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## Self-Management Support Program for Dialysis Patients

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*Walden University*

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# Walden University

College of Nursing

This is to certify that the doctoral study by

Elmer Sadiang-Abay

has been found to be complete and satisfactory in all respects,  
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Walden University  
2022

Abstract

Self-Management Support Program for Dialysis Patients

by

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MSN, Monmouth University, 2005

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

August 2022

## Abstract

Chronic kidney disease (CKD) prevalence rates have been on the rise in recent years, and currently, about 37 million Americans are living with the disease. Most patients with CKD progress to end-stage renal disease (ESRD), resulting in additional treatments, including kidney transplants and hemodialysis (HD). HD treatments depend on patients' adherence to self-management practices. The practice gap was the lack of guidelines for staff to use with ESRD patients to teach self-management strategies. This project aimed to develop an evidence-based clinical practice guideline (CPG) on a self-management support program for dialysis patients for use by health care providers at the dialysis unit. An evidence-based CPG provides an educational guide to plan comprehensive care and recommends optimizing patient care. In addition, the CPG emphasizes individualized interventions to enhance self-management. To achieve this, a search for relevant literature with credible research evidence led to the development of the guideline for self-management for dialysis patients. The invited interprofessional team of evaluators are familiar with CPGs and are experts in ESRD. The evaluators used the Appraisal of Guidelines Research and Evaluation (AGREE) II to assess the quality of the CPG. The percentage of agreement for the six domains of the AGREE II ranged from 88.9% to 98.1%, which is well above the 70% threshold for a high-quality practice guideline. All six reviewers rated the CPG ready for use. Applying a self-management support program would positively impact patients with ESRD on HD. When patients have self-management knowledge, it can improve health outcomes, minimizes the risk of complications, and reduces frequent hospital readmission.

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## Dedication

I heartily dedicate this project to my family and my mentors in the hospital for their full support and confidence. Furthermore, I sincerely thank my Walden University mentors for their patience and guidance in fulfilling my project. Finally, I returned the praise and glory to one God in his kindness, which gave me the wisdom to fulfill my dream.

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## Section 1: Nature of the Project

### **Introduction**

Chronic kidney disease (CKD) is one of the significant public health problems in the United States and other nations. The disease burden of CKD often results in the need for renal replacement therapy, life-long dialysis, and a high risk of morbidity and mortality. There is also an increased need for frequent hospitalizations, which result in the use of additional financial resources to meet the care needs of the patients with the disease (Ji et al., 2019). Global statistics show that CKD accounts for 843.5 out of 850 million people with kidney disease. The worldwide incidence and CKD prevalence were reported to have increased by 87% between 1990 and 2016. According to the Center for Disease Control and Prevention (CDC), 37 million people, or one in every seven people in the United States, have CKD. Of this number, nine in 10 adults are unaware of having CKD, and two in every five adults do not know that they have severe CKD. The prevalence of CKD is higher in people aged 65 years and above (38%) when compared to those aged 18-44 years (6%) or 45-64 years (12%). In terms of racial or ethnic representation, CKD is more common among non-Hispanic Black adults (16%) when compared to non-Hispanic White adults (13%) or non-Hispanic Asian adults (13%) (CDC, 2021a).

Patients with CKD often progress to end-stage renal disease (ESRD), which results in the need for additional treatments such as renal replacement therapies, including kidney transplants and hemodialysis (HD; Schrauben et al., 2020). HD is the standard approach used in the treatment of ESRD. The increased dialysis use in ESRD is

attributed to the donor organs scarcity, contraindications secondary to transplantation, and the cost involved in the transplant process (Shah et al., 2021). The success of HD in ESRD depends mainly on the patients' adherence to self-management practices in the disease. However, inadequate commitment to self-management practices results in increased hospitalizations, morbidity, and mortality rates among patients with ESRD (Ranahan et al., 2020). The focus of this project was to develop an evidence-based clinical practice guideline (CPG) on self-management support for dialysis patients to improve outcomes.

### **Problem Statement**

The prevalence rate of CKD in America has been increasing over the past years. More than one in seven, or 15% of adults (37 million people), are estimated to have CKD (CDC, 2021a). The increase is attributed to the rising cases of non-communicable diseases such as diabetes and hypertension among the American population. Additional risk factors such as inherited kidney disorders, family history of CKD, obesity, kidney damage, and aging also contribute significantly to the increasing disease rates in America (CDC, 2021b). The prevalence of the risk factors for CKD has been increasing considerably over the past years. CKD progresses to ESRD, resulting in the need for renal replacement therapies (Schrauben et al., 2020).

HD is the preferred treatment for managing an individual with ESRD (Vadakedath & Kandi, 2017). HD effectively improves the overall kidney function and prolongs life expectancy in patients with ESRD (Hall et al., 2017). The increased dialysis use in ESRD is attributed to the scarcity of donor organs, contraindications secondary to

transplantation, and the cost involved in the process (Shah et al., 2021). The success of HD with ESRD patients mainly depends on the patient's adherence to self-management practices in the disease. Inadequate commitment to self-management practices results in increased hospitalization, morbidity, and mortality among ESRD patients (Ranahan et al., 2020). As shown by Donald et al. (2018), the most common self-management practices that patients with ESRD on HD use include dietary management and adherence to treatment plans. Health literacy is essential in facilitating the effective management of ESRD in patients on HD (Schrauben et al., 2020).

This doctor in nursing practice (DNP) project focuses on the problem of increased rates of hospital readmissions among ESRD patients. At the local medical center in the northeast, an average of 20 patients with ESRD on HD are readmitted weekly because of complications secondary to poor compliance with taking medications, dietary and fluid restrictions, and poor adherence to dialysis schedule. The practice site has seen a significant increase in the number of ESRD patients on dialysis. Poor adherence to self-management practices worsens the health outcomes of ESRD patients due to complications such as an increase in metabolic, cardiovascular, and hematologic complications (Schrauben et al., 2020). Accordingly, when complications increase, health care costs for patients and mortality are increased. Poor self-management practices among CKD and ESRD patients on HD are attributed to several factors. The factors include the level of knowledge on self-management practices, low involvement of patients in self-care management, the existence of comorbid conditions, and

dissatisfaction with guidelines used in HD management of CKD and ESRD (Neale et al., 2020; Ranahan et al., 2020; Shah et al., 2021).

According to Donald et al. (2018), self-management interventions facilitate the ability of ESRD patients to make lifestyle and behavioral changes alongside managing symptoms, treatment, and psychosocial and physical impacts of the disease. Self-management in ESRD entails focusing on the needs of the illness by developing knowledge, skills, and confidence to manage the medical needs of the disease. It also entails activating the needed resources and learning to live with the condition by adopting effective coping mechanisms (Donald et al., 2018). Self-management interventions for patients with ESRD on HD require daily lifestyle and behavioral modifications such as dietary changes and restrictions, fluid intake restrictions, and adherence to medication use. In addition, rigorous attendance to HD treatment sessions minimizes and prevents complications (Daniels et al., 2018). The use of self-management interventions in ESRD has been linked to benefits that include prolonged life and reduction of complications. In addition, there is also an improvement in the physical functioning and wellbeing, blood pressure, urine protein, and ability of the patients to engage in physical activity (Schrauben et al., 2020).

According to the study by Park and Kim (2019), using self-management interventions in HD patients improve their self-efficacy. The improvement in self-efficacy is evidenced by the perceived competence of the patients towards adopting behaviors that include dietary regulations and medication adherence. The effects of self-management interventions on the treatment outcomes in patients on HD are long-lasting

(Griva et al., 2018). Closely related findings are seen in the study by Lin et al. (2017), where the long-term effects of self-management were significant for anxiety and medium for depression, self-efficacy, and health-related quality of life. Consequently, self-management interventions effectively ensure optimum treatment outcomes in patients with ESRD on HD.

As part of their scope of practice, dialysis nurses constantly educate patients and families about the disease and how to manage it at home, including medications and meals. Dialysis nurses tend to form bonds with their patients and families, leading to opportunities for education on self-management. The effective self-management education program was used by dialysis nurses in many settings to increase dietary and medication compliance.

This DNP project set across the trajectory of care, needing more doctorally prepared nurses at the nurse-leader level to translate evidence into practice to improve patient outcomes (McNett et al., 2021).

### **Purpose Statement**

Even though the medical facility has been offering treatment and care services to ESRD patients, there were notable practice gaps that needed to be addressed. The gap in this clinical practice was the lack of patient education on self-management as part of the clinical guidelines for treating ESRD patients. The purpose of this project was to develop an evidence-based CPG on a self-management support program for dialysis patients. The practice-focused question was, “Will an interprofessional team of evaluators develop



consensus on an evidence-based CPG on self-management support program for dialysis patients?”

According to Daniels et al. (2018), educating patients on self-management improved their quality of life, decreased morbidity, and reduce unnecessary hospitalization. Patient education on self-management includes lifestyle and behavior modifications. In addition, education should focus on dietary and fluid intake restrictions, medication use adherence, and submission to a regular dialysis schedule to minimize and prevent complications (Daniels et al., 2018).

### **Nature of the Doctoral Project**

This project follows the Walden Guide to Clinical Practice Guidelines. Meeting the objectives of a research project requires a collection of evidence sources. A literature review was conducted using major databases and professional organization recommendations and guidelines. The sources of evidence included searches of CINAHL, EBSCO, Cochrane Library, Medline, PubMed database, OVID, and ProQuest. The keywords were *CKD dialysis patients*, *ESRD*, *end-stage renal disease*, *disease burdens of CKD*, and *self-management support program*. The review was limited to peer-review, English-only, full-text articles within the last 5 years of publication. The professional associations included the American Society of Nephrology, the International Society of Nephrology, the National Kidney Foundation, and the Nephrology Nurses Association.

The selection was based on a review of the abstracts and full text to determine if they address the issue of education and self-management. The information included

authors, year of publication, aim, design, level of evidence, sample size and type, instrument(s), and findings. Selected studies were critically appraised using the Hierarchy of Evidence for Intervention Studies (Fineout-Overholt et al., 2010). This approach was used to assess the quality of the evidence and the strength of recommendation. The evidence-based CPG on a self-management support program for dialysis patients was developed following a review of the literature by the project manager. The three-person project team (DNP student and two DNP prepared nurses) rated the level of evidence to select the best evidence to include in the CPG was developed. The next step was the evaluation of the CPG by the interprofessional team of evaluators.

The interprofessional team of evaluators was composed of local experts that reviewed the CPG on evidence-based self-management support program for dialysis patients. The team members included the project site physician, nurse practitioners, nurse educator and nurse volunteers. The interprofessional team of evaluators reviewed and evaluated the guideline from their professional perspective using Appraisal of Guidelines for Research & Evaluation (AGREE) II instrument (Brouwers et al., 2010a). The AGREE II instrument has 23 questions to evaluate the CPG. A seven-point scaling is as follows: 1= strongly disagree to 7= strongly agree.

The guideline emphasizes the early identification of dialysis patients with low self-efficacy and individualized interventions to enhance self-management (Almutary et al., 2021). The guideline recommends peer and nurse-led support groups, mobile apps, text messaging, and face-to-face virtual visits. The self-management support program for dialysis patients included education provided by the staff. The education for adherence

issues should include dialysis appointments, medications, fluid restriction, diet recommendations, patient self-management knowledge, patient perceptions, and psychosocial issues for dialysis patients (Evangelista et al., 2018).

The purpose of this DNP project was to develop an evidence-based CPG on self-management support program for ESRD patients on HD. Patient education on self-management programs should improve the quality of life for ESRD patients and decrease morbidity and unnecessary hospitalization (Ranahan et al., 2020).

### **Significance**

#### **The Key Stakeholders**

Various stakeholders are likely to be impacted by the implementation of the CPG to address the self-management challenges of the patients receiving care at the hospital where the DNP student works. Key stakeholders include the ESRD patients on HD (Elliot et al., 2018). These patients need effective care, continued education, and support in self-management to improve their healthcare outcomes. The introduction of a CPG on self-management can help to improve treatment compliance, increase medication adherence, and reduce the occurrence of complications resulting from the patient's skipping dialysis and failure to follow the diet and fluid restrictions as provided by the clinicians. Another set of stakeholders are the patient's family members. The family members of ESRD patients on HD usually experience various effects of the condition on their loved ones, such as distress, financial constraints, and anxiety (Elliot et al., 2018). Implementing the proposed self-management support programs for the dialysis patients would benefit them as the patients have their condition under better control.

The next potential affected stakeholders of the project are the facility nurses. The nurses are at the center of implementing the CPG. Therefore, the nurses are expected to participate in the implementation for the CPG. Keeping ESRD patients on HD out of the hospital has a positive financial impact on the dialysis unit. Medicare and Medicaid Services (CMS) launched the End-stage Renal Disease Quality Incentive Program (ESRD QIP; Salerno et al., 2021). The ESRD QIP is an initiative for mandatory pay-for-performance, also known as a value-based program, designed to improve the quality of service at outpatient dialysis centers (Sheetz et al., 2021).

The ESRD QIP centers face a reduction in Medicare reimbursement if the performance of a particular dialysis unit falls below a specific criterion including rate of hospital readmission, infection rate, and fistula rate compliance (Salerno et al., 2021). ESRD QIP changed how CMS pays for the treatment of patients who receive dialysis by linking a portion of payment directly to facilities' performance on quality-of-care measures (Sheetz et al., 2021). During inpatient hospital admission, Medicare does not pay any outpatient dialysis provider other than the inpatient hospital service provided to the beneficiaries (CMS, 2022). Additionally, CMS publicly reports facility ESRD QIP scores with their payment adjustments on Care Compare on the Medicare.gov website. Every facility is required to display a Performance Score Certificate of the Total Performance Score, including performance on each of the quality measures identified for that year (CMS, 2022).

The nurses work collaboratively with the physicians in using the support programs for dialysis patients. Hence, the physicians are the other stakeholders likely to

be impacted by the implementation of the project. Evidence-based self-management strategies can improve treatment compliance, medication adherence, and dietary restrictions. In addition, it is rewarding for physicians when patients take accountability for their care, thus making the physician's job more manageable. Finally, a clinician feels fulfillment and satisfaction when patients actively engage in their health and will likely stay healthy (Bovenkamp & Dwarswaard, 2017).

The project is evidence-based and provides a guide to the effective strategies for managing patients undergoing dialysis. The evidence-based self-management strategies interventions can be most effective for patient care and are cost effective for the organization. To reduce healthcare costs, improve the healthy population, and improve patient experience, healthcare providers should place patients at the center of their care. In addition, patients who actively engage in their health care are more likely to be healthy and motivated to manage their condition (Bovenkamp & Dwarswaard, 2017).

### **Potential Contributions of the Project to the Nursing Practice**

This DNP project has the potential to substantially contribute to nursing practice. For instance, the successful implementation of the project could support the improvement of nephrology nursing practice. The CPG may have a positive impact on the hospital's standard nursing protocols for the management of dialysis patients. The project's implementation process and findings will likely open more avenues for research on improving the development of CPG in the self-management support program for ESRD patients on HD.

### **Potential Transferability of the Project to Similar Practice Areas**

The aim of this project was to develop an evidence-based CPG on a self-management support program for dialysis patients for use by healthcare providers at the dialysis unit. Patient education on self-management that can improve the quality of life for ESRD patients and decrease morbidity and unnecessary hospitalization may be used by other dialysis centers and hospitals across the state and the entire country. Most of the strategies or protocols proposed in the program can be effective in other similar chronic care practice areas as they help the patients to better manage their conditions through medication adherence, follow dietary requirements, and attend physician visits and patient check-ups as scheduled (Mona et al., 2020). One similar practice that the protocol can be transferred to is the care of patients with various chronic heart diseases. This is a group of diseases that need adequate care and frequent hospital visits and follow-ups. In addition, the patient outcomes for patients with heart diseases heavily depend on how the patient participates in the management process of the condition, such as medication adherence, following dietary advice, and attending the clinics as scheduled (Mona et al., 2020).

### **The Potential Implications for Positive Social Change**

A positive social change should be one of the targets of projects intended to improve quality. This project supports Walden University's mission for career professionals with the opportunity to transform themselves as scholar-practitioners so that they can affect positive social change (Walden University Vision, 2020). The disease burden of ESRD patients is documented in studies encompassing the need for renal

replacement therapy, life-long dialysis, and a high risk of morbidity and mortality (Brattich, 2006). There is also an increased need for frequent hospitalizations, resulting in additional financial resources to meet the care needs of the patients with ESRD (Ji et al., 2019). Patients with ESRD undergoing HD require proper self-management of lifestyle changes to minimize complications, morbidity, and mortality risk. Improving self-management in HD patients was mainly carried out by healthcare workers with insufficient knowledge of self-management (Husain et al., 2020).

The self-management support program for dialysis patients can promote social change in the outpatient dialysis unit by fostering meaningful connections between patients and the healthcare team. Daniels et al. (2018) found that patients were supported and learned more about their condition and the importance of adherence to prescribed medications, fluid, and diet restrictions. Patients worked towards becoming experts in the management of their chronic illnesses. The program can help the health care team in productive interactions with informed patients. According to Daniels et al., the health care team can act as coaches rather than solely administering treatments to dialysis patients. Also, when health care providers are made aware of the psychosocial issues of patients on dialysis, they may be more knowledgeable and interact in a more caring way with the patients. This change within the dialysis unit should result in a meaningful connection between patients and the health care team to improve outcomes, increase compliance, decrease morbidity and mortality, and increase longevity (Daniels et al., 2018).

## Summary

CKD is among the chronic conditions affecting individuals adversely throughout the globe, and the prevalence has been rising in recent times. Most of the patients' progress to ESRD results in the need for additional treatments such as renal replacement therapies, including kidney transplants and HD. HD is the most used approach to managing of ESRD (Ramya, 2020; Vadakedath & Kandi, 2017). HD effectively improves the overall kidney function and prolongs life expectancy in patients with ESRD (Hall et al., 2017). The increase in dialysis use is attributed to the scarcity of donor organs, contraindications secondary to transplantation, and the cost involved in the process (Shah et al., 2021). HD's success with ESRD patients mainly depends on the patient's adherence to self-management practices. The purpose of this project was to develop an evidence-based CPG on a self-management support program for dialysis patients for the use of healthcare providers at the dialysis unit to help improve patient care outcomes. Section 2 details the background and context of the project.



## Section 2: Background and Context

### **Introduction**

The clinical practice gap identified in the HD CPG project was the lack of a guideline to be used on guiding patients on self-management as part of clinical guidelines for ESRD patients. According to Hall et al. (2017), HD is the most utilized approach in ESRD management. HD effectively improves the overall kidney function and prolongs patients' life expectancy. The success of HD depends on the patient's adherence to the self-management practices of the disease. Inadequate commitment to self-management practices can increase rehospitalization, morbidity, and mortality rates among ESRD patients (Ranahan et al., 2020). Health literacy is essential in facilitating the effective management of ESRD patients in treatment adherence, taking medications, and following dietary regimens (Schrauben et al., 2020).

### **Practice-Focused Question**

Achievement of the project's objectives requires formulating a leading practice-focused question. Therefore, the following practice-focused question was formulated: "Will an interprofessional team of evaluators develop consensus on an evidence-based CPG on a self-management support program for dialysis patients?"

### **The Purpose of the Project**

As earlier indicated, the facility experienced a gap in practice related to patient education on self-management strategies as part of clinical guidelines that treat ESRD patients. Therefore, this project was designed to develop an evidence-based CPG on a self-management support program for dialysis patients.

### **Concepts, Models, and Theories**

The theoretical model that guided the project's development was the chronic care model (Wagner, 1998). The model includes self-management support for patients and is key to having an informed patient. The expectation is that this may lead to an improved outcome for the patient. Another critical part of the model is a supportive organization that can influence having a prepared and proactive health care team. This is expected to lead to improved patient outcomes. An important factor is the productive interactions and communication between the patient and health care team for more effective interactions, despite the time constraints of health care visits. The model is a good fit for this project's purpose to utilize a project team to develop an evidence-based CPG on a self-management support program for dialysis patients for staff to employ in educating patients on dialysis with the hope that this can improve health outcomes.

The chronic care model has been used to guide self-management in various chronic illnesses. The focus of a recent scoping review synthesis of the literature by Llewellyn (2019) was using the chronic care model in kidney disease. Education sessions for self-management support were found to positively affect patient outcomes in eight of the 39 studies reviewed. Accordingly, in-person education was more effective than web-based education.

The process used for the review of the level of evidence and evaluation of the CPG by the interprofessional team of evaluators was the consensus approach advocated by the Rand Corporation. The consensus method was used primarily to solve problems in medicine and health. The main reason for using this type of approach is to define levels

of agreement on controversial issues whereby a solution to a problem is justified and credible (Fink et al., 1984). The consensus approach promotes a consensus opinion about the appropriateness of a healthcare management or medical procedure, combining the collective judgment of a panel of experts with the best available scientific evidence (Crosio et al., 2020). A search of relevant literature with credible research evidence and hypothetical scenarios in which patients are classified in terms of clinical variables pertinent to the decision-making process was performed. It led to recommending appropriate guidance in the self-management of chronic illnesses.

The AGREE II guided the development of the CPG and was also used by the interprofessional team of evaluators to assess the quality of the developed guideline. AGREE II model offers a vital tool addressing the validity and reliability of newly developed guidelines. Since the project focused on developing an evidence-based CPG on self-management for dialysis patient for use by health care providers at the dialysis unit, it is crucial to use the AGREE II instrument to evaluate the guideline. Using AGREE II instrument was the key to assessing the transparency and methodological rigor in which the guideline for education on ESRD self-management was formulated (Brouwers et al., 2010a). It is worth noting that the AGREE model has been widely used, and various stakeholder groups have been authorized to use it. The groups include educators, policymakers, guideline developers, and health care providers (Brouwers et al., 2010a).

Brouwers et al. (2010b) reported the Cronbach's Alphas for reliability on the six domains ranged from .64 to .89. The score for each domain on the AGREE II instrument

was as follows: Domain 1 ( $\alpha = .89$ ), Domain 2 ( $\alpha = .73$ ), Domain 3 ( $\alpha = .75$ ). Domain 4 ( $\alpha = .68$ ), Domain 5 ( $\alpha = .80$ ), and Domain 6 ( $\alpha = .64$ ). Brouwers et al. (2010c) stated “the validity of the items was established, and the user’s manual was rated as highly useful by users” (p.E472).

## **Relevance to Nursing Practice**

### **Brief History of the Broader Problem in Nursing Practice**

This project addressed the development of a CPG on self-management support program for dialysis patients. The broader problem was the increased compromised patient safety and quality service in the care environment. Even though patients should be safe in the care environment, various things threaten such safety, including medication errors, medical errors, and negligence. The result was a higher risk of patient mortality and higher healthcare spending (Golestaneh et al., 2017). Therefore, developing a guideline that includes self-management as part of the treatment offered to ESRD patients was vital as part of the solution to the broader clinical problem.

### **The Current State of Nursing Practice in This Area**

Patients with CKD often progress to ESRD, which results in the need for additional treatments such as renal replacement therapies, including kidney transplants and HD (Schrauben et al., 2020). HD is the standard approach utilized in the treatment of ESRD. The increased dialysis utilization in ESRD is attributed to the scarcity of donor organs, contraindications secondary to transplantation, and the cost involved in the transplant process (Shah et al., 2021). Even though HD showed improved patient outcomes, it was still not perfect on its own. Therefore, there was a need for strategies to

improve patient outcomes. One of the strategies for improving this practice is comprehensive patient education. This education should focus on adherence to clinic visits, medication, dietary requirements, proposed physical exercise plan, and fluid intake. The success of HD in ESRD depends mainly on the patients' adherence to self-management practices in the disease (Shah et al., 2021).

### **Strategies and Standard Practices That Have Been Used to Address the Gap**

The problem of self-management in HD has attracted the attention of various stakeholders and researchers. Therefore, various strategies and standard practices have been explored in the past. According to Vadakedath and Kandi (2017), there was an urgent need to educate ESRD patients on HD regarding the facts of the disease, medications, dietary habits, and various measures required to manage the condition and improve quality of life. Daniels et al. (2018) argued that education on adherence to taking medications and submitting to regular dialysis schedules could reduce rehospitalization and prevent complications. Self-management is a challenge for a patient with ESRD on HD.

Donald et al. (2018) conducted a scoping review of the literature. Fifty studies (19 RCTs, seven quasi-experimental, five observational, 13 pre-post interventions, one mixed-method, and five qualitative) reporting 45 interventions were included. The most common intervention topic was diet/nutrition, and interventions were regularly delivered face to face. Interventions were administered primarily by nurses. Outcomes measures included changes in general CKD knowledge, perceived self-management, and motivation. Most showed improvement. Only 20% of the studies were based on a theory

or framework. Staff education is vital for improving knowledge, abilities, and skills necessary for ensuring that when they educate patients on self-management, self-care behaviors, and activities are efficiently implemented, leading to effective management of the condition (Fain, 2017).

A study from Australia revealed that an important issue supporting self-management interventions for people with ESRD is the concept of adherence or compliance, as it has been found that 33% to 50% of people are non-adherent to their treatment. Additionally, several studies (quantitative and qualitative) have indicated that health outcomes, including treatment adherence are much improved and costs reduced when patients are involved in managing their own chronic illnesses (Lean et al., 2019).

A qualitative study by Mott (2021) revealed that dialysis nurses were uncertain about how to apply the self-management concepts with this group of patients and lacked the knowledge and skills to assess patients' self-management ability and to offer support. This study suggested that nurses need additional education on strategies to support and implement self-management. Participating in developing a guideline and the support that this guideline offers practicing nurses can address some of these issues.

Lam et al. (2021) interviewed nurse faculty teaching self-management principles to nursing students. They also found that lack of education about the interaction of self-management steps and the disease itself were barriers to the ability of the nurse to apply the concepts to actual practice. The nursing students were more familiar with diseases such as type II diabetes. This supports the need for a guideline that connects the disease's pathophysiology to self-management principles (Lam et al., 2021).

### **How the Project Advances Nursing Practice**

Health literacy plays a vital role in self-management support to help people with chronic conditions that enable them to manage their health daily. Self-management support can help and inspire people to learn more about their needs and take an active role in their health care. A recent study on dialysis patients demonstrates that more than one-third of rehospitalizations within 30 days of discharge occur within the first week. These rehospitalizations are associated with worse survival (Streja, 2017). Therefore, the development of an evidence-based CPG on a self-management support program for dialysis patients for use by health care providers at the dialysis unit has the potential to advance the nursing practice in this area and introduce new guidelines at the facility which could enable the nurses to offer better care services to the ESRD patients.

### **Local Background and Context**

At this medical center in the northeast, an average of 20 patients with ESRD on HD are readmitted weekly because of complications secondary to poor compliance with taking medications, dietary and fluid restrictions, and poor adherence to dialysis schedule. The medical center recognizes this as a quality issue and supported an interprofessional team developing guidelines for dialysis nurses in delivering self-management education as part of a comprehensive plan to improve care and decrease readmissions. The Hospital Readmissions Reduction Program (HRRP) imposes a penalty on the dialysis providers for rehospitalizations. HRRP was established by the 2010 Patient Protection and Affordable Care Act to reduce excess hospital readmissions, lower

health care costs, and improve patient safety and outcomes (Lean et al., 2019; Yunwei & Dessislava, 2019).

### **Institutional Context**

The project's plan is to be accomplished in a middle-sized healthcare institution with a wing for treating and managing ESRD patients. The facility has been offering these patient services for decades. However, a trend has been noted where there has been increased cases of hospital readmissions. The facility's mission is to offer the best patient services and give hope of healing to the patient. As part of the strategic vision, the facility targets to be the leading HD center offering treatment to patients for better outcomes. The main term that is relevant to this doctoral project is self-management education, which is a type of education focused on coaching patients to be more proactive in managing their chronic conditions. The other relevant term was providing HD, a process of using a dialyzer to clean a patient's blood due to kidney malfunction.

### **State and Federal Context**

State and federal governments are major players and stakeholders in managing various chronic conditions affecting Americans. Governments usually offer resources and scholarships to support research efforts meant to improve these conditions' care and management. CKD and ESRD are chronic conditions that the government has put in resources to help better manage patients. Therefore, the governments collaborate with various organizations such as the American Society of Nephrology, the International Society of Nephrology, The National Kidney Foundation, and the Nephrology Nurses Association to address this project's problem (CDC, 2016).



### **Role of the DNP Student**

My role as a DNP student in this project was to apply the acquired knowledge and demonstrate my educational growth. In addition, completing this project allowed me to uncover my organizational and system leadership understanding to improve patient and healthcare outcomes. This project was the culmination of my educational goal of doctoral-level knowledge and skills consistent with the DNP essentials to eliminate health disparities and promote patient safety and excellence in nursing practice (AACN, 2006).

As a DNP student, I explored the needs in the practicum setting and noted a practice gap that formed the basis of this project. As a result, I developed an evidence-based CPG on a self-management support program for dialysis patients. In addition, I collaborated with other DNP-prepared nurses, including my clinical preceptor, who was instrumental in helping me select appropriate evidence-based practices for self-management research studies. Finally, I selected volunteers for an interprofessional team of local experts to review and evaluate the guideline from their professional perspective.

My motivation in selecting this project started when I worked with ESRD patients, which gave me a sense of ownership and personal responsibility. I have seen their burden and challenges from having CKD and progressing to ESRD, which requires dialytic support. It is painful to see them at the hospital frequently readmitted from complications of ESRD due to poor self-management. In addition, patients newly diagnosed with ESRD on HD need adjustment to life with kidney disease (Finnegan-John & Thomas, 2013). The new diet, fluid restrictions, and 3-day weekly dialysis are a culture

shock and difficult to adjust to a person's daily lifestyle (Jimenez-Cebrian et al., 2021). However, I saw an opportunity to change and potentially lessen the burden of frequent rehospitalizations and developing complications generated by poor self-care.

The potential bias that I consider is my assumption that the dialysis staff does not possess clinical skills and knowledge to provide patient education and lacks engagement skills to provide a positive outlook towards patients' ability to self-care and personal wellbeing (Lipford et al., 2018). I made necessary adjustments and assessed the base knowledge of the staff considered primary care providers of the stakeholders; hence, the information I collected was not based on personal biases. Furthermore, the limitation of this project is that it is conducted in only one unit and one clinical site.

### **Role of the Project Team**

The project team played various roles during the project. The project manager conducted the review of the literature and worked with two DNP-prepared nurses with a clinical background in chronic diseases, including renal disease. They helped the project manager rate the level of evidence of relevant articles based on the review of the abstract and full text to determine if they addressed the issue of education and self-management. Duplicates and articles not meeting the criteria were excluded. Essential information was extracted from selected studies and placed into a table to summarize the studies. An interprofessional team of evaluators of local experts invited by the project manager composed of a nephrologist, nurse practitioners, nurse educator, and volunteer dialysis nurses reviewed the evidence-based CPG on a self-management support program for dialysis patients and evaluated the guideline using the AGREE II instrument.

## Summary

The lack of education and inadequate commitment to self-management practices of patients with ESRD on HD can increase rehospitalization, morbidity, and mortality. (Ranahan et al., 2020). Hence, this project purpose was to develop a guideline for to address self-management with patients. A robust theoretical model, the chronic care model was described to guide the project. To achieve the purpose of this project, the project manager collaborated with other professionals, including two DNP-prepared nurses, to search for relevant literature with credible research evidence. The synopsis of the evidence-based self-management support program for patients with ESRD on HD was evaluated for quality by the interprofessional team composed of a physician, nurse practitioner, and volunteer dialysis nurses using AGREE II instrument. The development of CPG education on ESRD self-management can enable nurses and other healthcare providers to better care services for patients with ESRD on HD. Furthermore, the importance of education to ESRD patients can improve compliance with medications, dietary restrictions, and following dialysis schedule resulting in maintaining stable health status, thus, improving quality of life, minimizing complications, and reducing hospital readmission (Ranahan et al., 2020). Finally, the role of a DNP student in this project of applying the knowledge and educational growth acquired in the DNP program has been provided in this section. The following section gives an insight into the collection and analysis of evidence.

### Section 3: Collection and Analysis of Evidence

#### **Introduction**

The prevalence rate of CKD in America has been increasing over the past years. According to CDC (2021a), more than one in seven, or 15% of adults (37 million), are estimated to have CKD. The alarming increase of CKD in the adult population is attributed to the rising cases of non-communicable diseases such as diabetes and hypertension among adult Americans. As the disease progresses to ESRD, there is an urgent need to develop therapies that would reduce the effect of the disease at the final stage (Bowling et al., 2017). The need for renal replacement therapies is one of the urgent requirements that would positively impact this stage. In addition, HD is the most preferred treatment for managing an individual with ESRD because it improves kidney functioning and gives a patient a long-life expectancy (Gaietto, 2019; Hall et al., 2017). However, this operation is highly dependent on self-management practices taken by the patient.

The success of HD with ESRD patients mainly depends on the patient's adherence to self-management practices of the disease. Inadequate commitment to self-management practices increases hospitalization, morbidity, and mortality among ESRD patients (Ranahan et al., 2020). Hence, this project developed an evidence-based CPG on a self-management support program for dialysis patients for use by health care providers at the dialysis unit. The practice-focused question was, "Will an interprofessional team of evaluators develop consensus on an evidence-based CPG on self-management support program for dialysis patients?" The targeted objective of this project was to develop

patient education on self-management practices to improve treatment outcomes for HD patients. This section also discusses the practiced focused question, identifying the sources of evidence, describing the project participants, explaining the tools, and collecting the data. Additionally, this section describes the system used for recording, tracking, organizing, and analyzing evidence in the analysis and synthesis.

### **Practice-Focused Question**

The prevalence rate of CKD continues to increase, emphasizing the need to provide self-management strategies as pillars of the clinical guidelines for treating ESRD patients (Bowling et al., 2017). The dialysis unit in the health care system has made little effort to teach patients about self-management strategies. Therefore, this project's practice focus question was: "Will an interprofessional team of evaluators develop consensus on an evidence-based self-management support program for dialysis patients?" The unity of the interprofessional team would positively impact on the patient health status of CKD patients in the entire organization and locally (Husain et al., 2020). The team's skills gained over the years in the health care practice can significantly impact a solution to the issues of CKD.

The success of education on self-management practices starts with the health professionals with skills and expertise on the critical issues that patients should be taught in the program (CDC, 2020). The project utilized the Walden Guide to Clinical Practice Guidelines. This process was significant in collecting the professional views from the team and understanding areas for emphasis.

The practice-focused question is a guiding light in the research process. Therefore, it is important that the project adequately answers the question as planned. This project answered this question by focusing on if an interprofessional team of evaluators develops consensus on an evidence-based CPG for a self-management support program for dialysis patients.

### **Sources of Evidence**

The search for evidence included CINAHL, EBSCO, Cochrane Library, Medline, PubMed database, OVID, and ProQuest. The keywords were *chronic kidney disease, dialysis patients, ESRD, end-stage renal disease, disease burdens of CKD, and self-management support program*. The project team was an essential resource that played a significant role in completing this project (Evangelista et al., 2018). The professional associations' guidelines and position papers included were the American Society of Nephrology, the International Society of Nephrology, The National Kidney Foundation, and the Nephrology Nurses Association.

The purpose of the DNP project was to develop an evidence-based CPG on a self-management support program for dialysis patients. To achieve this, a search for relevant literature with credible research evidence led to the development of the guideline for self-management for dialysis patients. The selection was based on a review of the abstracts and full text to determine if they address the issue of education and self-management. Duplicates and those not meeting the criteria were excluded. Key information was extracted from selected studies and placed into a table to summarize the studies. The information included authors, year of publication, aim, design, level of evidence, sample

size and type, instrument(s), and findings. Selected studies were critically appraised using the Hierarchy of Evidence for Intervention Studies (Fineout-Overholt et al., 2010). This approach was used to assess the evidence's quality and the recommendation's strength. The evidence-based CPG on the self-management support program for dialysis patients was developed following the project manager's review of the literature. The three-person project team (DNP student and two DNP prepared nurses) rated the level of evidence to select the best evidence to include in the CPG. The interprofessional team of evaluators was composed of local experts that reviewed the synopsis of the evidence-based self-management support program for dialysis patients. The interprofessional team of evaluators included the project site physician, nurse practitioners, nurse educator, and dialysis nurses. The interprofessional team of evaluators reviewed and evaluated the guideline from their professional perspective using AGREE II instrument (Brouwers et al., 2010a). With this DNP project, I aimed to develop an evidence-based CPG on a self-management support program for ESRD patients on HD. Patient education on self-management programs should improve the quality of life for ESRD patients and decrease morbidity and unnecessary hospitalization (Ranahan et al., 2020).

### **Participants**

The interprofessional team of reviewers included one volunteer nephrologist, two nurse practitioners, one nurse educator, and two dialysis nurses from the project site. No patients were involved. The invited reviewers have years of experience and expertise in managing patients on HD. The nephrologist has been practicing for 15 years. The two nurse practitioners worked in the dialysis unit for 5 years. The nurse educator is 25 years

in practice, and the two dialysis nurses have been working with the organization for 20 years. In addition, the years of exposure to treating and providing services to patients on HD are valuable assets and professionally extracted and converted into workable guidelines.

The physician's years of service in providing care to ESRD patients were essential and provided a different perspective on understanding the medical care and management. The nurse practitioners had a crucial role given that they have firsthand information of the actual situation in the clinical setting. The volunteer nurses have an accurate picture since they directly contact and provide care to the patients receiving dialysis. With combined 110 years of experience, the team has a solid component of experts in dialysis care and management.

### **Procedure**

The purpose of the DNP project was to develop an evidence-based CPG on a self-management support program for dialysis patients. A search for relevant literature with credible research evidence led to the development of the guideline for self-management for dialysis patients. The selection was based on a review of the abstracts and full text to determine if they address the issue of education and self-management. Duplicates and those not meeting the criteria were excluded. Next, essential information was extracted from selected studies and placed into a table to summarize the studies. The information included authors, year of publication, aim, design, level of evidence, sample size and type, instrument(s), and findings. Finally, the selected studies were appraised using the



Hierarchy of Evidence for Intervention Studies (Fineout-Overholt et al., 2010). This approach was used to assess the evidence's quality and the recommendation's strength.

The interprofessional team of evaluators comprised of local experts reviewed the evidence-based CPG on a self-management support programs for dialysis patients and evaluated the guideline using the AGREE II instrument. The AGREE II instrument is used to evaluate the rigor of the methods and the transparency in which a guideline was developed. The instrument addressed 23-items which were classified into six domains. The scope and purpose, stakeholder involvement, rigor of development, clarity of presentation, applicability, and clarity of presentation. Using AGREE II instrument was the key to assessing the transparency and methodological rigor in which the guideline for education on ESRD self-management was formulated (Brouwers et al., 2010a). AGREE model has been widely used, and various stakeholder groups have been authorized to use it. The groups include educators, policymakers, guideline developers, and health care providers (Brouwers et al., 2010a).

Brouwers et al. (2010b) reported the Cronbach's Alphas for reliability on the six domains ranged from .64 to .89. The score for each domain on the AGREE II instrument was as follows: Domain 1 ( $\alpha = .89$ ), Domain 2 ( $\alpha = .73$ ), Domain 3 ( $\alpha = .75$ ). Domain 4 ( $\alpha = .68$ ), Domain 5 ( $\alpha = .80$ ), and Domain 6 ( $\alpha = .64$ ). Brouwers et al. (2010c) stated "the validity of the items was established, and the user's manual was rated as highly useful by users" (p.E472).

The calculation of the sum of scores by domain on the AGREE II instrument is presented in Table 1. Table 2 illustrates the calculation of the percentage of agreement using the AGREE II formula.

### **Protection**

All medical center participants were volunteers working as a team to improve quality within the medical center. The medical center Institutional Review Board (IRB) determined that the project was exempt. Team members' names were internally used to support the credibility of the guideline and not included in the Walden manuscript. All working drafts were destroyed after being evaluated using the AGREE II instrument. The collection of information from the respondents started after IRB approval from Walden. The well-being and privacy of volunteers who participated in this project were protected. Volunteers who made an informed decision about participating in the capstone project can withdraw anytime. Data collected are retained for 3 years before destruction.

### **Analysis and Synthesis**

The CPG developed was to provide ESRD patients and caregivers with self-management strategies. It is essential that in the short clinical interaction with ESRD patients during the treatment session, education is given to them in brief. Various strategies were employed in recording, tracking, organizing, and analyzing the evidence to answer the clinical question. To ensure the integrity of the evidence, the obtained evidence was checked, and counter checked for correctness.

## Summary

CKD is among the chronic conditions affecting individuals adversely throughout the globe, and the prevalence has been rising in recent times. Most individuals diagnosed with CKD progress to ESRD, needing dialytic support (Molnar et al., 2017). These literature sources considered for this study were important in developing a practice guideline supported by the field data collected from evidence-based sources. The interprofessional team of invited experts was responsible for evaluating the guideline and forwarding it to the medical center leadership team for approval and adoption. The project manager followed through with outcomes measurement to recommend the guideline to locally dialysis centers and nephrology nurses across the country.

Section 3 discussed the sources of evidence, including databases, search terms, program design, implementation, protections, participants, and data analysis. The participants included a physician, nurse practitioners, and nurse volunteers. Section 4 of the project provides the findings of the project. The Section 4 outlines the interpretation of the findings based on the collected data and discusses project implications, project team contributions, recommendations, project limitations, and strengths.

## Section 4: Findings and Recommendations

### **Introduction**

The increase in the prevalence rate of CKD is a sign that the current healthcare systems need to use evidence-based strategies to improve care and patient outcomes. This issue has been attracting the attention of many researchers to identify effective measures that could be important in solving this problem (Ji et al., 2019).

The gap in nursing practice that this study addressed is the lack of educational self-management support programs appropriate to the needs of ESRD patients. The quality of care can improve among ESRD patients by focusing on self-management strategies (Barrecheguren & Bourbeau, 2018).

The purpose of this project was to develop an evidence-based CPG on a self-management support program for dialysis patients. The practice-focused question was: “Will an interprofessional team of evaluators develop consensus on an evidence-based CPG on self-management support program for dialysis patients?”

The selection of studies was based on a review of the abstracts and full text to determine if they addressed the issue of education and self-management. Duplicates and those not meeting the criteria were excluded. Key information was extracted from selected studies and placed into a table to summarize the studies. The selected studies were critically appraised by the project team using The Hierarchy of Evidence developed by Fineout-Overholt et al. (2010). Six content experts assess the quality of the CPG using AGREE II instrument. The percentage of agreement for six domains of the AGREE II ranged from 88.9% to 98.1%, which is well above the 70% threshold for a high-quality

practice guideline. The CPG for a self-management support program for dialysis patients were developed from the evidence (See Appendix A) and evaluated using the AGREE II instrument.

## **Findings and Implications**

### **Findings**

Six experts evaluated the guideline using the AGREE II instrument. The AGREE manual recommends at least two appraisers and four preferably (Brouwers et al., 2010a). The manual indicates that a greater number of appraisers increase the reliability of the assessment. This study included six experts representing various disciplines involved in patient care. See Table 1 for the calculation of the sum of scores by domain on the AGREE II instrument.

**Table 1**

*Calculation of the Sum of Scores by Domain on the AGREE II Instrument*

	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Sum of scores
Domain 1 <i>Scope and purpose</i> (Items 1-3)	21	21	21	20	20	21	124/126
Domain 2 <i>Stakeholder involvement</i> (Items 4-6)	18	19	21	19	19	19	115/126
Domain 3 <i>Rigor of development</i> (Items 7-14)	54	53	56	56	52	53	324/336
Domain 4 <i>Clarity of presentation</i> (Items 15-17)	21	20	21	19	20	20	121/126
Domain 5 <i>Applicability</i> (Items 18-21)	28	23	28	26	27	26	158/168
Domain 6 <i>Editorial independence</i> (Items 22-23)	11	10	14	14	13	14	76/84
<i>Overall assessment</i>	7	7	7	6	6	7	40/42
Recommend the guideline for use	Yes	Yes	Yes	Yes	Yes	Yes	

See Table 2 for the calculation of the percent of agreement using the AGREE II formula.

**Table 2**

*Calculation of the Percent of Agreement Using the AGREE II Formula*

	Sum of scores	Maximum possible score	Minimum possible score	Percent of agreement
Domain 1 <i>Scope and purpose</i> (Items 1-3)	124	126	18	98.1%
Domain 2 <i>Stakeholder involvement</i> (Items 4-6)	115	126	18	89.8%
Domain 3 <i>Rigor of development</i> (Items 7-14)	324	336	48	95.8%
Domain 4 <i>Clarity of presentation</i> (Items 15-17)	121	126	18	95.4%
Domain 5 <i>Applicability</i> (Items 18-21)	158	168	24	93.1%
Domain 6 <i>Editorial independence</i> (Items 22-23)	76	84	12	88.9%
<i>Overall assessment</i>	40	42	6	94.4%

*Note:* AGREE II formula for the scaled domain score to calculate the percent of agreement:

$$\frac{\text{Obtained score} - \text{Minimum possible score}}{\text{Max, possible score} - \text{Min, possible score}} \times 100 = \text{Percent of Agreement}$$

Domain 1 is about scope and purpose with three main items. The items include describing the overall guideline objective, the description of the clinical questions, and the patients to whom these guidelines are applicable. In Items 1-3, the six experts gave a total score of 124, with all the experts giving a rate of 20 and above. The maximum possible score is 126 according to the AGREE II formula. Two points were lost on question 3 (The population [ e.g., patients, public] to whom the guideline is meant to apply is specifically described). The percentage of agreement was 98.1%. These findings

indicate that the experts agreed on the objective of the guideline towards developing a consensus on an evidence-based self-management support program for dialysis patients.

The experts also agreed on the type of patients needing these guidelines. The high percentage of agreement (98.1%) obtained in this domain implies that the experts validated that the overall objective of the guideline is specifically described. These guidelines would apply to ESRD patients as approved by the interprofessional team. The scores of 98.1% obtained in this domain further imply that the proposed project of developing self-management strategies for ESRD patients is a positive direction in healthcare because of the projected benefits that it would have on patients.

Domain 2 is on stakeholder involvement and included collecting expert opinions on three primary guideline items. The first item was the group tasked with developing the guideline, including individuals from relevant professional groups. The second item was patients' views and preferences. The third item was about the definition of the target users of the guideline and, lastly, the piloting of the policy among end-users (Lim et al., 2019). AGREE II data reveals that the total score on this domain was 115 out of the possible maximum score of 126. Points were lost as follows: three points lost on Question 4 (The guideline development group includes individuals from all relevant professional groups), three points lost on Question 5 (The views and preference of the target population [e.g., patients, public] have been sought), and five points were lost on Question 6 (The target users of the guideline are clearly defined). In addition, the agreement percentage of this domain was 89.8% which is a positive score on the professional agreement of self-management strategies for ESRD patients.



The scores from Domain 2 further indicate that the experts considered in developing these guidelines had a positive response. These results indicate that experts' opinions included in this domain were 18 and above, showing that many of these experts agreed on Items 4-6. The overall high percentage in Domain 2 further supports that guideline development includes relevant professional groups, the target population, and target users are clearly defined.

Domain 2 stakeholder involvement scores could potentially improve by including a list of the professionals involved in developing the guideline in an acknowledgement section or the appendices of the guideline. Due to the fact this was a DNP project, the professionals' names remain anonymous. The perspective of patients with ESRD was achieved through the evidence in the literature and the expertise of experienced professionals. A more direct approach would have been to have focus groups with the patients who received dialysis at the center. Under the subheading *Target Audience*, only registered nurses who work in an outpatient dialysis center were identified. Additional professionals who may consider the guideline relevant could have been identified in this section.

Domain 3 is about rigor of development, focusing on systematic methods to search for evidence. A clear description of the criterion used in selecting the evidence describes utilizing a technique in formulating recommendations. The health benefits, side effects, and risks are considered in developing proposals.

The maximum possible score for this domain was 336. The sum of scores was 324. Points were lost as follows: one point was lost on questions 7, 8, 9, 10, and 11. The

method was detailed in the guideline. The loss of one point on each Question could have been the result of the opinion of the reviewer(s) or other factors that influenced their responses. Question 14 lost one point. Adding a detailed description of the procedure for updating the guideline could improve the score. Four points were lost on Question 12. There is an explicit link between the recommendations and the supporting evidence. The supporting evidence was provided as a literature review matrix and directly related to the narrative with recommendations. The reviewers' subjective opinion or other factors could have influenced the responses. Two points were lost on Question 13. Experts have externally reviewed the guideline before its publication. Suggest that the external review of the guideline should be done before the publication.

Domain 3 with Questions 7-14 also attracted a higher score from the respondents per all the six experts considered in the project, giving a comparatively higher score relatively to the other domains. The percentage of agreement in this domain is 95.8%. The experts' evaluation with the rigor development indicated that items taken there were details of the strategy used to search for evidence from reliable sources including electronic databases such as MEDLINE, CINAHL, and ProQuest.

The high score of 324 obtained in Domain 3 further indicated the ability of the proposed strategy to improve the quality and safety of healthcare among ESRD patients. Patient safety is one of the core principles that all healthcare professionals try to attain in carrying out their duties. The consensus on the evidence-based self-management support program for dialysis patients is a primary concern connected to better patients' outcomes and can potentially reduce healthcare costs (Maisch et al., 2021).

Domain 4 is on the clarity of presentation. It reflects how the experts evaluated the ambiguity and specificity of the recommendations, presentation of the different management options of the condition, and identification of key recommendations. The overall score in the section was 121 out of the possible maximum score of 126. Points were lost as follows: one point on Question 15 (The recommendations are specific and unambiguous). The recommendation list is clearly stated and appear at the beginning of the guideline. No comment was noted from the evaluator. Two points were lost on Question 16 (The different options for management of the condition or health issue are clearly presented). The options from the evidence to promote self-management were identified. The addition of an executive summary could enhance the guideline. In Question 17, two points were lost (Key recommendations are easily identifiable). The recommendations were provided on a list in addition to the narrative. Adding a table after the narrative summarizing the recommendations could enhance the guideline.

These results show that the responses of each expert did not differ significantly. The overall percentage score in this section was 95.4%, indicating that the experts gave a higher score on the clarity of presentation for self-management strategies for ESRD patients. The high agreement in this domain further shows that experts positively evaluated the mode of presentation of the guideline. The proposed evidence-based practice for the patients is not ambiguous and meets the needs of patients.

Domain 5 is on applicability that covers items, 18-21. The overall score was 158 out of 168. Points were lost as follows: one point on Question 18 (The guideline describes facilitators and barriers to its application). The addition of specific types of

facilitators and barriers and suggested specific strategies to overcome the barriers should be detailed and easy to find, such as on a table to clearly display the information. In Question 19, two points were lost (The guideline provides advice and/or on how the recommendation can be put into practice). The addition of specific tools and resources to facilitate the application of the guideline such as links to websites, checklists, and manuals could improve the scores. Four points were lost on Question 20 (The potential resource implications of applying the recommendations have been considered). The addition of a detailed discussion on resources is needed in the guideline. Areas to include are the types of cost information that were considered, and the appropriate experts involved in finding and analyzing the cost information. In Question 21, three points were lost (The guideline presents monitoring and/or auditing criteria). Adding a detailed discussion on monitoring and auditing criteria, such as clinical or health outcome measures would enhance the guideline.

The results in Domain 5 shows that the experts strongly agreed with the items in this section. In addition, the percentage of agreement in this section was 93.1%, signifying that the experts accepted the application of an evidence-based self-management support program for dialysis patients. These scores further show that the guidelines for self-management support for ESRD patients would be significant in the healthcare system.

Domain 6 covered editorial independence. The overall score from this domain was 76 out of 84, with an agreement score of 88.9%. Points were lost as follows: five points on Question 22 (The views of the funding body have not influenced the guideline's

content). It is needed to clearly state that there was no funding source for the development of the guideline, and that a funding body did not influence the guideline's content. In Question 23, three points were lost (Competing interests of guideline development group members have been recorded and addressed). Adding a discussion on the competing interest of the guideline development group members would enhance the guideline. As there was no funding source, there was no external influence based on financial support.

The overall assessment of Question 1 to rate the quality of this guideline was 40 out of a possible score of 42. The agreement score on the comprehensive evaluation was 94.4%. Two of the evaluators scored the overall quality as 6, and four scored the overall quality as 7. The scores for Question 2 of the overall guideline assessment, indicated that all the experts recommended the guidelines for use, 6 out of 6. After reviewing the guidelines, all the experts answered yes in recommending this guideline for use. The CPG on self-management were developed based on the research evidence. An interprofessional team reviewed the CPG on self-management and evaluated it using the AGREE II instrument. The quality of the guideline was evident in the high percentage of agreement by the experts who participated.

### **Unanticipated Events**

The unanticipated event was the delay and length of time to get IRB approval. The other unplanned event was to confirm the number of reviewers available to review and evaluate the CPG on the issue of availability and willingness to volunteer their time. Both factors extended the time to completion of the project.

## **Implications**

There must be an effort to improve staff knowledge and motivation to use the clinical guideline. The CPG is made available by the DNP student to nephrology nurses and other health care professionals in the organization and can be easily access electronically when the organization approves the CPG.

The main objective was to design a clinical practice guideline for a self-management support program for dialysis patients. Adhering to clinical practice guidelines may improve physical functioning and well-being, control of blood pressure, and the ability of patients to engage in physical activity (Schrauben et al., 2020). An evidence-based CPG on a self-management support program for dialysis patients is critical to managing CKD disease. Nurses equipped with evidence-based strategies working with patients and families to achieve positive healthcare outcomes. Adopting an evidence-based self-management support program for dialysis patients affords systems the benefit of reducing healthcare costs, minimizing complications, and reducing frequent rehospitalization (Schrauben et al., 2020).

The evidence-based CPG on a self-management support program for dialysis patients represents a practical approach to improving patient outcomes (Donald et al., 2018). The CPG emphasizes the importance of advocating for the education of patients with CKD. Nephrology nurses must implement the guidelines for educating patients with ESRD while getting their dialysis. In addition, nephrology nurses who interact with family members and caregivers will have the opportunity to provide effective and meaningful education. According to Schrauben et al. (2020), there are improvements in

healthcare outcomes and reduction of complications when patients are equipped with knowledge about self-management.

### **Recommendations**

The analysis of the expert opinion shows that all healthcare professionals included in the study recommended the approach of self-management strategies in managing ESRD patients on HD. Healthcare centers can benefit from using evidence-based guidelines for self-management strategies as part of the training for all nurses and healthcare professionals. The necessary actions that need to accompany this recommendation include an effective audit of healthcare institutions to assess disease management, goal achievement, evaluation of strengths, pinpoint causes of negative performance variances, and determine short-term, mid-term, and long-term needs concerning self-management programs. This process would be important in determining the success of the proposed self-management strategies. In most cases, developed evidence-based programs fail to grow in a health institution because of the inadequate preparation and examination of measures within the healthcare system that would heighten the success of a proposed development program (Frieden, 2014).

Healthcare organizations should fund evidence-based self-management support programs for dialysis patients using national government hospital development funds and public-private partnerships (PPPs). This expense needs to be applied to the cost training the nurses and patients on the proposed self-management guidelines (van Grieken et al., 2018). In terms of professional utilization, the developed programs can be implemented

under the joint consultation of healthcare professionals and healthcare expert practitioners in planning, development, strategy, execution, control, monitoring, and evaluation.

The healthcare team should have an ongoing knowledge-sharing and knowledge transfer to facilitate evidence-based self-management support programs for dialysis patients (van Grieken et al., 2018). Furthermore, in providing physical and technical resources, an evidence-based self-management support program should plan for new facilities, technologies, equipment, systems, and processes borne out of global health innovations and discoveries in healthcare systems, including research, diagnostics, medications, and treatment.

Self-management intervention aims to facilitate an individual's ability to make lifestyle changes and manage symptoms, treatment, and the physical and psychosocial consequences of living with chronic kidney disease (Donald et al., 2018). Accordingly, self-management requires patients' involvement and willingness to participate in self-management to develop optimal strategies to enable patients to manage their chronic disease and related comorbidities

### **Contribution of the Doctoral Project Team**

Integrating a new evidence-based practice intervention in healthcare to improve the healthcare outcome is a significant move toward heightening the quality of healthcare delivery (Hafezieh et al., 2020). The project team (DNP student and two DNP prepared nurses) developed the CPG. The interprofessional team of evaluators made a meaningful contribution to the CPG by critically evaluating the CPG. In addition, their role as expert volunteers was significant in helping to confirm the quality of the CPG. The input of all



the experts was crucial in solidifying the quality and integrity of the project. The experts reviewed the CPG on evidence-based self-management support program for dialysis patients and evaluated the guideline using AGREE II instrument.

### **Strength and Limitations of the Project**

A strength of this project was the involvement of the project team with a DNP student, and two DNP prepared nurses and the interprofessional team of evaluators who are renal experts. Responses to the AGREE II instrument were based on an objective critique of the rigor and quality of the CPG by dedicated professionals. The development of the guidelines was limited to one site; however, if implementation yield positive results, the guidelines could be adapted for use with other sites and populations.

The team recommended that this guideline be adopted and that both formative and summative evaluation measures be used to determine the success of the guidelines in improving patient compliance with recommended self-care, nursing support for ESRD patients, and a decrease in complications necessitating additional dialysis and/or hospitalization. Finally, patient satisfaction and self-efficacy should be measured.

## Section 5: Dissemination Plan

The dissemination will initially focus internally on educating staff and physicians about the guidelines and their use with patients during dialysis treatment. It also emphasizes using patient education tools that are culturally and health-literacy appropriate. The use of the teach-back method is recommended during the education process. At least 1 year's data would need to be collected and analyzed to determine the effectiveness of the guidelines. Once this analysis is complete, the project can be disseminated to the broader nursing profession by presenting a research poster or podium presentation at a conference. For example, the New Jersey League for Nursing usually calls for abstracts for poster presentations in early November. The publication will be considered for the *Journal of Nephrology Nursing*. Other team members may wish to present in their representative professional societies and journals.

### **Analysis of Self**

My project was an incredible journey. It has helped me grow personally and professionally. Generally, this project has been full of demanding obstacles I had to overcome, and together with the experience, I feel transformed into a better professional. I appreciate those who have enlightened my experience as a doctoral student, starting from my preceptors during the practicum process, friends, and mentors I made along the way, including professors. I am deeply thankful for their contributions to molding my career as a doctorally prepared nurse.

This project has been essential in allowing me to assume the role of a project manager and ensure its success. When I would see most of the things going as planned, I

was pleased that I could meet the demands of the project. The challenges started from choosing the research topic to selecting the correct methodology, then finding experts to participate in the project. The most challenging part was getting an institution to participate and asking for IRB clearance. The solution was to practice tons of patience and perseverance. I collaborated with other students and a network of professionals, mostly DNP graduates. The best insight I gained is starting the process early at the IRB. It has been very challenging to get approval for an institution. Nevertheless, every obstacle was a part of the learning process, and part of education.

I felt a sense of ownership and personal responsibility in completing this project. The motivation in selecting this project inspired me when I started working with ESRD patients. I have seen their burden and personal challenges every time they undergo dialysis treatment. Frequent readmission at the hospital due to poor self-management and multiple comorbidities is painful to see. The motivation to pursue this project was to seek answers on how to help them. The short-term goal was to look for evidence-based practice of the most effective self-management interventions. My long-term professional goal is to continue to improve the guideline and increase my involvement in organizations to inspire other practitioners and bring the message that there are possibilities to improve the quality of life of our dialysis patients.

### **Summary**

The CPG on a self-management support program for patients with ESRD on HD require daily lifestyle behavioral modifications, including following dietary and fluid restrictions, adherence to medication use, and dialysis schedule. These are the current

measures that can effectively reduce ESRD complications in HD patients. This project has taken all the steps to design an important guideline for effectively implementing self-management strategies in healthcare. The CPG was developed based on the research evidence. The interprofessional team reviewed the CPG on self-management and evaluated it using the AGREE II instrument. The quality of the guideline was evident in the high percentage of agreement by the experts who participated. Therefore, guidelines can be implemented to improve patient outcomes and need to be updated regularly to reflect new evidence in the literature.

## References

- Almutary, H., Tayyib, N., & Gray, R. (2021). Evaluating self-efficacy among patients undergoing dialysis therapy. *Nursing Reports, 11*(1), 195–201.  
<https://doi.org/10.3390/nursrep11010019>
- American Association of Colleges of Nursing (2006). *DNP essentials*.  
<https://www.aacnnursing.org/DNP/DNP-Essentials>.
- Barrecheguren, M., & Bourbeau, J. (2018). Self-management strategies in chronic obstructive pulmonary disease: A first step toward personalized medicine. *Current Opinion in Pulmonary Medicine, 24*(2), 191–198.  
<https://doi.org/10.1097/MCP.0000000000000460>
- Bovenkamp, H. M., & Dwarswaard, J. (2017). The complexity of shaping self-management in daily practice. *Health Expectations, 20*(5), 952–960.  
<https://doi.org/10.1111/hex.12536>
- Bowling, C. B., Vandenberg, A. E., Phillips, L. S., McClellan, W. M., Johnson, T. M., & Echt, K. V. (2017). Older patients' perspectives on managing complexity in CKD self-management. *Clinical Journal of the American Society of Nephrology, 12*(4), 635–643. <https://doi.org/10.2215/CJN.06850616>
- Brattich, M. (2006). Morbidity and mortality in patients on dialysis: The impact of hemoglobin levels. *Nephrology Nursing Journal, 33*(1), 64–69,90.
- Brouwers, M. C., Kho, M. E., Browman, G. P., Burgers, J. S., Cluzeau, F., Feder, G., Fervers, B., Graham, I. D., Grimshaw, J., Hanna, S. E., Littlejohns, P., Makarski, J., & Zitzelsberger, L., for the AGREE Next Steps Consortium (2010a). AGREE

II: Advancing guideline development, reporting and evaluation in health care.

*Journal of Clinical Epidemiology*, 63(12), 1308–1311.

<https://doi.org/10.1016/j.jclinepi.2010.07.001>

Brouwers, M. C., Kho, M. E., Browman, G. P., Burgers, J. S., Cluzeau, F., Feder, G., Fervers, B., Graham, I. D., Grimshaw, J., Hanna, S. E., Littlejohns, P., Makarski, J., & Zitzelsberger, L., for the AGREE Next Steps Consortium (2010b).

Development of the AGREE II, part 1: performance, usefulness, and areas for improvement. *Canadian Medical Association Journal*, 182(10), 1045–1052.

<https://doi.org/10.1503/cmaj.091714>

Brouwers, M. C., Kho, M. E., Browman, G. P., Burgers, J. S., Cluzeau, F., Feder, G., Fervers, B., Graham, I. D., Grimshaw, J., Hanna, S. E., Littlejohns, P., Makarski, J., & Zitzelsberger, L., for the AGREE Next Steps Consortium (2010c).

Development of the AGREE II, part 2: assessment of validity of items and tools to support application. *Canadian Medical Association Journal*, 182(10), E472-E478. <https://doi/10.1503/cmaj.091716>

CDC. (2016). *Dialysis organizations team up with CDC to protect patients.*

<https://www.cdc.gov/media/releases/2016/p0927-dialysis.html>

CDC. (2020, June 25). *Self-Management Support and Education.*

<https://www.cdc.gov/dhdsp/pubs/guides/best-practices/self-management.htm>

CDC. (2021a, March 9). *Chronic Kidney Disease in the United States, 2021.*

<https://www.cdc.gov/kidneydisease/publications-resources/ckd-national-facts.html>

CDC. (2021b, March 10). *CKD Risk Factors and Prevention*.

<https://www.cdc.gov/kidneydisease/publications-resources/annual-report/ckd-risk-prevention.html>

Centers for Medicare & Medicaid Services (CMS). (2022). *ESRD quality incentive*

*program*. <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/ESRDQIP>

Crosio, A., Albo, E., Marcoccio, I., Adani, R., Bertolini, M., Colonna, M. R., Felici, N.,

Guzzini, M., Atzei, A., Riccio, M., Titolo, P., & Tos, P. (2020). Prevention of symptomatic neuroma in traumatic digital amputation: A RAND/UCLA

appropriateness method consensus study. *Injury*, *51*, 103–107.

<https://doi.org/10.1016/j.injury.2020.03.018>

Daniels, G. B., Robinson, J. R., & Walker, C. A. (2018). Adherence to treatment by

African Americans undergoing hemodialysis. *Nephrology Nursing Journal*, *45*(6), 561–569.

Donald, M., Kahlon, B. K., Beanlands, H., Straus, S., Ronksley, P., Herrington, G., Tong,

A., Grill, A., Waldvogel, B., Large, C. A., Large, C. L., Harwood, L., Novak, M.,

James, M. T., Elliott, M., Fernandez, N., Brimble, S., Samuel, S., & Hemmelgarn,

B. R. (2018). Self-management interventions for adults with chronic kidney

disease: A scoping review. *BMJ Open*, *8*(3), e019814.

<https://doi.org/10.1136/bmjopen-2017-019814>

- Evangelista, L. S., Cho, W.-K., & Kim, Y. (2018). Obesity and chronic kidney disease: A population-based study among South Koreans. *PloS One*, *13*(2), e0193559.  
<https://doi.org/10.1371/journal.pone.0193559>
- Fain, J. A. (2017). 2017 National standards for diabetes self-management education and support (DSMES): Revised and updated. *The Diabetes Educator*, *43*(5), 439.  
<https://doi.org/10.1177/0145721717729355>
- Fineout-Overholt, E., Melnyk, B.M., Stillwell, S.B. & Williamson, K.M. (2010). Critical appraisal of the evidence: Part I an introduction to gathering, evaluating, and recording the evidence. *American Journal of Nursing*, *110*(7), 47-52.
- Fink, A., Kosecoff, J., Chassin, M., & Brook, R. H. (1984). Consensus methods: Characteristics and guidelines for use. *American Journal of Public Health*, *74*(9), 979–983. <https://doi.org/10.2105/AJPH.74.9.979>
- Finnegan-John, J., & Thomas, V. J. (2013). The psychosocial experience of patients with End-stage renal disease and its impact on quality of life: Findings from a needs assessment to shape a service. *International Scholarly Research Notices*, vol. 2013, Article ID 308986, 8 pages. <https://doi.org/10.5402/2013/308986>
- Frieden, T. R. (2014). Six components necessary for effective public health program implementation. *American Journal of Public Health*, *104*(1), 17–22.  
<https://doi.org/10.2105/AJPH.2013.301608>
- Gaietto, K. J. (2019). The shortage of expert nephrology nurses in hemodialysis: A literature review. *Nephrology Nursing Journal*, *46*(6), 577–585.
- Golestaneh, L., Alvarez, P. J., Reaven, N. L., Funk, S. E., McGaughey, K. J., Romero, A., Brenner, M. S., & Onuigbo, M. (2017). All-cause costs increase exponentially



with increased chronic kidney disease stage. *American Journal of Managed Care*, 23(10), 163–172.

Griva, K., Lam, K. F. Y., Nandakumar, M., Ng, J. H., McBain, H., & Newman, S. P. (2018). The effect of brief self-management intervention for hemodialysis patients (HED-SMART) on trajectories of depressive and anxious symptoms. *Journal of Psychosomatic Research*, 113, 37–44.

<https://doi.org/10.1016/j.jpsychores.2018.07.012>

Hafezieh, A., Dehghan, M., Taebi, M., & Iranmanesh, S. (2020). Self-management, self-efficacy, and knowledge among patients under haemodialysis: A case in Iran. *Journal of Research in Nursing*, 25(2), 128–138.

<https://doi.org/10.1177/1744987120904770>

Hall, R. K., Myers, E. R., Rosas, S. E., O'Hare, A. M., & Colón-Emeric, C. S. (2017). Choice of hemodialysis access in older adults: A cost-effectiveness analysis. *Clinical Journal of the American Society of Nephrology*, 12(6), 947–954.

<https://doi.org/10.2215/CJN.11631116>

Husain, F., Kusuma, H., & Johan, A. (2020). Effects of peer support program on self-management in patients with end-stage renal disease undergoing hemodialysis. *Nurse Media Journal of Nursing*, 10(2), 171–181.

<https://doi.org/10.14710/nmjn.v10i2.26502>

Ji, A., Pan, C., Wang, H., Jin, Z., Lee, J. H., Wu, Q., Jiang, Q., & Cui, L. (2019).

Prevalence and associated risk factors of chronic kidney disease in an elderly population from Eastern China. *International Journal of Environmental Research and Public Health*, 16(22), 4383. <https://doi.org/10.3390/ijerph16224383>

Jimenez-Cebrian, A. M., Becerro-de-Bengoa-Vallejo, R., Losa-Iglesias, M. E., Calvo-Lobo, C., Mazoterias-Pardo, V., Moran-Cortes, J. F., Palomo-Lopez, P., & Lopez-Lopez, D. (2021). Impact of chronic kidney diseases in feet health & quality of life: A case-series study. *Journal of Tissue Viability*, 30(2), 271–275.

<https://doi.org/10.1016/j.jtv.2021.02.005>

Lam, C. K., Copel, L. C., & Deveneau, L. (2021). Nurse faculty experiences teaching chronic illness self-management concepts: An exploratory study. *Nursing Education Perspectives*, 42(6), 344. <https://doi-org.ezp.waldenulibrary.org/10.1097/01.NEP.0000000000000808>

Lean, M., Fornells-Ambrojo, M., Milton, A., Lloyd-Evans, B., Harrison-Stewart, B., Yesufu-Udechuku, A., Kendall, T., & Johnson, S. (2019). Self-management interventions for people with severe mental illness: systematic review and meta-analysis. *British Journal of Psychiatry*, 214(5), 260–268.

Lim, Y. Z., Chou, L., Au, R. T., Seneviwickrama, K. M. D., Cicuttini, F. M., Briggs, A. M., ... & Wluka, A. E. (2019). People with low back pain want clear, consistent, and personalized information on prognosis, treatment options and self-management strategies: a systematic review. *Journal of physiotherapy*, 65(3), 124-135. <https://doi.org/10.1016/j.jphys.2019.05.010>

- Lin, M.-Y., Liu, M. F., Hsu, L.-F., & Tsai, P.-S. (2017). Effects of self-management on chronic kidney disease: A meta-analysis. *International Journal of Nursing Studies*, *74*, 128–137. <https://doi.org/10.1016/j.ijnurstu.2017.06.008>
- Lipford, K. J., McPherson, L., Hamoda, R., Browne, T., Gander, J. C., Pastan, S. O., & Patzer, R. E. (2018). Dialysis facility staff perceptions of racial, gender, and age disparities in access to renal transplantation. *BMC Nephrology*, *19*(1), 5. <https://doi.org/10.1186/s12882-017-0800-6>
- Llewellyn, S. (2019). The chronic care model, kidney disease, and primary care: A scoping review. *Nephrology Nursing Journal*, *46*(3), 301-312, 328.
- Maisch, P., Retz, M., Gschwend, J. E., Koll, F., & Schmid, S. C. (2021). Clinical practice guidelines for bladder cancer: a systematic review and meta-analysis using the agree II instrument. *Urologia Internationalis*, *105*(1-2), 31-40. <https://doi.org/10.1159/000509431>
- McNett, M., Masciola, R., Sievert, D., & Tucker, S. (2021). Advancing evidence-based practice through implementation science: Critical contributions of doctor of nursing practice- and doctor of philosophy-prepared nurses. *Worldviews on Evidence-Based Nursing*, *18*(2), 93–101. <https://doi.org/10.1111/wvn.12496>
- Molnar, M. Z., Streja, E., Sumida, K., Soohoo, M., Ravel, V. A., Gaipov, A., Potukuchi, P. K., Thomas, F., Rhee, C. M., Lu, J. L., Kalantar-Zadeh, K., & Kovesdy, C. P. (2017). Pre-ESRD depression and post-ESRD mortality in patients with advanced CKD transitioning to dialysis. *Clinical Journal of the American Society of Nephrology*, *12*(9), 1428–1437. <https://doi.org/10.2215/CJN.00570117>

- Mona J., Dosh M., & Al-Jibory W. (2020). Proposed improving self-management support system for chronic care model (heart diseases). In: Balas V., Kumar R., Srivastava R. (eds) recent trends and advances in artificial intelligence and internet of things. *Intelligent Systems Reference Library*, 172, 227-231. Springer, Cham. [https://doi.org/10.1007/978-3-030-32644-9\\_24](https://doi.org/10.1007/978-3-030-32644-9_24)
- Mott, A. K. (2021). Diabetes mellitus self-management to decrease the risk for chronic kidney disease. *Nephrology Nursing Journal*, 48(1), 65–63. <https://doi.org/10.37526/1526-744X.2021.48.1.65>
- Neale, E. P., Middleton, J., & Lambert, K. (2020). Barriers and enablers to detection and management of chronic kidney disease in primary healthcare: A systematic review. *BMC Nephrology*, 21(1), 83. <https://doi.org/10.1186/s12882-020-01731-x>
- Park, O. L., & Kim, S. R. (2019). Integrated self-management program effects on hemodialysis patients: A quasi-experimental study. *Japan Journal of Nursing Science*, 16(4), 396–406. <https://doi.org/10.1111/jjns.12249>
- Ranahan, M., Visger, J. V., & Kayler, L. K. (2020). Describing barriers and facilitators for medication adherence and self-management among kidney transplant recipients using the information-motivation-behavioral skills model. *Clinical Transplantation*, 34(6), e13862. <https://doi.org/10.1111/ctr.13862>
- Ramya, D. N. (2020) Dialysis in the management of chronic renal failure complications. *Journal of Kidney*, 6(4), 190. DOI: 10.35248/2472-1220.20.6.190
- Salerno, S., Dahlerus, C., Messana, J., Wisniewski, K., Tong, L., Hirth, R. A., Affholter,

- J., Gremel, G., Wu, Y., Zhu, J., Roach, J., Balovlenkov, E., Andress, J., & Li, Y. (2021). Evaluating national trends in outcomes after implementation of a star rating system: Results from dialysis facility compare. *Health Services Research*, 56(1), 123. <https://doi.org/10.1111/1475-6773.13600>
- Schrauben, S. J., Cavanaugh, K. L., Fagerlin, A., Ikizler, T. A., Ricardo, A. C., Eneanya, N. D., & Nunes, J. W. (2020). The relationship of disease-specific knowledge and health literacy with the uptake of self-care behaviors in CKD. *Kidney International Reports*, 5(1), 48–57. <https://doi.org/10.1016/j.ekir.2019.10.004>
- Shah, J. M., Ramsbotham, J., Seib, C., Muir, R., & Bonner, A. (2021). A scoping review of the role of health literacy in chronic kidney disease self-management. *Journal of Renal Care*, n/a(n/a). <https://doi.org/10.1111/jorc.12364>.
- Sheetz, K. H., Gerhardinger, L., Ryan, A. M., & Waits, S. A. (2021). Changes in dialysis center quality associated with the end-stage renal disease quality incentive program : An observational study with a regression discontinuity design. *Annals of Internal Medicine*, 174(8), 1058–1064. <https://doi.org/10.7326/M20-6662>
- Streja, E. (2017). Hospital readmission for the dialysis patient: who is (not) responsible? *Kidney International*, 92(4), 788–790. <https://doi.org/10.1016/j.kint.2017.04.046>
- Vadakedath, S., & Kandi, V. (2017). Dialysis: A review of the mechanisms underlying complications in the management of chronic renal failure. *Cureus*, 9(8), 1603. <https://doi.org/10.7759/cureus.1603>
- Wagner, E.H. (1998). Chronic disease management: What will it take to improve care for chronic illness? *Effective Clinical Practice*, 1(1), 2-4.

Walden University. (2020). *Walden and social change*. Retrieved from

<https://academicguides.waldenu.edu/social-change/mission#:~:text=Walden%20University%27s%20Mission%20is%20to%20provide%20a%20diverse,so%20that%20they%20can%20effect%20positive%20social%20change>

Yunwei, G., & Dessislava, P. (2019). Impact of the medicare hospital readmissions reduction program on vulnerable populations. *BMC Health Services Research*, *19*(1), 1–15. <https://doi.org/10.1186/s12913-019-4645-5>

## Appendix A: Clinical Practice Guidelines Based on Literature Review

### Self-Management Support Program for Dialysis Patients

#### **Summary of Recommendations**

1. Provide regular multi-session self-management education to improve physical and psychosocial outcomes.
2. Focus on the early identification of dialysis patients with low self-efficacy and develop individualized care plans to enhance self-efficacy for self-management.
3. Consider the patient's preference for face-to-face education, mobile apps, text messaging, or telehealth for self-management in dialysis patients.
4. Provide positive social support and tailored information for self-management in dialysis patients.
5. Providers should have sufficient training to identify potential barriers and facilitators of self-management within a particular setting.
6. Develop a peer support program for patients undergoing hemodialysis.
7. Implement planned telephone follow-up to reduce emergency department admissions.

#### **Scope and Purpose of the Clinical Practice Guideline**

Chronic kidney disease (CKD) is one of the significant public health problems in the US and other global nations. The disease burden of CKD often results in the need for renal replacement therapy, life-long dialysis, and a high risk of morbidity and mortality. There is also an increased need for frequent hospitalizations, which result in the use of additional financial resources to meet the care needs of the patients with the disease (Ji et

al., 2019). Global statistics show that CKD accounts for 843.5 out of 850 million people with kidney disease. The worldwide incidence and CKD prevalence are reported to have increased by 87% between 1990 and 2016.

According to the Center for Disease Control and Prevention (CDC, 2021a), 37 million people, or one in every seven people in the US, have CKD. Of this number, nine in ten adults are unaware of having CKD, and two in every five adults do not know that they have severe CKD. The prevalence of CKD is higher in people aged 65 years and above (38%) when compared to those aged 18-44 years (6%) or 45-64 years (12%). In terms of racial or ethnic representation, CKD is more common among non-Hispanic Black adults (16%) when compared to non-Hispanic White adults (13%) or non-Hispanic Asian Adults (13%) (CDC, 2021a).

Patients with CKD often progress to end-stage renal disease (ESRD), which results in the need for additional treatments such as renal replacement therapies, including kidney transplants and hemodialysis (HD) (Schrauben et al., 2020). HD is the standard approach utilized in the treatment of ESRD. The increased dialysis utilization in ESRD is attributed to the scarcity of donor organs, contraindications secondary to transplantation, and the cost involved in the transplant process (Shah et al., 2021). The success of HD in ESRD depends mainly on the patients' adherence to self-management practices in the disease. However, inadequate commitment to self-management practices results in increased hospitalizations, morbidity, and mortality rates among patients with ESRD (Ranahan et al., 2020).



According to Donald et al. (2018), self-management interventions facilitate the ability of ESRD patients to make lifestyle and behavioral changes alongside managing symptoms, treatment, and psychosocial and physical impacts of the disease. Self-management in ESRD entails focusing on the needs of the illness by developing knowledge, skills, and confidence to manage the medical needs of the disease. It also entails activating the needed resources and learning to live with the condition by adopting effective coping mechanisms (Donald et al., 2018).

Self-management interventions for patients with ESRD on HD require daily lifestyle and behavioral modifications such as dietary and fluid intake restrictions, and adherence to medication use. In addition, rigorous attendance to HD treatment sessions, minimizes and prevent complications (Daniels et al., 2018). The utilization of self-management interventions in ESRD has been linked to benefits that include prolonged life and reduction of complications. In addition, there is also an improvement in the physical functioning and wellbeing, blood pressure, urine protein, and ability of the patients to engage in physical activity (Schrauben et al., 2020). The clinical practice guideline on self-management for patients with ESRD on hemodialysis was derived from the evidence.

### **Patient Population**

Patients with End-Stage Renal Disease on Hemodialysis

### **Target Audience**

Registered Nurses Who Work in an Outpatient Dialysis Center

**Stakeholder Involvement**

The interprofessional team included nephrology physicians, nurse practitioner, nurse educators, and registered nurses. The project team was responsible for creating this guideline and forwarding it to the medical center leadership team for approval and adoption.

**Model**

Chronic Care Model

**Method**

The source of evidence included searches of CINAHL, EBSCO, Cochrane Library, Medline, PubMed database, OVID, and ProQuest. The keywords used were chronic kidney disease, dialysis patients, ESRD, end-stage renal disease, disease burdens of CKD, and self-management support program.

The review was limited to peer-review, English-only, full-text articles published within the last five years. The professional associations' guidelines and position papers included the American Society of Nephrology, the International Society of Nephrology, The National Kidney Foundation, and the Nephrology Nurses Association.

The selection was based on a review of the abstracts and full text to determine if they addressed the issue of education and self-management. Duplicates and those not meeting the criteria were excluded. Key information was extracted from selected studies and placed into a table to summarize the studies.

The information includes authors, year of publication, aim, design, level of evidence, sample size and type, instrument(s), and findings. Selected studies were

critically appraised using The Hierarchy of Evidence developed by Fineout-Overholt et al. (2010) to calculate the evidence for the clinical practice guideline. The self-management support program for dialysis patients was developed from the evidence.

### **Summary of the Evidence for a Self-Management Support Program for Dialysis Patients**

The adverse impacts of chronic kidney disease imply that much attention has been directed towards developing interventions that can result in better patient outcomes. As earlier indicated, a comprehensive literature review was performed to look for the evidence for self-management support programs for dialysis patients. The literature search gave 12 relevant research articles, both qualitative and quantitative, with various levels of evidence.

According to Almutary and Tayyib (2021), dialysis patients with better self-efficacy reported better health outcomes than those with reduced self-efficacy. Accordingly, a self-management support system is critical for these patients, implying that the clinicians involved in managing these patients need to identify patients with low self-efficacy and develop appropriate individualized plans. Self-management also depends on facilitators and barriers. Bowling et al. (2017) stated that a flawed support system and poor self-efficacy hinder CKD self-management, while positive social support and information seeking enhance the same. Similarly, Briscoe et al., (2018 ) also investigated the impact of telephone follow-up by nephrology nurses as a support system. The telephone follow-up resulted in a lower percentage of admissions at the emergency department and thirty-day readmissions.

Other studies also investigated the importance of education. Enworom and Tabi (2015) found out that offering an educational program to patients led to a slower decline in the GFR as compared to individuals who did not receive an education. In a similar study, Husain et al. (2020) investigated the impact of peer support programs. The study revealed that the peer support program substantially led to improved self-management in patients with ESRD and undergoing hemodialysis. Another education-based study was performed by Parker (2019), which offered education addressing fluid restriction management for improved renal fluid adherence. This education led to improved knowledge and increased renal fluid adherence.

As part of the support program, Montoya et al., (2018) investigated the impact of a nurse practitioner-facilitated chronic kidney disease group visit compared to the usual nephrology care in patients. The six-monthly visits led to improved knowledge regarding chronic kidney disease and improved scores for self-management and self-efficacy. The efforts also led to improved self-advocacy, self-care, partnership in care, and communication. Efforts to determine the telehealth impact informed the study Park and Kim performed (2019). They conducted research involved using a mobile application, short message service, and face-to-face counseling self-management program. The use of telehealth was associated with significant improvement in treatment compliance and self-efficacy.

The search for evidence also led to the level I evidence, which is the systematic reviews. In one such study, Peng et al.(2019) performed a review and meta-analysis to determine the self-management intervention's impact on renoprotection for non-dialysis

chronic kidney diseases. The review found that self-management interventions that enhance an individual's ability to undertake lifestyle change are critical for the CRP levels, exercise capacity, blood pressure readings, and decline in urine protein. In another systematic review, Lin et al. (2017) sought to determine the impacts of available self-management programs. They found that the programs impact the quality of life, emotional, and medical management. In addition, these programs significantly impacted anxiety, had a medium impact on quality of life, depression, and self-efficacy, and had a negligible impact on interdialytic weight gain.

Increased health literacy has also been connected with greater knowledge of CKD, as revealed by a study conducted by Shah et al.(2020). In addition, disease-specific knowledge is key for health literacy. An effective self-management of chronic kidney disease is heavily dependent on disease-specific knowledge. Vann et al. (2015) also conducted a study with the aim of improving self-management and knowledge among patients with chronic kidney disease. Patients who obtained up to six educational sessions showed an improved understanding of incremental health behavior changes connected to physical activity and nutrition.

### **Recommendations Based on the Summary of Evidence**

The summary of the evidence can make various recommendations regarding self-management care and programs for dialysis patients. Different research outputs indicated that educational programs are vital in improving patients' self-efficacy in managing the diseases. Therefore, academic protocols that take advantage of essential aspects to optimize patient uptake of the educational content are formulated and followed. The

educational programs can be delivered through physical, face-to-face contacts, or telehealth (Briscoe et al.,2018). Indeed, the evidence found in the literature synthesis indicated that both the telehealth and face-to-face strategies are effective. Therefore, it should be left to the nurses to agree with their patients and determine the best and the most appropriate approach.

Another recommendation is that healthcare professionals should be keen on knowing the patients and identifying their levels of perceived self-efficacy. Self-efficacy is closely related to these patients' outcomes as low self-efficacy leads to poorer health outcomes while high self-efficacy leads to better results. The implication is that the professionals should pay attention to these levels of self-efficacy and swiftly develop individualized treatment options for these patients for better healthcare outcomes (Almutary & Tayyib, 2021). Individualized care plans are effective among most patients as patients tend to own the programs, collaborate, and adhere to healthcare professionals' treatment and management options.

Another suggestion is that healthcare professionals need adequate training to identify potential barriers and facilitators of self-management within a particular setting. The resultant health outcomes heavily depend on how these barriers are overcome or addressed and how the facilitators can fine-tune to take full advantage of the situation for better care outcomes. The implication is that the professionals should have sufficient training to identify and use these factors to benefit the patient.

Peer support programs are vital in helping patients to improve self-management, especially patients with ESRD who are undergoing hemodialysis. Therefore, another

suggestion is that specific programs must be introduced to the patients early enough so they can learn from other patients or peers who would be ready to share their journey and experience. Such programs also lead to greater health literacy, which can further improve patient outcomes (Husain et al.,2020). It is crucial for healthcare professionals to formulate self-care programs that integrate several aspects of care related to chronic kidney disease. Indeed, such programs should focus on lifestyle adjustments and self-efficacy and on adhering to medication regimens and the treatment and management plan.

### References

- Almutary, H., Tayyib, N., & Gray, R. (2021). Evaluating self-efficacy among patients undergoing dialysis therapy. *Nursing Reports, 11*(1), 195–201.  
<https://doi.org/10.3390/nursrep11010019>
- Bowling, C. B., Vandenberg, A. E., Phillips, L. S., McClellan, W. M., Johnson, T. M., II, & Echt, K. V. (2017). Older patients' perspectives on managing complexity in CKD self-management. *Clinical Journal of the American Society of Nephrology, 12*(4), 635–643. <https://doi.org/10.2215/CJN.06850616>
- Briscoe, G.T., Heerschap, A., Kane, C.F., & Quatrara, B.D. (2018). Using post-discharge telephone follow-up by nephrology nurses to reduce 30-day readmissions and post-discharge complications for adult patients on hemodialysis. *Nephrology Nursing Journal, 45*(3), 243-248, 267.
- CDC. (2021, March 9). *Chronic Kidney Disease in the United States, 2021*.

<https://www.cdc.gov/kidneydisease/publications-resources/ckd-national-facts.html>

- Daniels, G. B., Robinson, J. R., & Walker, C. A. (2018). Adherence to treatment by African Americans undergoing hemodialysis. *Nephrology Nursing Journal*, 45(6), 561–569.
- Donald, M., Kahlon, B. K., Beanlands, H., Straus, S., Ronksley, P., Herrington, G., Tong, A., Grill, A., Waldvogel, B., Large, C. A., Large, C. L., Harwood, L., Novak, M., James, M. T., Elliott, M., Fernandez, N., Brimble, S., Samuel, S., & Hemmelgarn, B. R. (2018). Self-management interventions for adults with chronic kidney disease: A scoping review. *BMJ Open*, 8(3), e019814.  
<https://doi.org/10.1136/bmjopen-2017-019814>
- Enworom, C.D., & Tabi, M. (2015). Evaluation of kidney disease education on clinical outcomes and knowledge of self-management behaviors of patients with chronic kidney disease. *Nephrology Nursing Journal*, 42(4), 363-372.
- Husain, F., Kusuma, H., & Johan, A. (2020). Effects of peer support program on self-management in patients with end-stage renal disease undergoing hemodialysis. *Nurse Media Journal of Nursing*, 10(2), 171–181.  
<https://doi.org/10.14710/nmjn.v10i2.26502>
- Ji, A., Pan, C., Wang, H., Jin, Z., Lee, J. H., Wu, Q., Jiang, Q., & Cui, L. (2019). Prevalence and associated risk factors of chronic kidney disease in an elderly population from Eastern China. *International Journal of Environmental Research and Public Health*, 16(22), 4383. <https://doi.org/10.3390/ijerph16224383>



- Lin, M.-Y., Liu, M. F., Hsu, L.-F., & Tsai, P.-S. (2017). Effects of self-management on chronic kidney disease: A meta-analysis. *International Journal of Nursing Studies*, 74, 128–137. <https://doi.org/10.1016/j.ijnurstu.2017.06.008>
- Montoya, V., Sole, M.L., & Norris, A.E. (2016). Improving the care of patients with chronic kidney disease using group visits: A pilot study to reflect an emphasis on the patients rather than the disease. *Nephrology Nursing Journal*, 43(3), 207-222.
- Park, O. L., & Kim, S. R. (2019). Integrated self-management program effects on hemodialysis patients: A quasi-experimental study. *Japan Journal of Nursing Science*, 16(4), 396–406. <https://doi.org/10.1111/jjns.12249>
- Parker, J.R. (2019). Use of an educational intervention to improve fluid restriction adherence in patients on hemodialysis. *Nephrology Nursing Journal*, 46(1), 43-47.
- Peng, S., He, J., Huang, J., Lun, L., Zeng, J., Zeng, S., Zhang, L., Liu, X. & Wu, Y. (2019). Self-management interventions for chronic kidney disease: a systematic review and meta-analysis. *BMC Nephrology*, 20(1), 1-13. <https://doi.org/10.1186/s12882-019-1309-y>
- Ranahan, M., Visger, J. V., & Kayler, L. K. (2020). Describing barriers and facilitators for medication adherence and self-management among kidney transplant recipients using the information-motivation-behavioral skills model. *Clinical transplantation*, 34(6), e13862. <https://doi.org/10.1111/ctr.13862>
- Schrauben, S. J., Cavanaugh, K. L., Fagerlin, A., Ikizler, T. A., Ricardo, A. C., Eneanya,

- N. D., & Nunes, J. W. (2020). The relationship of disease-specific knowledge and health literacy with the uptake of self-care behaviors in CKD. *Kidney International Reports*, 5(1), 48–57. <https://doi.org/10.1016/j.ekir.2019.10.004>
- Shah, J. M., Ramsbotham, J., Seib, C., Muir, R., & Bonner, A. (2021). A scoping review of the role of health literacy in chronic kidney disease self-management. *Journal of Renal Care*, n/a(n/a). .
- Vann, J.C.J., Hawley, J., Wegner, S., Falk, R.J., Harward, D.H., & Kshiragar, A.V. (2015). Nursing intervention aimed at improving self-management for persons with chronic kidney disease in North Carolina Medicaid: A pilot project. *Nephrology Nursing Journal*, 42(3), 239-255.

## Appendix B: Hierarchy of Evidence

Hierarchy of Evidence for Intervention Studies		
Type of evidence	Level of evidence	Description
Systematic review or meta-analysis	I	A synthesis of evidence from all relevant randomized controlled trials.
Randomized controlled trial	II	An experiment in which subjects are randomized to a treatment group or control group.
Controlled trial without randomization	III	An experiment in which subjects are nonrandomly assigned to a treatment group or control group.
Case-control or cohort study	IV	Case-control study: a comparison of subjects with a condition (case) with those who don't have the condition (control) to determine characteristics that might predict the condition. Cohort study: an observation of a group(s) (cohort[s]) to determine the development of an outcome(s) such as a disease.
Systematic review of qualitative or descriptive studies	V	A synthesis of evidence from qualitative or descriptive studies to answer a clinical question.
Qualitative or descriptive study	VI	Qualitative study: gathers data on human behavior to understand <i>why</i> and <i>how</i> decisions are made. Descriptive study: provides background information on the <i>what</i> , <i>where</i> , and <i>when</i> of a topic of interest.
Expert opinion or consensus	VII	Authoritative opinion of expert committee.

Adapted with permission from Melnyk BM, Fineout-Overholt E, editors. Evidence-based practice in nursing and healthcare: a guide to best practice [forthcoming]. 2nd ed. Philadelphia: Wolters Kluwer Health/Lippincott Williams and Wilkins.

Fineout-Overholt, E., Melnyk, B. M., Stillwell, S. B. & Williamson, K. M. (2010).

Critical appraisal of the evidence: Part I an introduction to gathering, evaluating, and recording the evidence. *American Journal of Nursing*, 110(7), 47–52.

Appendix C: Table Comparing Studies on Self-Management

Investigator(s)	Aim and Design	Level of Evidence	Sample	Findings
Almutary & Tayyib (2021)	<p><b>Aim:</b>To evaluate CKD patients' self-efficacy and to determine the factors that significantly affect self-efficacy among dialysis patients (p. 195).</p> <p><b>Design:</b>Cross-sectional</p>	VI	<p>N = 190</p> <p>Intervention group (n=190)</p> <p>Male 92 and female 98</p> <p>Mean age 49.24%</p> <p>Hemodialysis (n=158)</p> <p>Peritoneal dialysis (n=32)</p> <p>CKD stage 5/ESRD on HD</p> <p>Instrument: CKD Self-efficacy Scale</p>	<p>Patients on dialysis who have better self-efficacy reported better outcomes than those with worse self-efficacy.</p> <p>Healthcare professionals should focus on the early identification of patients with low levels of perceived self-efficacy and develop individualized treatment interventions.</p>
Bowling et al. (2017)	<p><b>Aim:</b>To identify and describe the relationship among factors that facilitate or impede CKD self-management for older veterans with moderate-to-severe CKD (p. 635).</p> <p><b>Design:</b>Exploratory qualitative study</p>	VI	<p>N = 30</p> <p>Intervention Group (n=30)</p> <p>Mean age 75.3%</p> <p>Male 96.7%</p> <p>Female 3.3%</p>	<p>Factors that facilitate CKD self-management:</p> <ul style="list-style-type: none"> <li>• Information seeking and identification of self-care alternatives</li> <li>• Positive social support</li> </ul> <p>Factors that impede CKD self-management:</p> <ul style="list-style-type: none"> <li>• Poor self-efficacy</li> <li>• Deficient social support</li> </ul>
Briscoe et al. (2018)	<p><b>Aim:</b> Examines the effectiveness of a systematic</p>	V	<p>Pre-intervention (n=149)</p>	<p>Telephone follow-up by nephrology nurses resulted in a lower</p>

	<p>quality improvement process providing scripted post-discharge telephone follow-up by nephrology nurses (p. 244).</p> <p><b>Design:</b> Comparison of patient groups Pre- and Post-implementation of a scripted telephone follow-up</p>		<p>Post-intervention (n=171)</p> <p>Pre-intervention Male (n=85) Female (n=64)</p> <p>Post-intervention Male (n=99) Female (n=72)</p> <p>Pre-intervention Age 18-44 (n=28) Age 45-64 (n=72) Age 65 and over (n=49)</p> <p>Pre-intervention White (n=87) African American (n=59) Hispanic and others (n=3)</p> <p>Post-intervention White (n=92) African American (n=71) Hispanic and others (n=8)</p>	<p>percentage of admissions from the emergency department (59.9% pre- vs. 55.4% post-intervention) and a lower percentage of 30-day readmissions (28.4% pre- vs. 24.6% post-intervention).</p>
Enworom & Tabi (2015)	<b>Aim:</b> To evaluate the clinical outcomes	VI	<b>First Part</b> N = 49	Participants in a kidney disease education program

	<p>of participants of a Medicare KDE program and to assess relevant kidney disease knowledge necessary for CKD self-management in the general population of patients with CKD (p. 364).</p> <p><b>Design:</b> Retrospective evaluation of clinical outcomes</p>		<p>Patient attended Kidney Disease Education (KDE) (n=25) Patient did not attend KDE (n=24)</p> <p><b>Second Part</b> The second part of the study prospectively administered 46-item Kidney Disease Knowledge Survey (KiKS) (n=100) Final participant completed survey (n=98)</p>	<p>demonstrated a slower decline in GFR compared to non-participants</p> <p>Providing kidney disease education to individuals with CKD Stage 4 was associated with improved clinical outcomes.</p>
Husain et al. (2020)	<p><b>Aim:</b> To determine the effects of peer support programs on improving self-management in patients with end-stage renal disease (ESRD) undergoing hemodialysis (p. 173).</p> <p><b>Design:</b> Quasi-experimental. Intervention vs control group</p>	VI	<p>N = 33 Control group (n=32)</p> <p>Male 21 Female 12</p> <p>18 to 40 years old = 8 41 to 65 years old = 25</p> <p>Instrument: Hemodialysis Self-Management Instrument (HDSMI)</p>	<p>The peer support program significantly increased self-management inpatients with ESRD undergoing hemodialysis.</p> <p>Peer support programs should be introduced early to ESRD patients undergoing hemodialysis so that they can learn about self-management from other patients.</p>

Lin et al. (2017)	<p><b>Aim:</b> To perform an up-to-date systematic review of the literature and use the available evidence to quantitatively determine the effects of self-management programs (p. 129).</p> <p><b>Design:</b> Systematic review and meta-analysis</p>	I	<p>N = 2459 Records screened (n=1830) PubMed (n=180) Cochran (n=191) CINAHL (n=776) Web of Science (n=1176) Airt Library (n=136)</p>	<p>Self-management programs significantly enhanced the effects of self-management on outcomes (medical, role, emotional management, and health-related quality of life in patients with chronic kidney disease).</p> <ul style="list-style-type: none"> <li>• Small effect of self-management on interdialytic weight gain.</li> <li>• Medium effect on self-efficacy, depression, and health-related quality of life.</li> <li>• Significant effect on anxiety.</li> </ul>
Montoya et al. (2018)	<p><b>Aim:</b> To assess the feasibility of an NP-facilitated CKD group visit model versus the usual nephrology care in patients with Stage 4 CKD (p. 208).</p> <p><b>Design:</b> Two-group, repeated-</p>	II	<p>Total Participant (n=30) Group visit (n=16) Usual care (n=14)</p> <p>Total Participants Female(n=16)</p>	<p>Group visits consisted of six monthly visits, each lasting 1.5 to 2 hours that:</p> <ul style="list-style-type: none"> <li>• Significantly improved CKD knowledge</li> <li>• Resulted in an upward</li> </ul>

	measures experimental design		<p>African American (n=7) Hispanic (n=3) Caucasian (n=18) Other (n=2)</p> <p>Group Visit Female (n=9) African American (n=4) Hispanic (n=1) Caucasian (n=19) Other (n=2)</p> <p>Usual Care Female (n=7) African American (n=3) Hispanic (n=2) Caucasian (n=9) Other (n=0)</p>	<p>trend in mean scores for self-management subscales and self-efficacy scores</p> <ul style="list-style-type: none"> <li>Resulted in an upward trend in communication, partnership in care, self-advocacy</li> </ul>
Park & Kim (2019)	<b>Aim:</b> To evaluate the effects of an integrated self-management program using a mobile application, a short message service using a smartphone, and face-to-face counseling and education among hemodialysis patients.	VI	<p>N = 84 Hemodialysis patients Experimental group (n=42) Control group (n=42)</p> <p>The experimental group received the integrated self-management program for 8 weeks.</p>	<p>Self-efficacy and treatment compliance was significantly higher in the experimental group than in the control group. The interdialytic weight gain to dry weight ratio significantly decreased in the experimental group.</p>



	<b>Design:</b> Quasi-experimental			
Parker (2019)	<b>Aim:</b> To evaluate the improvement of prescribed fluid restriction in patients with ESRD who are receiving chronic hemodialysis (p. 43). <b>Design:</b> Pre-test/post-test design	II	N = 17 Age range = 29 to 79 Years of Dialysis = 0.5 to 15	The education on the management of fluid restrictions for improved renal fluid adherence resulted in: <ul style="list-style-type: none"> <li>• Increased knowledge of hemodialysis treatment</li> <li>• Improved renal fluid adherence</li> </ul>
Peng et al. (2019)	<b>Aim:</b> A systematic review and meta-analysis to investigate whether self-management intervention improves renoprotection for non-dialysis chronic kidney disease (p. 1). <b>Design:</b> Systematic review and meta-analysis	I	Data search retrieved N=1737 Excluded (n=1280)  Full text article (n=252) Excluded (n=233)  Randomized clinical trial exclusion (n=19) Lifestyle modification-9 Medical behavior modification-4 Multidisciplinary modification - 6	Self-management intervention to facilitate an individual's ability to make lifestyle changes was found to be beneficial for: <ul style="list-style-type: none"> <li>• urine protein decline</li> <li>• blood pressure level</li> <li>• exercise capacity</li> <li>• CRP level</li> </ul>
Shah et al. (2021)	<b>Aim:</b> To investigate the	V	N = 12	Greater health literacy was found to

	<p>recent evidence of health literacy and the relationship between health literacy, knowledge and self-management of chronic kidney disease.</p> <p><b>Design:</b> Scoping review</p>		<p>Scoping review of eligible studies</p>	<p>be associated with greater knowledge about the disease.</p> <p>Communicative health literacy was a significant predictor of medication, diet and fluid adherence, and overall self-management behaviors.</p> <p>Disease-specific knowledge is important for health literacy, and health literacy is essential for effective self-management of chronic kidney disease.</p>
Vann et al. (2015)	<p><b>Aim:</b> To improve knowledge and self-management among Medicaid beneficiaries with Stage 3b and 4 chronic kidney disease who were identified using a population-based approach (p. 239).</p> <p><b>Design:</b> Pre-intervention post-intervention design and case series approach</p>	VI	<p>N = 9  Female (n=5)  Male (n=4)</p> <p>Ages 50-59 (n=2)  Ages 60-69 (n=2)  Ages 70-79 (n=3)  Ages 80-89 (n=2)</p>	<p>Participants who received up to six in-person educational sessions delivered by a nurse practitioner were found to have:</p> <ul style="list-style-type: none"> <li>• Increased knowledge</li> <li>• Incremental health behavior</li> </ul> <p>Changes are generally related to nutrition and physical activity.</p>