intervention for HF self-care management.

- Closing of the study, the researcher will facilitate a virtual zoom or Webex meeting to conduct a focus group interview with nurses who participated in the study to evaluate the acceptability and feasibility of employing the intervention and how they use of health coaching principles in a PHC setting.
Appendix E

Phase 1 – Nurse Interview Guides

1. What are the challenges or current gaps providing care for HF patients within the community and FHT?

2. What do you believe are the essential features of the intervention? Are they captured in this tool and if not, where might I make changes?

3. What are the nurses’ thoughts on using this health-coaching intervention?
   a. What are the nurses’ experiences using coaching or motivational interviewing techniques with their patients?
   b. Inquire if nurses did use health coaching but were not aware. Draw from their clinical expertise or experience, insight, and feedback for the intervention refinement and further development in self-care management strategies.

4. What are the opportunities to further develop the nurses’ role with the aim of improving HF care for the patient and their caregiver? (seeking capacity, confidence, and interests of nurses to do more)

Phase 2 – Nurse Participant Interview Guide

Introduction prior to the interview:

This interview will provide HF patients with an opportunity to explain to the medical community their experience of how and what self-care strategies work and what the challenges or barriers to performing self-care activities. The learnings from this interview are important to improve and standardize the quality and consistency of patient care and education to both health care providers and people affected with HF.

1. What are the essential features of the nurse-led health coaching intervention for HF self-care management?

2. What are those elements of the nurse-led health coaching intervention that facilitated or challenged the nurses’ experiences to implement the HF self-care management?

3. What are those elements of the nurse-led health coaching intervention that were helpful and/or hindered patient experiences of self-management?

4. What can I learn from (the patient being coached or delivering the health-coach intervention) for HF self-care management?

5. Is there anything else you would like for us to know about your life regarding living with heart failure? (During the interview, the use of probes by the researcher may be used to enhance or achieve an in-depth interview).
Phase 2 – Patient/Care Giver Participant Interview Guide

Introduction prior to the interview:

This interview will provide HF patients with an opportunity to explain to the medical community their experience of how and what self-care strategies work and what the challenges or barriers to performing self-care activities. The learnings from this interview are important to improve and standardize the quality and consistency of patient care and education to both health care providers and people affected with HF.

1. What are those elements of the nurse-led health coaching intervention that were helpful and/or hindered your experiences of self-management?

2. How different or similar was your nursing encounter during your clinic visit when using this health coaching intervention?

3. What is your biggest struggle that you have with daily heart failure self-management?

4. Did this nurse-led HF intervention assist you with managing your HF more effectively? If so, explain.

5. What can I learn from the nurse coaching HF self-care management?

6. Is there anything else you would like for us to know about your life regarding living with heart failure?

During the interview, the use of probes by the researcher may be used to enhance or achieve an in-depth interview.
Appendix F

Self-Care of Heart Failure Index v.7.2 Questionnaire

SELF-CARE OF HEART FAILURE INDEX (SCHFI)

All answers are confidential.

Think about how you have been feeling in the last month as you complete this survey.

SECTION A:

Listed below are behaviors that people with heart failure use to help themselves. How often or routinely do you do the following?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Try to avoid getting sick (e.g., wash your hands)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Get some exercise (e.g., take a brisk walk, use the stairs)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Eat a low salt diet?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. See your health care provider for routine health care?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Take prescribed medicines without missing a dose?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Order low salt items when eating out?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Make sure to get a flu shot annually?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Ask for low salt foods when visiting family and friends?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Use a system or method to help you remember to take your medicines?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10. Ask your healthcare provider about your medicines?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
### SECTION B:

Listed below are changes that people with heart failure commonly **monitor**. How often do you do the following?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Monitor your weight daily?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12. Pay attention to changes in how you feel?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13. Look for medication side-effects?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14. Notice whether you tire more than usual doing normal activities?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15. Ask your healthcare provider how you’re doing?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16. Monitor closely for symptoms?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. Check your ankles for swelling?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. Check for shortness of breath with activity such as bathing and dressing?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19. Keep a record of symptoms?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

*The last time you had symptoms…*

(circle one number)

<table>
<thead>
<tr>
<th></th>
<th>Have not had symptoms</th>
<th>I did not recognize the symptom</th>
<th>Not Quickly</th>
<th>Somewhat Quickly</th>
<th>Very Quickly</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. How quickly did you recognize that you had symptoms?</td>
<td>N/A</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21. How quickly did you know that the symptom was due to heart failure?</td>
<td>N/A</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
SECTION C:

Listed below are behaviors that people with heart failure use to control their symptoms. **When you have** symptoms, how likely are you to use one of these?

(circle **one** number for each treatment)

<table>
<thead>
<tr>
<th></th>
<th>Not Likely</th>
<th>Somewhat Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. Further limit the salt you eat that day?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>23. Reduce your fluid intake?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>24. Take a medicine?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25. Call your healthcare provider for guidance?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>26. Ask family member or friend for advice?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>27. Try to figure out why you have symptoms?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>28. Limit your activity until you feel better?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Think of a treatment you used the last time you had symptoms… (circle **one** number)

<table>
<thead>
<tr>
<th></th>
<th>I did not do anything</th>
<th>Not Sure</th>
<th>Somewhat Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>29. Did the treatment you used make you feel better?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
**SECTION D:**

In general, how **confident** are you that you can:

(Circle one number for each statement)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>31. Follow the treatment plan you have been given?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. Persist in following the treatment plan even when difficult?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. Monitor your condition routinely?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Persist in routinely monitoring your condition even when difficult?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Recognize changes in your health if they occur?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. Evaluate the importance of your symptoms?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. Do something to relieve your symptoms?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38. Persist in finding a remedy for your symptoms even when difficult?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. Evaluate how well a remedy works?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

THANK YOU FOR COMPLETING THIS SURVEY!
Appendix G

Caregiver Contribution to Self-Care of Heart Failure Index (CC-SCHFI)

All answers are confidential.

We kindly ask you to think about the care you have given to the person with Heart Failure in the past month. There are no right or wrong answers.

How often do you recommend to the person you care for the following things? (Or, how often do you do these activities because the person you care for is not able to do them).

SECTION A:

<table>
<thead>
<tr>
<th></th>
<th>Never or Rarely</th>
<th>Sometimes</th>
<th>Frequently</th>
<th>Always or daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To check the weight?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. To check the ankles for swelling?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. To try to avoid getting sick (e.g., flu shot, avoid ill people)?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. To do some physical activity?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. To keep doctor or nurse appointments?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. To eat a low salt diet?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. To exercise for 30 minutes?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. To not forget to take medicines?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. To ask for low salt items when eating out or visiting others?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. To use a system (pill box, reminders) to help you remember your medicines?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
SECTION B:

Many patients have symptoms due to their heart failure. Trouble breathing and ankle swelling are common symptoms of heart failure.

In the past month, did the person you care for have trouble breathing or ankle swelling? Circle one.
0) No
1) Yes

1. If the person you care for had trouble breathing or ankle swelling in the past month… (circle one number)

<table>
<thead>
<tr>
<th>Have not had these</th>
<th>I did not recognize it</th>
<th>Not Quickly</th>
<th>Somewhat Quickly</th>
<th>Quickly</th>
<th>Very Quickly</th>
</tr>
</thead>
<tbody>
<tr>
<td>How quickly did you recognize it as a symptom of heart failure?</td>
<td>N/A</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

If the person you care for has trouble breathing or ankle swelling, how likely are you to recommend (or do) one of these remedies?

(circle one number for each remedy)

<table>
<thead>
<tr>
<th></th>
<th>Not Likely</th>
<th>Somewhat Likely</th>
<th>Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. To reduce the salt in your diet</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. To reduce fluid intake</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. To take an extra water pill</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. To call the doctor or nurse for guidance</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

6. Think of a remedy you tried the last time the person you care for had trouble breathing or ankle swelling, (circle one number)

<table>
<thead>
<tr>
<th></th>
<th>I did not try anything</th>
<th>Not Sure</th>
<th>Somewhat Sure</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>How sure were you that the remedy helped or did not help?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
**SECTION C:**

In reference to the person you care for, in general, how confident are you that you can:

<table>
<thead>
<tr>
<th>No.</th>
<th>Activity</th>
<th>Not Confident</th>
<th>Somewhat Confident</th>
<th>Very Confident</th>
<th>Extremely Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Keep him/her free of heart failure symptoms?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Follow the given treatment advice</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Evaluate the importance of symptoms?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Recognize changes in his/her health when they occur?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Do something that will relieve his/her symptoms?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Evaluate how well a remedy works?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix H

Minnesota Living with Heart Failure Questionnaire

The following questions ask how much your heart failure (heart condition) affected your life during the past month (4 weeks). After each question, circle the 0, 1, 2, 3, 4 or 5 to show how much your life was affected. If a question does not apply to you, circle the 0 after that question. Did your heart failure prevent you from living as you wanted during the past month (4 weeks) by:

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. causing swelling in your ankles or legs?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. making you sit or lie down to rest during the day?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. making your walking about or climbing stairs difficult?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. making your working around the house or yard difficult?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. making your going places away from home difficult?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. making your sleeping well at night difficult?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. making your relating to or doing things with your friends or family difficult?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. making your working to earn a living difficult?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. making your recreational pastimes, sports or hobbies difficult?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. making your sexual activities difficult</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. making you eat less of the foods you like?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. making you short of breath?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. making you tired, fatigued, or low on energy?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. making you stay in a hospital?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. costing you money for medical care?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. giving you side effects from treatments?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. making you feel you are a burden to your family and friends?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. making you feel a loss of self-control in your life?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. making you worry?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. making it difficult for you to concentrate or remember things?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. making you feel depressed?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Appendix I

CarerQoL -7D

We would like to form an impression of your caregiving situation. Please tick a box to indicate which description best fits your caregiving situation at the moment.

*Please tick only one box per description: 'no', 'some' or 'a lot of'.*

- I have [ ] [ ] [ ] fulfillment from carrying out my care tasks.
- I have [ ] [ ] [ ] relational problems with the care receiver (e.g., he/she is very demanding or behaves differently; we have communication problems).
- I have [ ] [ ] [ ] problems with my own mental health (e.g., stress, fear, gloominess, depression, concern about the future).
- I have [ ] [ ] [ ] problems combining my care tasks with my own daily activities (e.g. household activities, work, study, family, leisure activities).
- I have [ ] [ ] [ ] financial problems because of my care tasks.
- I have [ ] [ ] [ ] support with carrying out my care tasks, when I need it (e.g., from family, friends, neighbours, acquaintances).
- I have [ ] [ ] [ ] problems with my own physical health (e.g., more often sick, tiredness, physical stress).

How happy do you feel at the moment? Please place a mark on the scale below that indicates how happy you feel at the moment.

<table>
<thead>
<tr>
<th>completely unhappy</th>
<th></th>
<th>completely happy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Appendix J

Letter of Information and Consent

Project Title:
The development, refinement, implementation, and impact of a nurse-led health coaching intervention in heart failure self-care management
Maureen Leyser
PhD student – Research dissertation proposal
Arthur Labatt Family School of Nursing, Western University

Document Title: Letter of Information for Participants

Principal Investigator + Contact: Dr. Victoria Smye, RN, PhD., Associate Professor, School of Nursing, University of Western Ontario
Email: xxxx
Maureen Leyser, RN(EC), PhD Student, School of Nursing, University of Western Ontario
Email: xxxx

Advisors + Contact: Dr. Marilyn Ford-Gilboe, RN, PhD, Email: xxxx
Dr. Robert McKelvie, MD, PhD, Email: xxxx
Dr. Sonja Reichert, MD, Email: xxxx

Letter of Information
1. Invitation to Participate
You are being invited to participate in this study which is designed to examine the effect of the refinement, further development, implementation, and impact of a nurse-led health coaching intervention in heart failure self-care management. This study will include a self-care heart failure management tool for adjusting your diuretic; known as your water pill, while identifying any barriers to self-manage and assisting you with problem solving to achieve your dry target weight. This is a key activity to control congestion build up from heart failure.

2. Why is this study being done?
At this time, there is no standardized delivery of nurse-led health coaching approaches to self-care for persons living with heart failure (HF). There is an increase in HF hospitalizations and readmissions despite medical advances and in spite of the education provided to HF patients regarding the signs of fluid accumulation. Fluid
accumulation causes weight gain, peripheral edema, abdominal distension, and
dyspnea at rest or with activity, and, unfortunately, there seems to be a gap between
patients recognizing these signs of fluid accumulation and performing timely self-
management activities to control it. The current medical practice of medication on
their own are insufficient in preventing fluid accumulation leading to possible HF
hospitalization. As such, non-pharmacological solutions, including diet, exercise, and
weight monitoring, are also suggested recommended; however, it is apparent that
education-based interventions alone are not sufficient to have a significant role in self-
care management and in fact, is often challenging. There is no standardized delivery of
nurse-led approach for assisting HF patients to engage with self-care management. As
a result, the proposed study to refine, further development, implement, and evaluate a
nurse-led health coaching intervention and at the same time, explore patient
experiences of self-care will be conducted. The researcher will identify those factors
that both challenge and facilitate patient self-care for persons living with HF. It is
expected that the findings of this research will also enhance nursing practice with
persons living with HF through the refinement and further development of a
standardized nurse-led health intervention to support self-care.

3. **How long will you be in this study?**
This study will take approximately six months and be completed in 2021 to be
submitted to the faculty of Arthur Labatt family school of nursing at The University of
Western Ontario in partial fulfillment of the requirements for the degree of Doctor of
Philosophy.

4. **What are the study procedures?**
The researcher will determine if the participant meets inclusion and exclusion criteria
prior to signing consent. This involves convenient patient/Care giver dyad sampling
into the study and compare pre-and post-intervention study. If the patient/Care giver
dyad is eligible and agrees to participate in the study, they will be enrolled. Feedback
will be provided by clinic nurses through focus groups during Phase I on the health
coaching training module for HF management that involves a self-care tool of an
adjusted diuretic dosing (ADD) as per sliding scale to maintain their target weight. In
Phase II, the nurse coaching intervention will be implemented with a sample of
patients and caregivers in one primary health care setting. A tool of an ADD will be
incorporated to help patients with self-management of HF, a part of the larger nurse
coaching intervention. You will be asked to complete surveys at various times within
the study. These surveys will inquire about your HF management, self-care confidence
and quality of life. The information from these completed surveys will assist the
researcher in any recommendations to enhance the care and management for patient’s
living with HF so improved outcomes are possible. The table below displays the
number of visits and clinic activities that will be occurring.
Table 1: Study Activities Flow chart

<table>
<thead>
<tr>
<th>Period and Study Activities</th>
<th>Screening</th>
<th>Initial Visit</th>
<th>2wks</th>
<th>1mos</th>
<th>2mos</th>
<th>3mos</th>
<th>End of study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit</td>
<td>1</td>
<td>2</td>
<td>3 Phone call</td>
<td>4</td>
<td>5 Phone call</td>
<td>6 End of Treatment/Study</td>
<td></td>
</tr>
<tr>
<td>Week</td>
<td>Up to 2 weeks before Visit 2</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Check whether the study is right for you</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical history</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Medication history</td>
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<td></td>
<td></td>
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<tr>
<td>Questions about your health</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>NYHA class</td>
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<td></td>
<td></td>
<td></td>
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<td>Physical examination</td>
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<td>Weight</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Vital signs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copy weight calendar from last clinic visit</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Review any lab or test results</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Questionnaires: SCHFI, CC-SCHFI, MLHFQ</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Receive study HF SELF-CARE tool to take home</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Inclusion/Exclusion checklist</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consent obtained if participant is eligible and agrees to participate</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>EOS Interview conducted by researcher</td>
<td>✓</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Surveys: (1) The Self-Care of Heart Failure Index v. 6.2 (SCHFI) behaviour tool. 
(2) Care-Giver Contribution Self-Care of Heart Failure Index (CC-SCHFI) 
(3) The Minnesota Living Health Failure questionnaire (MLHFQ)

5. **What are the risks and harms of participating in this study?**
There are no anticipated burdens, risks, or harms for participation in this study. Although there are no serious reported risks for using a ADD, routine blood work (electrolytes, creatinine, BUN, LFTs, and CBC) as per standard of care, will be collected at each clinic visit to assess the safety of your HF therapy; specifically, the effects of the diuretic by causing a low potassium level known as hypokalemia and reduce or worsening renal function by an elevation in creatinine, blood, urea
and nitrogen (BUN) levels. If in an event you feel unwell, please contact your healthcare provider or go to the nearest emergency centre for care.

6. **What are the benefits of participating in this study?**
   The benefits of participating in this research will help the advancement of nursing profession in the area of HF management. The possible benefits to participants may be appropriate weight loss, decrease shortness of breath or decrease peripheral edema, and an improvement in your overall quality of life. The possible benefits to the HF society and medical organization may be to further increase the body of research and awareness for possible self-care management treatment options for HF.

7. **Can participants choose to leave the study?**
   You can withdraw from the study at any time without causing any harm or affect to your medical treatment plan.

8. **How will participants’ information be kept confidential?**
   All participants registered for this study will have their confidential information protected. Only the primary researcher and co-investigator of this study will have exclusive access to personal identifying information. All personal and confidential information will be safeguarded using encrypted devices and secured in a locked area at Western University or London Health Science Centre – University Hospital. No disclosure of personal and confidential information will be shared with any other persons or any other third-parties. Data published will not have your name included. If you decide to withdraw from this study before completing data collection, all data and identifying information will be destroyed. Representatives from Western University Ethics Board may contact you or potentially require access to your records obtained during your participation with this study.

9. **Are participants compensated to be in this study?**
   You will not be compensated for your participation in this research.

10. **What are the rights of participants?**
    Participation in this study is voluntary, so you can withdraw and refuse to participate in the study at any time without causing any harm or affect to the medical treatment you will receive from your healthcare team. Also, there is no mention of your name or any contact information when you complete the surveys. Participants must have the cognitive ability to participate in this study.

11. **Whom do participants contact for questions?**
    If you need any additional information regarding the research, you may contact the Principal Investigator: Maureen Leyser. Please direct any questions you may have about this study by email to XXXX. and the research supervisor, Dr. Vicki Smye, email: xxxxx. Also, you can contact The Office of Research Ethics at the University
of Western Ontario at local contact # (519) 661-3036, email: ethics@uwo.ca if you have any questions about your rights as a participant.

12. Consent
You indicate your voluntary agreement to participate by signing and retaining it back to principal investigator.
I appreciate your participation in this study and thank you very much for considering my request.
Sincerely,

Maureen Leyser, PhD Student School of Nursing
The University of Western Ontario
Consent Form

Project Title: The development, refinement, implementation, and impact of a nurse-led health coaching intervention in heart failure self-care management
Maureen Leyser
PhD student – Research dissertation proposal
Arthur Labatt Family School of Nursing, Western University

Study Investigator’s Name: Maureen Leyser, RN(EC), PhD-student

I have read the Letter of Information, have had the nature of the study explained to me, and I agree to participate. All questions have been answered to my satisfaction.

Participant’s Name (please print): ____________________________________________

Participant Signature : _________________________________________
Date : ______________

Investigator Signature : _________________________________________
Date : ______________

This letter is yours to keep for future reference
Appendix K

Curriculum Vitae

MAUREEN LEYSER

EDUCATION AND QUALIFICATIONS

Post-secondary

Education and Degrees

Conestoga College
Stratford, Ontario, Canada
1989-1992 Diploma Registered Nursing Program
1992 Registered Nurse General Class License, CNO

The University of Western Ontario
London, Ontario, Canada
1999-2001 Bachelor of Science in Nursing, Post RN Program

The University of Western Ontario, London, Ontario, Canada
2001-2002 Ontario Primary Care Nurse Practitioner Program
2003 Registered Nurse Extended Class License, CNO

University of Toronto
Toronto, Ontario, Canada
2005-2007 Master of Nursing – Acute Care Nurse Practitioner,

Western University
London, Ontario, Canada
PhD Nursing: Nurse Leadership in Health Services Delivery
2017-2023

Certifications

Canadian National Care Certificate; Critical Care Nursing CNCC(C)

HONOURS AND AWARDS

Scholarships

Ontario Graduate Scholarship. Western University
2018-2019
A.M.F.G. Nursing Ontario Graduate Scholarships 2019-2021

Irene Nordwich Graduate Foundation 2020

**Research Awards**

London Health Sciences Foundation Transplant Research Fund “Advanced Heart Failure Therapies: Beyond the Survival Curve” London Health Sciences Centre. 2018

Canadian Association of Nephrology Nurses and Technologists

**Journal of the Year:**

**Leyser M**, Sang, J & Vitou, L., Peritoneal Dialysis for Heart Failure Patients is Associated with Improved Healthcare Outcomes. *Canadian Association for Nephrology Nurses and Technologists* (CANNT), 2020

**Related Work Experience**

**Leadership Services**

**Director Perioperative and Ambulatory Care**

St. Mary’s General Hospital, Kitchener, ON March 2023-Present

**Clinical Program Manager: Cardiovascular Intensive Care Unit/TAVI/Acute Pain Service/Wound care**

St. Mary’s General Hospital, Kitchener, ON May 2022-March 2023

**Clinical Program Manager: Regional Renal Dialysis Program**

London Health Sciences Center, ON Dec 2021-May 2022

**Clinical Program Manager: Coronary Care Unit**

London Health Sciences Center, ON June 2021-Dec 2021

**Nurse Practitioner – RN(EC)**
Experience


Nurse Practitioner, Regional Cardiac Centre (Cardiology Unit, Coronary Assessment Care Unit, and Heart Function Clinic. Full Time St. Mary’s General Hospital, Kitchener ON May 2007 – March 2017


Nurse Practitioner, Primary Health Care Clinic. Full Time Freeport Campus, Grand River Hospital, Kitchener ON January 2004 – September 2005

Nurse Practitioner, Hemodialysis Unit. Full Time University Hospital, London Health Sciences Centre, London ON March 2003 – January 2004

Registered Nurse Experience

Registered Nurse, Intensive Care Unit and Med/Telemetry and Hemodialysis Unit. Part Time Stratford General Hospital, Stratford ON March 1993 – March 2003

Registered Nurse, Hemodialysis Unit, Part Time University Hospital, London Health Sciences Centre, London ON July 1997 – June 1998

Registered Nurse, Emergency Room and Operating Room, Part Time St. Marys Memorial Hospital, St. Marys ON October 1994 – April 1997
Registered Nurse, Cedarcroft Retirement Home, Stratford ON  
July 1992 – February 1993

**SERVICE AND ADMINISTRATION**

<table>
<thead>
<tr>
<th>Committees</th>
<th>St. Mary’s General Hospital, Kitchener, ON</th>
</tr>
</thead>
</table>
| Member, **Provincial Digital Quality Based**  
Congestive Heart Failure | 2014 – 2016 |
| Member, **Cardiopulmonary Stream Steering Committee for Central Local Health Integration Network (LHIN)** | 2012 – 2017 |
| Member - Advanced Practice Nurse, **Cardiology Quality and Operations Committee** | 2010 – 2017 |
| **Co-Chair, Nursing Advisory Committee** | 2007 – 2009 |

**Stratford General Hospital**

| Member, **Nursing Advisory Committee** | 1999 – 2002 |

<table>
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<tr>
<th><strong>Professional Association</strong></th>
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</thead>
<tbody>
<tr>
<td>College of Nurses of Ontario (CNO)</td>
<td>1992 – Present</td>
</tr>
<tr>
<td>Ontario Nurses Association (ONA)</td>
<td>1992 – Present</td>
</tr>
<tr>
<td>Registered Nurses’ Association of Ontario (RNAO)</td>
<td>2003 – Present</td>
</tr>
<tr>
<td>Nurse Practitioner’s Association of Ontario (NPAO)</td>
<td>2003 – 2011</td>
</tr>
<tr>
<td>International Society of Heart and Lung Transplant</td>
<td>2017 – 2019</td>
</tr>
</tbody>
</table>
PUBLICATIONS

Journal Articles

**Leyser M**, Sang, J., & Vitou, L. Peritoneal Dialysis for Heart Failure Patients is Associated with Improved Healthcare Outcomes. Canadian Association for Nephrology Nurses and Technologists (CANNT), 2020 June.


Abstracts and Posters

**Leyser M**, Vitou L. Optimizing Heart Failure Management: Peritoneal Dialysis for Selective Advanced Heart Failure Patients have Shown Reduction in Hospital Readmissions and Decrease in Annual Health Care Cost. European Heart Failure Congress; Florence, Italy, May 2016

**Leyser M**. Implementation of Registered Nurses Association of Ontario Best Practices Guidelines for Vascular Access has the Potential to Decrease Delay in Cardiovascular Surgery. Canadian Cardiovascular Congress; Toronto, Ontario, October 2010

**Leyser M**. Oral Bacteria Can Increase the Risk of Infective Endocarditis. Can J Cardiol, Vol 26, Suppl D. Canadian Cardiovascular Congress; Montreal Quebec, October 2010. p. 160D


RESEARCH ACTIVITIES

Research Studies

2018 – 2019 **REVAD**: Feasibility of Sildenafil for the Prevention of Right Heart Failure Following Continuous-Flow
Left Ventricular Assist Device Implantation. Principal Investigator: Ryan Davey. Role: Study Coordinator.

**2016 – 2017**

**COMMANDER HF:** A Study to Assess the Effectiveness and Safety of Rivaroxaban in Reducing the Risk of Death, Myocardial Infarction or Stroke in Participants with Heart Failure and Coronary Artery Disease Following an Episode of Decompensated Heart Failure. Principal Investigator: Stuart Smith. Role: Study Coordinator.

**2016 – 2017**

**TREAT:** Ticagrelor in Patients with ST Elevation Myocardial Infarction Treated with Pharmacological Thrombolysis. Sponsor: Hospital do Coracao. Principal Investigator: Jaffer Syed. Role: Study Coordinator.

**2014 – 2016**

**LATITUDE-TIMI 60:** Losmapimod to Inhibit p38 MAP kinase as a Therapeutic Target and Modify Outcomes after an Acute Coronary Syndrome. Sponsor: Janssen Research & Development LLC. Principal Investigator: Murray Pearce. Role: Study Coordinator.

**2014 – 2016**

**QUALIFY STUDY:** To Examine the Quality of Adherence to Guideline Recommendations for Life-Saving Treatment in Heart Failure: an International Survey. Sponsor: Servier Canada Inc. Local Investigator: Stuart Smith. Role: Study Coordinator.

**2014 – 2016**

Optimizing Heart Failure Management: Peritoneal Dialysis for Selective Advanced Heart Failure Patients has Shown Reduction in Hospital Readmission and Decrease in Annual Health Care Cost. Observational Study. Role: Principal Investigator.

**2013 – 2017**

**ADVENT-HF Trial:** A Multi-Center, Randomized Study to Assess the Effects of Adaptive Servo-Ventilation (ASV) on Survival and Frequency of Cardiovascular (CV Hospital Admissions in Patients with Heart Failure (HF) and Sleep Apnea (SA). Funding Source: Canadian Institute of Health Research, Philips Respironics Inc. Principal Investigator: Claus Rinne. Role: Study Coordinator.

2013 – 2015  ODESSEY: A Randomized, Double-Blind, Placebo-Controlled, Parallel-Group Study to Evaluate the Effect of SAR236553/REGN727 on the Occurrence of Cardiovascular Events in Patients who have Recently Experienced an Acute Coronary Syndrome. Principal Investigator: Murray Pearce. Role: Study Coordinator.


2011 – 2013  APPRAISE: Cardiovascular Outcomes Study to Evaluate the Potential of Aleglitazar to Reduce Cardiovascular Risk in Patients with a Recent Acute Coronary Syndrome (ACS) Event and Type 2 Diabetes Mellitus (T2D). Principal Investigator: Murray Pearce. Role: Study Coordinator.


2010 – 2013  ELECTRA: Dronedarone Pattern of Use in Patients Scheduled for Elective Cardioversion. Sponsor:
Sanofi. Principal Investigator: Murray Pearce. Role: Study Coordinator.


Research Endeavors

May 2007 – March 2009 Designed, enrolled, and completed data analyses for two clinical research projects/studies when identifying clinical gaps in practice: “Increased peripheral IV infections while waiting for CV surgery causes further delay in treatment” and “Optimizing heart failure management in selective advanced HF patients with peritoneal dialysis which improved mortality and reduced hospital readmissions”.

March 1993 – June 1993 Initiated and performed a clinical project to compare a serum Hgb to a Hgb from a hemocrit line. A cost savings analysis was conducted to determine any variability of the results in efforts to reduce blood draws from CRF patients that have chronic anemia. It was a neutral study.
PRESENTATIONS

Conference Presentations

International

Optimizing Heart Failure Management: Peritoneal Dialysis for Selective Advanced Heart Failure Patients have Shown Reduction in Hospital Readmissions and Decrease in Annual Health Care Cost. European Heart Failure Congress, Florence, Italy, Poster Presentation. May 2016.


National

Heart Failure Management: Implementing Evidence Base Medicine to Clinical Practice. Heart and Stroke Clinical Update 2018: Toronto ON; December 2018. Workshop (90mins) collaborating with Dr. Stuart Smith.

When the Heart Wins the Battle but the Kidney Wins the War. 50th Annual Canadian Association of Nephrology Nurses and Technologists Conference: Quebec City QC; October 2018. Workshop.

Heart Failure Management: Implementing Evidence Base Medicine to Clinical Practice. Heart and Stroke Clinical Update 2017: Toronto ON; December 2017. Workshop (90mins) collaborating with Dr. Stuart Smith.

Heart Failure Management: Implementing Evidence Base Medicine to Clinical Practice. Heart and Stroke Clinical Update 2016: Toronto ON; December 2016. Workshop (90mins) collaborating with Dr. Stuart Smith.

Heart Failure Management and Integrating Palliative Care with Heart Failure Patients. Heart and Stroke Clinical Update 2015: Toronto ON; December 2015. Workshop (90mins) collaborating with Dr. Stuart Smith and Dr. Donna Ward.

Heart Failure Management and Integrating Palliative Care with Heart Failure Patients. Heart and Stroke Clinical Update 2014: Toronto ON; December 2014. Workshop (90mins) collaborating with Dr. Stuart Smith and Dr. Donna Ward.

The Challenges of Integrating Palliative Care into Cardiac Care. Canadian Cardiovascular Congress 2010 (CCS): Montreal QC; October 2010. Oral Presentation – Workshop collaborating with Dr. Stuart Smith.


Integrating Palliative Care for Heart Failure Patients. Canadian Cardiovascular Congress 2008 (CCS): Toronto ON; October 2008. Oral Presentation – Workshop (90mins) collaborating with Dr. Stuart Smith.


Invited Lectures

Local


Transcatheter Aortic Valve Implantation (TAVI) Program: Management of Heart Failure secondary to Aortic Stenosis. Windsor Regional Hospital, ON – Nurses Education Event. October 2019. Invited Lecturer.


Heart Failure Management and Integrating Palliative Care with Heart Failure Patients. Nursing Rounds. St. Mary’s General Hospital, Kitchener ON. December 2015. Invited Lecturer.


Heart Failure Management and Integrating Palliative Care with Heart Failure Patients. Nursing Rounds. St. Mary’s General Hospital, Kitchener ON. December 2014. Invited Lecturer.

When the Heart Loses the Battle & The Kidneys Win the War. Grand River Hospital, Kitchener ON. June 2012. Invited Lecturer.

Creating and Implementing Medical Directors for Nurse Practitioners. Family Health Team Workshop. Thunder Bay ON. February 2012. Invited Lecturer.


Integrating Palliative Care for Heart Failure Patients. Nursing Rounds. St. Mary’s General Hospital, Kitchener ON. October 2010. Invited Lecturer.

Implementation of Registered Nurses Association of Ontario Best Practices Guidelines for vascular access has the potential to decrease delay in Cardiovascular Surgery. Nursing Rounds. St. Mary’s General Hospital, Kitchener ON. October 2010. Invited Lecturer.


Community Outreach Activities

Local


Cardiac Health: Know Your Numbers Community Event. Kincardine Family Health Team. Kincardine ON. September 2018


Salt and Heart Disease. St. Mary’s General Hospital Community Event. St Mary’s General Hospital, Kitchener ON. February 2014.

Heart Disease: Know Your Numbers. Heart Health Community Event. St. Mary’s General Hospital, Kitchener ON. February 2013
OTHER ACTIVITIES

Other Noteworthy Activities

September 2006 – May 2007 Proposal grant accepted to partner with the local Public Health Unit (PHU) to have Perth County hospitals be smoke free. As Project Lead, I partnered with PHU to developed and implemented the Stratford General Hospital and St. Marys Memorial Hospital to be a smoke-free environment. This program was cost neutral due to the strong partnership and commitment from the PHU.

September 2006 – May 2007 Initiated and implemented a Wellness employee programs to decrease cardiovascular risks by having weight reduction challenges, and blood pressure monitoring through my NP position at the Stroke Prevention Clinic within SGH. I advocated to the Human Resource Department the need for nicotine replacement therapy to be covered for the employees or their family members through their benefits who smoke and wanted to quit. This request was approved.

January 2004 – September 2005 Developed and implemented and worked in the first MOH funded Adult Orphan Patients Primary Care Clinic for patients recently discharged from hospital. The clinic remains open today. Freeport Campus, Grand River Hospital.

Volunteer Committee

Fund Raising Co-Chair: Restore and Renew St. Joseph’s Roman Catholic Church, Stratford ON Raised over 4 million dollars – Project completed in 2020 that restore 150-year iconic building. 2012-2019