11-2019

Chronic Kidney Disease: The Need to Increase Nurse Practitioner Awareness

Juan Hernandez

jfh17a@acu.edu

This scholarly project, directed and approved by the candidate's committee, has been accepted by the College of Graduate and Professional Studies of Abilene Christian University in partial fulfillment of the requirements for the degree

Doctor of Nursing Practice

_____
Dr. Joey Cope, Dean of the College
of Graduate and Professional Studies

Date: _____
10 / 11 / 2019

Scholarly Project Committee:

_____
Dr. Catherine Garner, Chair

_____
Dr. Roneisa Matero

_____
Dr. Tonya Sawyer-McGee

Abilene Christian University

School of Nursing

Chronic Kidney Disease: The Need to Increase Nurse Practitioner Awareness

A doctoral project submitted in partial satisfaction

of the requirements for the degree of

Doctor of Nursing Practice

by

Juan Hernandez

November 2019

Dedication

The dedication of this project will go out to all health care professionals serving every community. It is my most sincere gratitude for providing ethical and compassionate care to members of their respective communities. A special dedication is made to all health care providers serving local communities, public centers, schools, the military, and hospitals.

Acknowledgments

Abstract

Chronic kidney disease (CKD) has become a major issue in the United States. Individuals with chronic disease such as diabetes, cardiovascular disease, or hyperlipidemia are at higher risk of CKD. Risk factors include family history, age, obesity, and smoking. Kidney function decreases with age and other related conditions. It is critical to increase awareness, education, and prevention of CKD to advanced practice nurses. Nurse practitioners encounter and have the responsibility to be able to identify and manage patients in their primary practice. To address this issue, a sample of nurse practitioners in a local community health center was surveyed to assess CKD knowledge, its stages, and disease progression. Approximately 20 nurse practitioners were provided with the pretest to assess awareness, education material of CKD, and a posttest after 2 weeks of education to assess increased awareness and knowledge retention. The Knowledge to Action Framework was utilized in the project study. Twenty participants were invited to participate in the study, but only 15 completed the project. The participation pool ranged from 5 years of experience to more than 30. Participants showed an increase in knowledge on a posttest compared to a pretest. The data also showed that the participants with the most years of experience had the lowest increase in knowledge out of the 4 categories. The participants with the lowest years of experience showed the most improvement.

Keywords: chronic kidney disease, late referral, practice guidelines, end-stage renal disease

Table of Contents

List of Tables

Chapter 1: Introduction

Chronic kidney disease (CKD) affects almost 15% of adults in the United States, with the highest prevalence in CKD stage three (Saran et al., 2016). Diabetes and hypertension are the two main contributors of CKD. Among the top 10 leading causes of death, kidney illness is ninth overall. Among the many complications of CKD are cardiovascular complications, kidney failure, overall poor health, and early death. The American College of Physicians developed national guidelines in CKD management (Qaseem, Hopkins, Sweet, Starkey, & Shekelle, 2013), but many health care providers are either unaware or are not using the guidelines. It is important for quality patient care that providers adopt evidence-based guidelines as some may be persistent in their use of outdated, less accurate diagnostic techniques and treatments. Also, another impact on patient quality care is when a health care provider refers late to a nephrologist (McManus & Wynter-Minott, 2017). As primary care providers, family nurse practitioners also need to adopt the best evidence-based guidelines for the care of patients with CKD.

Background

A contributing factor to CKD is the absence of kidney disease knowledge by patients and health care providers, as symptoms are not often detected until the late stages. Among those individuals affected, less than 10% were aware of their CKD (McManus & Wynter-Minott, 2017). Nurse practitioners serve as frontline providers of primary care. Having the knowledge and tools to detect and treat CKD can slow or even prevent progression to kidney failure. A study published in the *American Journal of Kidney Disease* stated that all therapies and preventive measures to decrease progression of kidney disease rely heavily on patient self-care (Wright, Wallston, Elasy, Ikizler, & Cavanaugh, 2010). Self-care measures include medications adherence, dietary intake, and exercise.

This area of the southwest has a significant number of people with diabetes, hypertension, and other factors that contribute to the development of serious kidney disease. While there are national best practice guidelines available, nurse practitioners in this community do not routinely use these in their practices. This is leading to a gap in advanced nursing practice in effective prevention, early diagnosis, and comprehensive management of patients at risk for kidney disease.

Purpose of the Project

The purpose of this scholarly project was to provide education regarding the scope of the problem in the population and the best clinical practice guidelines for prevention, early diagnosis, and comprehensive management of patients at risk for kidney disease. The use of evidence-based guidelines can assist nurse practitioners in providing the optimal care to this population. The guidelines include suggestions for improving patient self-management and participation in their own health care. Nurse practitioners need to reevaluate the information and education offered to patients and take a different approach. This is consistent with the Texas Commission on Addressing Chronic Kidney Disease recommendations that each practitioner have at least one hour of continuing education per year on CKD (Texas Department of State Health Services, 2009).

Significance of the Problem

Nurse practitioners may help improve health factors in patients with CKD by implementing current CKD guidelines (Peeters et al., 2013). Patients with CKD are at a high risk to progress to end-stage renal disease (ESRD), and one of the factors is lack of knowledge of self-care. Also, the study done by Peeters et al. (2013) suggested that the development of ESRD could be prevented or delayed by early detection and treatment of CKD. A multifactorial

approach including blood pressure (BP) control, reduction of proteinuria, lipid-lowering therapy, smoking sensation, glycemic control, and weight reduction is encouraged (Peeters et al., 2013). There are national guidelines in CKD management, but nurse practitioners are either unaware or outdated on the most up-to-date information. According to *Addressing Chronic Kidney Disease in Texas*, more than 42,000 Texans are being treated for kidney failure through renal replacement therapy (Texas Department of State Health Services, 2009). A study published by the *Journal of the American Society of Nephrology* in 2014 stated that patient self-care supported through education and management is crucial to the success of overall health (Peeters et al., 2013). The study also supported that nurse practitioners helped decreased disease progression by 20% and improved overall outcomes by coaching the patient. In order to successfully coach the patient, nurse practitioners need to practice with the most up-to-date information of CKD guidelines.

Nature of Project

This scholarly project was an educational intervention designed to improve the knowledge and clinical practice of advanced nurse practitioners in a community in the southwest. The need has been assessed through communication in the nurse practitioner network in the community. This education program addressed the epidemiology of risk factors and chronic disease in the community, the early identification of kidney disease, guidelines for interdisciplinary management, and tools for educating patients on the importance of behavioral change and self-care management.

The development of the education program involved an expert interprofessional team of a nephrologist, internal medicine physician, two nurse practitioners, a diabetes educator, and dietician. The basis for the clinical management portion of the program was the Clinical Practice Guidelines from the National Kidney Foundation. It was developed in 1997 by the National

Kidney Foundation (NKF) Dialysis Outcome Quality Initiative to increase to improve quality of care and outcomes of patients on dialysis and have been used since as a national standard to define, stage, and manage patients with CKD. According to the article "Educating Patients about CKD: The Path to Self-Management and Patient-Centered Care," the education of patients is critical not only for their questions or concerns to be answered but also to ensure patient understand self-management and prevent progression of the disease (Narva, Norton, & Boulware, 2016).

Consistent with Kirkpatrick and Kirkpatrick's (2018) model for evaluation of continuing education, the assessment of knowledge gain will be ascertained through pre/post assessment of knowledge. Continuing education is not considered effective unless it changes practice. Therefore, the nurse practitioners (NPs) will be asked about their self-efficacy in utilizing the guidelines in their practice using the Nursing Profession Self-Efficacy Scale (Appendix A). The main purpose of the study was to enhance the clinical practice of the nurse practitioners, but measuring changes in practice was beyond the scope of this project.

There are some situations where the individual would need a referral to a specialist as she may show a far more severe stage of CKD: protein and blood in urine, hypertension that is not controlled by taking four or more medications, rapidly declining kidney function, renal artery stenosis, large amounts of protein in the urine, and urinary tract obstructions. Hypertension is the second-leading cause of kidney failure and should always be monitored. Patients with high blood pressure should always have a glomerular filtration rate test and blood potassium levels monitored when taking new or increasing dosages of blood pressure medications. The primary goal is to keep the patient's blood pressure (BP) below 140 (systolic) and below 90 (diastolic).

Patients with CKD and diabetes (ACR of 70mg/mmol or more) should maintain a blood pressure of below 130/80.

PICOT Question

The research question for this study was as follows: Will an educational presentation to family nurse practitioners on early detection of CKD risk factors and management increase awareness of CKD progression? The inquiry was formulated upon the population, intervention, comparison, outcome, and time method (PICOT).

Population (P). The population of interest was family nurse practitioners because CKD may be treated by the individual's general practitioner (National Institute for Health and Care Excellence, 2014).

Intervention (I). The intervention was an educational program based upon the American Kidney Foundation Clinical Practice Guidelines.

Comparison (C). The comparison was a pretest/posttest knowledge assessment.

Outcome (O). The ultimate outcome was to have nurse practitioners knowledgeable in CKD prevention and management in the community. The nurses reported on improved self-efficacy using the guidelines in practice. Nurse practitioners provided better education to their patients and improved quality of life.

Time (T). The period was scheduled for 3 months, which allowed a full assessment of the scholarly project.

Hypothesis

The hypothesis was that this continuing education would improve the knowledge and self-efficacy of family nursing practitioners in recognizing risk factors, early identification, management, and self-efficacy in CKD.

Theoretical Conceptual Framework

The Knowledge to Action (KTA) Framework is a conceptual framework that consists of knowledge translation, knowledge transfer, knowledge exchange, research utilization, implementation, continuing education, and continuing professional development. The KTA Framework was developed by Graham et al. in 2006. It is a highly cited conceptual framework in Canada. KTA is a framework used for guiding the knowledge translation process, which has been adopted by organizations worldwide. The KTA Framework assumes a systems perspective and situates knowledge producers and users within a system of knowledge that is responsive, adaptive, and unpredictable (Crockett, 2017). This model is composed of two distinct but similar components, which include the knowledge creation and the action cycles (Crockett, 2017). The KTA Framework not only informs, but components of the action cycle can feed back to inform knowledge creation.

Knowledge creation is the first component of the model that represents the production of knowledge. As knowledge flows through a funnel, it is summarized to be extremely useful for end users. As knowledge creation goes through a funnel, the inner component of the model is broken down into three phases. The three inner phases include knowledge inquiry, knowledge synthesis, and creation of knowledge tools and products. Through continuing professional development, the nurse practitioner will keep updated to meet clients' outcomes and increase their knowledge. Throughout each component, there is an integrated approach that tailors them into guiding research questions, disseminating strategies to end users. The knowledge can inform each phase of the action cycle, and the knowledge funnel can rotate into feeding different phases (Crockett, 2017). The action cycle includes several activities needed for knowledge execution. The action cycle includes the deliberate application of knowledge to cause change in behaviors

and attitudes (Crockett, 2017). The action components are not sequential and do not have a start phase of the cycle. Components of the action cycle include identifying problems, adapting knowledge, assessing barriers, selecting interventions, monitoring knowledge use, evaluating outcomes, and sustaining knowledge use.

The KTA Framework supports the population and problem of the project—the need to increase the awareness of nurse practitioners of chronic kidney disease—because it guides the process of knowledge translation. Studies have demonstrated the need to increase awareness to health care providers in early referral to specialists. The KTA Framework identifies each component that nurse practitioners need to be aware of to produce and synthesize knowledge. The KTA Framework assists nurse practitioners in implementing new knowledge into their practice. The population identified will be able to adapt knowledge, assess barriers, implement interventions, monitor knowledge, and evaluate patient outcomes and knowledge use.

Operational Definitions

Operational definitions are provided to facilitate understanding of the scholarly project.

Advanced practice nurse. An advanced practice nurse is a nurse who holds at least a master's degree in addition to initial training and serves in various advanced roles, anesthesia, midwifery, primary and acute care, and chronic disease management (American Nurses Association, n.d.).

Chronic kidney disease. Chronic kidney disease is defined as abnormalities of kidney structure or function present for greater than 3 months and with implications for health (Levey et al., 2003).

Continuing professional development. Continuing professional development is the process by which health care professionals keep updated to meet the needs of patients, the health service, and their own professional development.

Scope and Limitations

The scholarly project focused on family nurse practitioners in primary care and not other health care providers such as psychiatric nurse practitioners, nephrology nurse practitioners, or critical care nurse practitioners. This project was used in one specific area of the Southwestern United States with a minute population sample. The results may not be applicable to a wider audience of nurse practitioners in other areas of the United States.

Chapter Summary

The main purpose of this scholarly project was to increase awareness in the local health care community of nurse practitioners in regard to CKD. The lack of awareness is a great strain on efforts to decrease CKD progression in adult patients. As it stands, CKD is among the top 10 leading causes of death in the United States, but with education and awareness, health care providers can reduce disease progression. Local health care providers were invited to take a pretest to assess CKD knowledge, followed by a PowerPoint presentation and a 2-week posttest to assess knowledge retention. It is crucial for nurse practitioners to identify CKD progression in stage three and refer to a specialist in a timely manner to increase patients' quality of life.

Chapter 2: Literature Review

The purpose of a literature review is to provide a scientific basis for a study or project. The review provides a background on what is available about the problem of interest, variables in PICOT, and theoretical framework. The literature review includes current information available or information published in the last 5 years. The review is done through a search of relevant terms in database and search engines. The search engines used for the literature review were Abilene Christian University OneSearch, CINAHL, PubMed, and EBSCOhost. The number of citations found at first was 16,192 for a time of five years. The preliminary search was narrowed by using terms such as *early referral, primary care provider, nurse practitioner, complication, stages, progression*, and *CKD*. The articles that directly discussed nurse practitioner awareness of CKD progression were included. The search also included professional organizations that participated in the development of practice guidelines or patient education materials. The scope of the literature review was limited to the last eight years and included articles published in peer-reviewed journals in English only.

Prevention

Risk factors for CKD are "family history, the age of 60 years or older, smoking, obesity, kidney stones, and cardiovascular disease" (National Kidney Foundation, 2016). Nurse practitioners have a responsibility to recognize and manage patients, preferably in the early stages of CKD, to slow progression and identify predictors of disease progression. A less active way of life correlates with poor health and overall low quality of life. The incidence of obesity is increasing at a high rate throughout the world. Prevalence statistics from 2007 and 2008 indicate over one-third of the U.S population is obese (Macha & McDonough, 2012). Overweight and obesity can lead to chronic conditions such as hyperlipidemia, diabetes mellitus, and

hypertension and can lead to CKD. A recommendation to patients with chronic conditions is to remain active for at least half an hour five times a week to help improve cardiovascular health. A healthy weight is a body mass index of 20-25. Behavioral and environmental causes of obesity can be modified, but not contributing genetic factors (Macha & McDonough, 2012).

The Interaction Model of Client Health Behavior (IMCHB) is utilized as a model to guide nurse practitioners in their practice. With increased health care costs, a higher need for primary care providers, and health care reform, it is difficult to achieve standards in the United States. Mathew, Secrest, and Muirhead (2018) stated, "While there are many grand models and midrange theories in nursing, a commonality among them is the holistic approach to the person. Nursing models and theories delineate what is uniquely nursing" (p. 43). A unique model that has been guiding collaboration in advance practice while still keeping the focus on nursing interventions is the IMCHB model (Cox, 1982). The advanced practice nurse (APN) can positively influence the client-provider relationship for better outcomes, which can be achieved by unique client-centered care proposed by Cox (2003). The IMCHB is used to "identify and suggest an explanatory relationship between client singularity; client-provider relationship and subsequent client health behavior" (Cox, 1982, p. 42). Environmental resources and socioeconomic variables influence health behaviors.

Client motivation is affected by cognitive appraisal and sociocultural variables. The patient's interpretation can affect the perception of reality and relationship with the health care provider, therefore affecting the outcome of patients' health (Cox, 1982). Also, the patient's current emotional state can help or even deter the quality of care. A client-professional relationship has a major influence on health care behavior. The reason why this theoretical

framework or conceptual model and instrument were chosen was that IMCHB has guided research that has been tested in several populations to determine health care outcomes.

Cox and Roghmann (1984) found that the interactions between client singularity and client-provider categories of the IMCHB were supported and that client motivation and singularity impacted providers' decisions, which ultimately impacted health outcomes. An evidence-based study was conducted on the elderly population to determine "client singularity," as Cox (1986) described. Surveys were given to determine their motivation, overall health interpretation, and psychological well-being. The study showed that females tended to have a positive sense of well-being and were more educated with a better understanding of their health as opposed to elderly males. The findings also showed a direct effect on clients' health outcomes after encounters with providers.

A benefit of using an instrument is that it gives nurses quick and easy access to any research to gain knowledge or to evaluate a practice for quality assurance. It is crucial for nurses to have a good rapport with clients because Cox's studies showed that the clients' health care outcome is affected by the relationship between the client and health care provider. Kidney Disease Improving Global Outcomes (KDIGO, 2013) made specific suggestions to assist NPs in all settings on how to proceed. Serum creatinine, glomerular filtration rate (GFR), and albuminuria are crucial levels that need to be drawn before considering a nephrologist referral. There are five stages of CKD identified by KDIGO in 2012. Stage one is a normal stage with a GFR of > 90. Stage two has a GRF of 60–89. Stage three has been subdivided into two categories: 3a, mild to moderately decreased GFR of 45–59, and 3b, moderately to severely decreased GFR of 30–44. Stage four is a severely decreased GFR of 15–29. Stage five is kidney

failure of GFR < 15. NPs should possess knowledge in CKD to be used in their practice and for the main goal of bringing positive health outcomes to every patient.

Early Recognition and Referral

Health care providers need to increase awareness of the need for CKD early referrals through education, guidelines, and collaboration between specialist and other health care providers. Studies have shown that patients' outcomes in late-stage CKD largely depend on patients' self-care and the nurse practitioner's awareness of disease progression. Hospitalization increased due to reduced kidney function and comorbid conditions in late stages of CKD. Patients with last-stage CKD shifted to stage five in less than a year. Evidence shows that there is a suboptimal outcome in late stages compared to early stages because hospitalizations increase with late referrals. Fishbane et al. (2017) wrote that there were numerous studies and evidence focusing on late-stages of CKD negative outcomes, but their study was the first randomized trial with an intervention to improve care in patients with late-stage CKD. It is crucial to decrease CDK progression in early stages because, according to Fishbane et al.'s studies, hospitalizations are significantly increased in the late stages of CKD.

Early recognition and referral of adult CKD patients to a nephrologist significantly improves outcomes. Unfortunately, primary care providers refer patients toward later stages of CKD when the disease cannot be delayed from progressing and complications are higher. In the article "Chronic Kidney Disease Referral Practices Among Non-Nephrology Specialists: A Single-Centre Experience," a retrospective observational study was conducted on 388 patients (Buttigieg et al., 2016). The results of the study showed a decrease in the early referral of CKD patients to a specialist. Compared to the rate of males, the study also showed an even lower referral rate in females and younger-than-average groups (Buttigieg et al., 2016). Variables used

in the study were age, gender, diabetes mellitus, creatinine, and urinalysis. To facilitate timely referrals, the authors suggested increasing awareness of CKD through medical education, implementation of established international guidelines, and better communication between the nephrology and primary care providers.

Early referral to a nephrologist should be made when a patient enters stage three of CKD, which can significantly reduce the progression of CKD. According to Lonnemann, Duttlinger, Hohmann, Hickstein, and Reiche (2016), "Timely referral to nephrology care with optimized conservative and medical treatment prolongs the time until the start of renal replacement therapy and may reduce significantly long-term treatment cost of CKD" (p. 142). In the article, German database health claims were gathered to gain more insight on CKD patients with an early referral to a nephrologist (Lonnemann et al., 2016). Twenty-four patients were identified for each group of timely referral group and late referral group. Lonnemann et al.'s (2016) findings showed that hospital admission rates and total treatment costs were significantly higher ($p < .03$) in late referral compared with the timely referral group. In the timely referral group, significantly more patients did not change their CKD stage compared with late referral (65%–72.9% versus 52%–64.6%, $p < .05$). Referring patients to nephrology care correlates with decreased progression, reduced admissions to hospital, diminished treatment costs, and better survival rates.

APNs can positively influence the client-provider relationship for better outcomes. Nurse practitioners need to be aware of the importance of early referral of CKD patients. The IMCHB will guide nurse practitioners to collaborate with other providers to improve outcomes and provide competent education to increase the client-provider relationship.

Theoretical and Conceptual Models

For the project, I utilized the KTA conceptual framework to provide education. The KTA

conceptual framework has been utilized by many researchers to improve knowledge to many

primary health care providers. It was developed by Graham et al. (2006) in the early 2000s to

offer a conceptual framework for thinking about the process and integrating the roles of

knowledge creation and knowledge application. The competency framework helps nurse

practitioners identify, manage, and evaluate patients with CKD. Also, I used the Kirkpatrick and

Kirkpatrick (2018) model to evaluate the training programs that were provided to nurse

practitioners. The project was molded to fit the four levels of Kirkpatrick and Kirkpatrick's

model: reaction, learning, behavior, and results. The reaction level was determined by the turnout

of participants as they reacted to how the presentation applied to their practice. On the learning

level, the participants were assessed on their CKD knowledge in a form of a questionnaire.

Afterwards, a presentation was given to increase their knowledge of CKD and help patients in

their practice. Knowledge gain was evaluated by comparing the pretest results to the posttest

results. Because actual behavior was not directly observed, nursing intent to improve practice

was measured by a self-efficacy scale.

Topic Relationship Between Problem of Interest and Literature

The literature supported the research study because patients with risk factors can be

involved in their own preventive care. Patients with identified CKD may have improved

outcomes with CKD progression with the timely management of their care with planned visits to

a specialist. The articles spoke about the importance of these patients being referred by stage

three to slow disease progression and reduce hospital admissions and total treatment costs

(Lonnemann et al., 2016). The articles brought awareness to the NPs regarding the importance of

identifying the stages of CKD early to reduce or delay the chance for dialysis for this patient

population. The cost of managing CKD significantly increases when the patient has to be

dialyzed two to three times per week (Lonnemann et al., 2016). A study was done over a 4-year

period, which made the results of the study more meaningful. The results supported providing

education on the importance of identifying those patients with CKD early in the disease

development patient outcome (Lonnemann et al., 2016).

Chapter Summary

The patient's outcome can be improved if nurse practitioners are aware and can recognize

CKD in early stages. Fishbane et al. (2017) conducted multiple studies focusing in late stages of

CKD that showed the need for early referral to increase positive patient outcomes. A Lonnemann

et al. (2016) study showed the crucial need to refer patients in stage three to reduce progression,

prolong the start of renal replacement therapy, and significantly reduce long-term treatment

costs. Buttigieg et al. (2016) came up with the same conclusion in their study as Lonnemann et

al., indicating a decreased number of early patient referrals to a specialist. Health care providers

refer patients in later stages of CKD when disease progression cannot be delayed and

complications are greater.

Chapter 3: Research Method

The purpose of the methodology is to describe how the project was executed. A project plan is explained in detail. The plan includes ethical aspects, human subject considerations, and a description of the participants, the setting, the tools, or instruments used to assess or evaluate the purpose, data collection, and analysis (Moran, Burson, & Conrad, 2017).

Purpose of the Study

The purpose of this scholarly project was to provide education regarding the scope of the problem in the population and the best clinical practice guidelines for prevention, early diagnosis, and comprehensive management of patients at risk for kidney disease. The use of evidence-based guidelines can assist nurse practitioners in providing optimal care to this population. The guidelines include suggestions for improving patient self-management and participation in their own health care.

Instrument/Tools

The basis for the clinical management portion of the program was the Clinical Practice Guidelines from the National Kidney Foundation. Permission to use questionnaire to fit the scholarly project was granted by Dr. Agrawal (see Appendix B). Also, permission to use CKD guidelines was granted by the National Kidney Foundation (NKF) / Kidney Disease Outcomes Quality Initiative (KDOQI; see Appendix C). Permission to use CKD international guidelines was granted by KDIGO (see Appendix D). Permission to use the Development and Validation of the Nursing Profession Self-Efficacy Scale was granted by Dr. R. Caruso (see Appendix E). IRB

Research Plan

After Institutional Review Board (IRB) and chair approval, participants were recruited from a local community health center. In order to conduct any research study, the approval from

the IRB must be granted. The scholarly project had to be approved by chair, two committees, and IRB from ACU. The target population for this study consisted of nurse practitioners in primary care excluding nephrologist nurse practitioners, critical care nurse practitioners, and pediatric nurse practitioners. An invitation was posted in health centers' lounge and meeting rooms to recruit participants meeting this criterion (see Appendix F). Before the initiation of the education session, informed consent was obtained from participants. The site for the educational program was a local community health center, which granted permission to use the center for the scholarly project. The participants had two session options to attend.

Data Analysis

Quantitative methods learned during a statistical analysis course guided the use of SPSS methods with analytical results based on data collection. An SPSS *t* test for significance was utilized to analyze information gathered during the project. The main purpose of the study was to improve the clinical practice of the nurse practitioners, but this was beyond the scope of this project. The participants were asked about their self-efficacy after the presentation

Target Population

The focus of the DNP project was to increase awareness among family nurse practitioners. The capstone project volunteer participants were mainly from the primary care setting. The number of nurse practitioner participants was 20. Demographics included ethnicity, gender, age, practice specialty, and nursing years. Participant diversity was preferred to gather different results. Consistent with the KTA model for evaluation of continuing education, the assessment of knowledge gain was ascertained through pre/postassessment of knowledge. Continuing education is not considered effective unless it changes practice. Therefore, the NPs were asked about their self-efficacy in utilizing the guidelines in their practice.

The nurse practitioner received and signed the informed consent before completing the prequestionnaire. The questionnaire consisted of 13 questions that had been approved for use from Dr. Agrawal. The questionnaires were numbered to protect individual identity and to allow comparison of pre-/posttest data. The data were anonymous, secured, and protected in a locked briefcase. The briefcase was maintained in my personal protection at all times. No other person had permission nor access to the sensitive information of this study. The documents collected were the only copies and at no time were duplicated or scanned into digital format. The participants had five minutes to answer the pretest questionnaire. Then the education was 30 to 40 minutes. The participants had approximately 10 minutes to answer a posttest questionnaire two weeks post education.

Ethics

The principles of ethics such as respect, autonomy, beneficence, and justice were maintained during the project. The Abilene Christian University IRB approved the study (see Appendix G). Each participant was informed of the risks and benefits of the project and that their participation was voluntary. One potential risk might be the loss of confidentiality, but strong countermeasures were put in place in order to prevent such event. No monetary incentive was offered to complete this study. Informed consent was obtained to protect the interest of the participants. Informed consent was approved by IRB committee.

Data Collection and Storage

Participants' identifiers were not asked or written on paper, which might have led to the discovery of their participation. The questionnaire contained basic demographic questions such as age, years of experience, and ethnicity. Also, the self-efficacy scale provided did not ask for

additional information apart from the scale itself. All paperwork was stored and contained in a locked briefcase to which no other person had access.

Timeline

The following timeline indicates the events that occurred up to the final proposal defense approval (see Table 1). The timeline is missing the last months of study. The project study *Chronic Kidney Disease: The Need to Increase Nurse Practitioner Awareness* was finalized within three months of the collection of data, analysis, and results. During this period, participants were recruited, the education material was presented, and the data analysis was performed.

Table 1

DNP Project Timeline

Task date (month/year completed)	Project task
September 2017	Initiated development of research project PICOT question Initiated development of theoretical framework
October 2017	List of biographies of potential chair and committee reviewed
November 2017	Initiated contact with potential chair and committee
December 2017	Completed project proposal form and secured project chair and committee
January 2018	First meeting with committee and chair to discuss the PICOT question Learned how to use SPSS
February 2018	Initiated literature review and continued theoretical framework
March–April 2018	Continued gathering literature review and initiated contact with site for permission to conduct the research project
May–August 2018	Completed PICOT question. Literature review and theoretical framework reviewed by chair. Continuous work on chapter.
September 2018	Rough draft of Chapters 1–3 sent to chair for review
October 2018	E-portfolio setup. Chapter 1 submitted for revision. Permission granted to conduct research project at local community center by CEO.

<div align="right">(table continues)</div>

Task date (month/year completed)	Project task
November 2018	Chapters 2–3 submitted for revision. POI form signed by chair and committee.
December 2018	Final draft of Chapters 1–3 submitted for review and revision by chair. Prepared for proposal defense project. Clinical log done. Permission to use instruments and tool initiated. IRB module certification completed.
January 2019	Prepared proposal defense form. Signed and permission by chair and committee to present was granted. Presentation slides reviewed by chair. Permission granted to use instruments and tools. Project defense presentation completed on January 31, 2019.
February 2019	Proposal defense recommendation after presentation. Corrections completed within 4 weeks and reviewed by chair.
April 2019	New chair, Dr. Garner, assigned. Project reviewed. New recommendations added. IRB paperwork submitted for approval.
May 2019	IRB granted approval and initiation of project on May 25, 2019.
June–August 2019	Research project conducted at local community health center. Analysis of results initiated with SPSS. Chapters 1–5 and final defense PowerPoint presentation completed and sent to chair and committee for revision.
September 2019	Recommendations for Chapters 1–5 initiated. DNP final defense presentation permission granted for September 17, 2019.

Chapter Summary

The four main components to effectively execute the scholarly project consisted of an assessment questionnaire on CKD, the National Kidney Guidelines, the Nursing Profession Self-Efficacy Scale, and SPSS Version 25.0. The assessment questions were chosen because of direct correlation to the scholarly project to determine CKD knowledge. The National Kidney Foundation granted permission to use the CKD guidelines to educate nurse practitioners. The Nursing Profession Self-Efficacy Scale was used to ask participants their own beliefs of success in the medical practice. The paired-sample t test of SPSS for data analysis between the two

variables (pre and posttest) was used to compare results. The ACU IRB provided approval to

conduct the scholarly project.

Chapter 4: Results

The participants from the local community health center were asked to provide demographic information and complete a consent form, pretest, and posttests related to CKD. The demographic section provided questions related to age, years as a nurse practitioner, specialty, years in primary practice, and years in nursing. After they provided the demographic information, the participants completed a pretest to assess CKD knowledge and then engaged in an educational PowerPoint presentation on CKD. After two weeks from the educational presentation, participants were asked to complete a questionnaire instrument consisting of same 13 questions regarding CKD to assess their knowledge retention and a nursing profession self-efficacy scale was provided to participants.

Purpose of the Project

The purpose of the project was to help nurse practitioners identify awareness of CKD progression in its early stages by comparing a questionnaire given on different dates to measure knowledge retention. A total of 20 health care professionals attended the educational presentation, and only 15 completed the poststudy questionnaire. No participant met the exclusion criteria regarding specialties such as nephrology nurse practitioners, pediatric nurse practitioners, and psychiatric nurse practitioners.

Discussion of Demographics

The study was conducted over 60 days. An invitation to participate in the study was posted on the local community health centers lounge, bulletin board, and conference room. The participants had the option to participate in one of the two sessions provided. On the day of the meeting, the participants provided their age, years as an APN, specialty, years in primary practice, and years in nursing. A nursing profession self-efficacy scale was provided in order to

determine the individual's belief in her own capacity to perform in her practice. A pretest to test

their knowledge on CKD was administered before the presentation. A PowerPoint education

presentation on CKD was conducted by me to engage the APNs. A posttest was administered

two weeks after the presentation to assess knowledge retention. A total of 20 participants

attended one of the two presentations.

Table 2

Demographic Characteristics

Variables	Data ($n = 15$)	
	Participants	(Percentage)
Years worked as an APN		
0–5	3	(20%)
6–10	7	(47%)
11–15	2	(13%)
16–20	3	(20%)
Years worked in primary care		
0–5	3	(20%)
6–10	7	(47%)
11–15	2	(13%)
16–20	3	(20%)
Years worked in nursing		
6–10	1	(7%)
11–15	3	(20%)
16–20	1	(7%)
20–30	7	(47%)
More than 30	3	(20%)
Guidelines used to manage CKD		
NKF KDOQI	8	(53%)
KDIGO	0	(0%)
Unaware	5	(33%)
Both NKF and KDIGO	2	(13%)
Gender		
Male	8	(53%)
Female	7	(47%)

Although 20 participants attended the educational session, the resulting sample of 15 participants completed the study (see Table 2). Five participants were lost from the follow-up and did not complete the study. The age of participants ranges from 31 to 59 years of age. Out of the 15 participants completed the study, 8 (53%) were male, and 7 (47%) were female. The participants' pool gathered three specialties, which include 1 (7%) adult nurse practitioner, 13 (87%) family nurse practitioner, and 1 (7%) physician assistant. Demographics collected demonstrated the ranges of the years of experience as a nurse practitioner, years worked in primary care, and years worked in nursing ranging from 0 to 5, 6 to 10, 11 to 15, 16 to 20, and 20-plus years. In years worked as a nurse practitioner and years worked in primary care, 3 (20%) participants fell into the category of 0 to 5, 7 (40%) participants range from 6 to 10, 2 (13%) from 11 to 15 years, and 3 from 16 to 20 years. Also, the range in years worked in nursing was collected, which include 1 (7%) participant from 6 to 10 years, 3 (20%) from 11 to 15, 1 (7%) from 16 to 20, 7 (47%) from 20 to 30 years, and 3 (20%) with 30 or more years of experience. Participants were also asked what guidelines are used to manage CKD and results in ranged from 8 (53%) aware of KDOQI/NKF, 5 (33%) unaware, and 2 (13%) using both KDOQI/NKF and KDIGO guidelines. Self-efficacy had a total of 19 questions that asked individuals questions pertaining to their own belief of success in their practice. The self-efficacy was graded as a letter grade to categorize their responses.

Pretest

The pretest consisted of 13 questions, which included guidelines of CKD, parameters to monitor for CKD, stages of CKD, risk factors for CKD, and management of CKD. The average pretest score of participants with years in primary care and years as nurse practitioner from 0 to 5 was 46%. The average pretest score for participants with 6 to 10 years in primary care and years

as nurse practitioner was 63%. Participants' pretest average score with 11 to 15 years in primary

care and as a nurse practitioner was 54%. Lastly, a pretest average of 46% was the score of those

with 16 to 20 years in primary care and as a nurse practitioner (see Table 3). The average pretest

score based on years in nursing from 6 to 10 was 38%. Participants' average score with years in

nursing from 11 to 15 was 64%. The average test score for years in nursing from 16 to 20 was

38%. Participants with 20 to 30 years in nursing had pretest results of 53%. Lastly, the average

pretest score for participants with more than 30 years in nursing was 62% (see Table 4). The 10

participants who scored an A+ on their self-efficacy survey scored the lowest with a 53% on the

pretest. A total of 4 participants in the B category scored 58%. The final participant in the B+

category scored the highest with a 62% (see Table 5).

Table 3

Pretest Average Scores Based on Years in Primary Care and Years as Nurse Practitioner

	0–5 years	6–10 years	11–15 years	16–20 years
Score	46%	63%	54%	46%

Table 4

Pretest Average Scores Based on Years in Nursing

	6–10 years	11–15 years	16–20 years	20–30 years	More than 30 years
Score	38%	64%	38%	53%	62%

Table 5

Pretest Nursing Profession Self-Efficacy Scale

	A+	B+	B
Participants	10 (53%)	1 (62%)	4 (58%)

Posttest

The posttest consisted of the same 13 questions, which included guidelines of CKD, parameters to monitor for CKD, stages of CKD, risk factors for CKD, and management of CKD. The average posttest score of participants with years in primary care and years as a nurse practitioner from 0 to 5 was 97%. The average posttest score from 6 to 10 years in primary care and as nurse practitioner was 93%. Participants' posttest average score with 11 to 15 years in primary care and as a nurse practitioner was 100%. Lastly, a posttest average of 90% was the score of those with 16 to 20 years in primary care and as a nurse practitioner (see Table 6). The average posttest score based on years in nursing from 6 to 10 was 100%. Participants' average score with years in nursing from 11 to 15 was 100%. The average test score for years in nursing from 16 to 20 was 92%. Participants with 20 to 30 years in nursing had posttest results of 93%. Lastly, the average posttest score for participants with more than 30 years in nursing was 90% (see Table 7). The 10 participants who scored an A+ on their self-efficacy survey scored the lowest with a 93% on the posttest. The four participants in the B category scored a 96%. The final participant in the B+ category scored the highest with 100% (see Table 8).

Table 6

Posttest Average Scores Based on Years in Primary Care and Years as Nurse Practitioner

	0–5 years	6–10 years	11–15 years	16–20 years
Score	97%	93%	100%	90%

Table 7

Posttest Average Scores Based on Years in Nursing

	6–10 years	11–15 years	16–20 years	20–30 years	More than 30 years
Score	100%	100%	92%	93%	90%

Table 8

Posttest Nursing Profession Self-Efficacy Scale

	A+	B+	B
Participants	10 (93%)	1 (100%)	4 (96%)

Data Analysis

The purpose of this research study was to increase nurse practitioner awareness and knowledge of CKD. Fifteen advanced practice nurses who work at a local community health center in primary care with different years of experience and specialty completed a pretest assessment on CKD knowledge, followed by an educational presentation on CKD and an identical posttest assessment on CKD knowledge at two weeks after the presentation. The posttest scores two weeks after the presentation were significantly higher than the pretest assessment**.**

The pretest mean score was 54.8, with a standard deviation of 18.8. At the 2-week follow-up, the posttest mean score was 94.2, with a standard deviation of 5.37, indicating knowledge was improved at the 2-week follow up (see Table 9).

Table 9

Paired-Sample Statistics

	Mean	*N*	*SD*	*SEM*
Pretest	54.8667	15	18.84094	4.86471
Posttest	94.2667	15	5.37809	1.38862

Question Guiding the Inquiry

The hypothesis was that this continuing education would improve the knowledge and self-efficacy of family nursing practitioners in recognizing risk factors, early identification, management, and self-efficacy in CKD. The research question involved a comparison of initial knowledge and postmeasure knowledge retention at 2-week post education presentation. A paired-sample *t* test was implemented to compare level of significance. The total number of participants for the pretest and posttest was 15. The standard deviation on the pretest was 18.8 and the posttest was 5.3. The standard error mean on the pretest was 4.8, with 1.3 on the posttest (see Table 9). Also, the Pearson correlation coefficient for the pretest and posttest correlation was 0.29, significance: .918 (see Table 9). A paired-sample *t* test was calculated to compare the mean pretest score to the mean of 2-week follow-up test score. The mean on the pretest was 54.9 ($SD = 18.8$), and the mean on the posttest final was 94.3 ($SD = 5.3$). A significant increase from pretest to 2-week posttest was found, $t(14) = -7.849$, $p < .000$. The hypothesis proved to be true.

Table 10

Paired-Sample Correlations

	N	Correlation	Sig.
Pretest and posttest	15	.029	.918

Table 11

Paired-Sample Test

	M	*SD*	*SEM*	95% *CI* of the difference (lower)	95% *CI* of the difference (upper)	*t*	*df*	Sig. (2-tailed)
Pair 1	–39.4	19.4415	5.01977	–50.166	–28.634	–7.849	14	0

Reliability/Validity

Keele (2011) stated, "Reliability is a test of stability within an instrument and over time," adding that "stability within an instrument, called internal validity, is evaluated by performing an alpha coefficient statistic call a Cronbach's alpha" (p. 29). A coefficient alpha value of 0.70 or greater is required for it to be reliable. For stability over time, the most common method used is the test-retest reliability (Keele, 2011). A result should be at least a 0.80 for it to be good. One can have reliability without validity but not validity without reliability (Keele, 2011). Instruments used for data collection "during a quantitative research study can be questionnaires to rate scales, performance checklists, or very refined physiologic measures such as blood tests, vital signs, and weight" (Keele, 2011, p. 28). Quantitative studies are numerical in order to measure study variables. Keele wrote, "A minimum acceptable level of validity and reliability of

the data collection instrument is necessary before using it in an actual research study" (p. 28). Validity is the precision and accuracy of measurement, and reliability is the consistency of the measurement.

Permission was granted to use the CKD knowledge questionnaire by Dr. Agrawal. According to Agrawal, Barnes, Ghosh, and McCullough (2009), "The CKD questionnaire tool has been validated by utilization of clinical practice guidelines, an expert panel that developed the material, and reliability coefficient Cronbach alpha of 0.69" (p. 734). The Nursing Profession Self-Efficacy Scale validated the results by showing an improvement in participants' confidence as follows: those who scored an A+ by 40%, B+ by 38%, and B by 38%.

Chapter Summary

The research study resulted in an increased knowledge of CKD in advanced nurse practitioners. Participants in the educational research reported an increased awareness and knowledge about guidelines, stages, evaluation, referral, and management of CKD. The study was limited by a small sample size. It suggests the basis for a wider research study to validate these findings.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of the project was to help nurse practitioners identify awareness of CKD progression in its early stages by comparing a questionnaire given on different dates to measure knowledge retention. A pretest questionnaire, educational PowerPoint Presentation, and posttest, along with self-efficacy scale, were provided to participants.

Interpretation and Inference of the Findings

Nurse practitioner participants in the local community in the southwest demonstrated an overall accumulative average increase in knowledge of 39%. The 53% of participants who were aware of only one guideline (NKF/KDOQI) scored the highest, with 61% on the pretest. Thirty-three percent stated they were not aware of the guidelines available to treat CKD but scored the second highest with a 51%. The participants who claimed to know both guidelines (NKF/KDIGO and KDOQI) scored the lowest, with a 42% pretest. Compared to the literature, the participants scored low on pretest, showing limited provider knowledge in practice guidelines. Participants showed improvement knowledge after education was provided. Compared to the literature on knowledge improving self-efficacy, participants showed an improvement of 38% to 40% on self-efficacy.

Data showed that participants with the lowest years of experience demonstrated the highest knowledge gain from the pretest to posttest. During the presentations, this group engaged more with the investigator and asked more questions on CKD. The analysis indicated that the group with the most experience in primary care and years as a nurse practitioner did show improvement in knowledge gain but scored the lowest of all the groups in the posttest (see Table 12). The data supported the study by McManus and Wynter-Minott (2017), where some

practitioners rejected to some degree the new information presented because they are accustomed to their "traditional, less accurate diagnostic techniques" (p. 400).

Table 12

Average of Improvement by Number of Years in Primary Care and Years as Nurse Practitioner

	0–5 years	6–10 years	11–15 years	16–20 years
Pretest	46%	63%	54%	46%
Posttest	97%	93%	100%	90%
Avg. improvement	51%	31%	46%	44%

The participants all demonstrated an average increase of knowledge from the pretest to posttest. Participants with 6 to 10 years of experience showed a 62% increase. The participants with 11 to 15 years of experience showed a 36% increase. A 54% increase was demonstrated by participants with 16 to 20 years in nursing. Also, participants with nursing experience of 20 to 30 years had an increase of 41%. Lastly, participants with the most years of experience improved 28% from the pretest to posttest (see Table 13).

Table 13

Average Improvement by Number of Years in Nursing

	6–10 years	11–15 years	16–20 years	20–30 years	> 30 years
Pretest	38%	64%	38%	53%	62%
Posttest	100%	100%	92%	93%	90%
Avg. improvement	62%	36%	54%	41%	28%

The hypothesis was that this continuing education would improve the knowledge and self-efficacy of family nursing practitioners in recognizing risk factors, early identification, management, and self-efficacy in CKD. The project data did show an increase in knowledge of the nurse practitioners, which provided them with tools to identify, stage, and manage patients

with CKD. Also, nurse practitioners have increased knowledge to identify disease progression and timely refer to nephrologists. The KTA Framework helped monitor the education and knowledge transition of nurse practitioners in regard to the importance of increased awareness in disease progression and timely referral to a specialist. The self-efficacy scaled helped in measuring the participants' confidence in skills to appropriately and successfully perform their duties.

The Implications for Leaders

CKD affects almost 15% of adults in the United States, with the highest prevalence in CKD stage three (Saran et al., 2016). Diabetes and hypertension are the two main contributors to CKD. Among the top 10 leading causes of death, kidney illness is the ninth overall. Among the many complications of CKD are cardiovascular complications, kidney failure, overall poor health, and early death. The American College of Physicians developed national guidelines on CKD management (Qaseem et al., 2013), but many health care providers are either unaware or are not using the guidelines. It is important for quality patient care that providers adopt evidence-based guidelines as some may be persistent in their use of outdated, less accurate diagnostic techniques and treatments. Also, another impact on patient quality care is when a health care provider refers late to a nephrologist (McManus & Wynter-Minott, 2017). As primary care providers, family nurse practitioners need to adopt the best evidence-based guidelines for the care of patients with CKD. This research showed that the knowledge base of nurse practitioners with varying years of experience in nursing and as nurse practitioners could be improved with targeted education. It is hoped that this knowledge translates into improved practice and improved outcomes for patients.

Essentials of Doctoral Education for Advanced Practice Nurses

      Essential I: Scientific underpinnings for practice. Nurse practitioners must ensure to establish a trust with patients, as well as family members for the best outcome. The nurse practitioner leads the patient and family according to the ideal interest and "respect for financial and medical resources, regardless of superseding the input of personal bias" (American Nurses Association and International Society of Nurses in Genetics, 2016, p. 44). This education program was based on a scientific approach to management of the patient with CKD—one of the foundations for advanced practice in primary care nursing.

      Essential II: Organizational and system leadership. The nurse practitioners involved in the research have improved knowledge on guidelines for identifying, staging, and managing CKD patients. The participants are familiar with recent clinical guidelines. Also, the participants are aware of the effects of late referral to specialist. Health care providers played an important role, apart from primary care, to pay attention to the needs of a target population and community. As health care providers, participants have been able to assess how their practice complies with new scientific or clinical findings. Nurse practitioners will ensure personal accountability for the quality of health care provided and patients' safety in their community. Recommendations to an organization include the use of proper communication abilities, economics, and resources to deliver quality of care.

      Essential III: Clinical scholarship and analytical methods. Evaluating the participants' knowledge on CKD in the research project demonstrated an increase in knowledge compared to a pretest and posttest. The implementation of the questionnaire tool was critical and effective to assess nurse practitioners' knowledge on CKD. Results of the study showed the importance in increasing awareness of nurse practitioners of identifying and referring CKD patients early to a

nephrologist. Also, the Nursing Profession Self-Efficacy Scale was crucial in identifying participants' self-awareness of treating patients in their daily activities. Nurse practitioners can deliver quality care and quality education regarding staging and managing CKD.

Essential IV: Information system and patient care technology. According to the Institute of Medicine (2010), "The 2010 Affordable Care Act mandates the creation of both a National Health Care Workforce Commission to help gauge the demand for health care workers and a National Center for Workforce Analysis to support workforce data collection and analysis" (p. 3). These programs are critical in monitoring the demand of health care providers in the nursing profession. Participants in the study were aware of the importance of referring patients to a nephrologist in stage three of the disease in order to assess for possible vascular access creation. A great example of how informatics can be used in quality improvement is in vascular access care through the use of electronic health records: "In the past decade, there has been renewed interest in improving the quality of care delivered to patients requiring vascular access both in hospitals and community settings" (Sturdwick & Booth, 2016, p. 30). According to Sturdwick and Booth, "One way that vascular access-related quality improvement initiatives can be supported is through embedding the requirements specific to the clinical specialty into an organizations' current electronic system" (p. 32). Through the existing functions of EHR's "clinical documentation, reminders and alerts, computerized provider order entry, electronic medication administration, and data extraction can be built in EHR" (Sturdwick & Booth, 2016, p. 32). According to Sturdwick and Booth, "Clinicians practicing in the vascular access specialty area are working with the clinical informatics and information technology departments at their organizations to identify opportunities within to improve how technology can support vascular care" (p. 33).

Essential V: Health care policy for advocacy in health care. The nurse practitioners who participated in the study work at community health centers where resources were limited. Health care workers have multiple education levels and capabilities. The current status in health policy is to provide "educational pathways, accreditation of teaching institutions, and credentialing of individuals to legally practice a healing profession defines the composition of the health care workforce" (Bodenheimer & Grumbach, 2016, p. 89). Bodenheimer and Grumbach also stated, "Access, cost, and quality are issues in health care and are all linked to trends in the health care workforce and the inadequate supply of health care professionals may impede patients' access to care or compromise the quality of care" (p .89). The increases in the supply of health care workers "may fuel intolerable escalation of health care cost" (Bodenheimer & Grumbach, 2016, p. 89). According to Bodenheimer and Grumbach, "The recent consensus in the U.S about a shortage of health care workers is one of the rare instances in which analyses based on demand models and need models arrived at similar conclusions" (p. 89). Multiple factors determine health care outcomes. According to Bodenheimer and Grumbach, "Access to health care does not guarantee good health, but without such access, health is certain to suffer" (p. 30). It is not the sole responsibility of the federal, state, or region government to improve access to health care and quality care.

Essential VI: Interprofessional collaboration for improving patients and populations health outcomes. Nurse practitioners from the study are aware of stages of CKD and when to collaborate or refer the patient to a specialist. The guidelines in stage three CKD emphasized the need to collaborate with a specialist. The NKF guidelines state the importance and how critical it is to refer patients to a nephrologist in stage three. It is crucial for health care providers to maintain competencies and acquire evidence-based information and testing

procedures to provide accurate guidance to their patients. The nurse practitioner "maintains his or her dignity through competence, credentialing, and awareness of limitations" (American Nurses Association and International Society of Nurses in Genetics, 2016, p. 44).

Essential VII: Clinical prevention and population health. For the project, I utilized the KTA conceptual framework to provide education to the participants. The KTA conceptual framework has been utilized by many researchers to improve knowledge to many primary health care providers. It was developed by Graham in 2006 to offer a conceptual framework for thinking about process and integrate the roles of knowledge creation and knowledge application. The competency framework assisted the nurse practitioners to identify, manage, and evaluate patients with CKD. In the research study, providing evidence-based literature on CKD may encourage nurse practitioners to utilize current evidence-based education. The implementation of the KTA model increased awareness of the participants and empower them when educating their patients. The participants focused on understanding CKD to empower themselves with a much-needed increase in knowledge. The results of the questionnaire survey pre and post education demonstrated the effectiveness of knowledge translation and retention on CKD progression.

Essential VIII: Advanced nursing practice. The nurse practitioners who attended the educational presentation study increased their CKD knowledge and were aware of the importance of attending conferences or any other resource to maintain professional knowledge. Nurse practitioners must be aware of conflicting values and financial incentives at the workplace, which may affect patient care. According to the American Nurses Association and International Society of Nurses in Genetics (2016), "As programs such as President Obama's Precision Medicine Initiative gets underway, nurses must be prepared to handle the ethical challenges and potential unintended consequences that may come from using the public's data to develop health

care knowledge" (p. 16). It is vital for nurse practitioners to inquire about any research findings to make sure it is beneficial to their population.

Recommendations for Future Research

This study was limited to only 15 participants in one rural southwestern community. Repeating this study with a larger participant pool in various other communities could potentially validate these initial findings. In addition, a follow-up study should be conducted six months after the educational session to see if and how nurse practitioners change their practice, including patient education and management of referrals. A longer-term study on the impact of following best practice guidelines on patient outcomes would be welcome.

Chapter Summary

The results demonstrated a need for evidence-based education related to CKD in advanced nursing practice. The goal was to increase awareness of CKD to nurse practitioners, and it was accomplished in this study. This study provided local nurse practitioners better knowledge of CKD progression and timely referral. Also, increased awareness of guidelines for defining, staging, evaluate, and manage CKD was accomplished. It is hoped that this education will result in improved advanced nursing practice management of CKD, increased participant confidence, and improved patient outcomes in this southwestern community.

References

Agrawal, V., Barnes, M. A., Ghosh, A. K., & McCullough, P. A. (2009). Questionnaire
instrument to assess knowledge of chronic kidney disease practice guidelines among
internal medicine residents. *Journal of Evaluation in Clinical Practice*, *15*, 733–738.
doi:10.1111/j.1365-2753.2008.01090.x

American Nurses Association and International Society of Nurses in Genetics. (2016).
Genetics/genomics nursing: scope and standards of practice (2nd ed.). Silver Spring,
MD: American Nurses Association.

American Nurses Association. (n.d.). *What is nursing & what do nurses do?* Retrieved from
https://www.nursingworld.org/practice-policy/workforce/what-is-nursing/

Bodenheimer, B., & Grumbach, K. (2016). *Understanding health policy: A clinical approach.*
New York, NY: McGraw-Hill.

Buttigieg, J., Mercieca, L., Saliba, A., Aquilina, S., Farrugia, E., & Fava, S. (2016). Chronic
kidney disease referral practices among non-nephrology specialists: A single-centre
experience. *European Journal of Internal Medicine, 29,* 93–97.
doi:10.1016/j.ejim.2016.01.010

Cox, C. L. (1982). An interaction model of client health behavior: Theoretical prescription for
nursing. *Advances in Nursing Science, 5*(1), 41–56. doi:10.1097/00012272-198210000-
00007

Cox, C. L. (1986). The interaction model of client health behavior: Application to the study of
community-based elders. *Advances in Nursing Science, 9*(1), 41–57.
doi:10.1097/00012272-198610000-00007

Cox, C. L. (2003). A model of health behaviors to guide studies of childhood cancer survivors. *Oncology Nursing Forum, 33*, 51–59. Retrieved from https://onf.ons.org/file/3309/download

Cox, C. L., & Roghmann, K. (1984). Empirical test of the interaction model of client health behavior. *Research in Nursing and Health*, *7*, 275–285. doi:10.1002/nur.4770070406

Crockett, L. (2019). *The Knowledge-to-Action Framework*. Retrieved from https://medium.com/knowledgenudge/kt-101-the-knowledge-to-action-framework-7fbe399723e8.

Cronk, B. (2014). *How to Use SPSS: A Step-by-Step Guide to Analysis and Interpretation* Glendale, CA: Pyreczak.

Fishbane, S., Agoritsas, S., Bellucci, A., Halinski, C., Shah, H., Sakhiya, V., & Balsam, L. (2017). Augmented nurse care management in CKD stages 4 to 5: A randomized trial. *American Journal of Kidney Disease, 70*(4), 498–505. doi:10.1053/j.ajkd.2017.02.366

Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: Time for a map? *Journal of Continuing Education in the Health Profession, 26*(1), 13–24. doi:10.1002/chp.47

Institute of Medicine. (2010). *The future of nursing: Leading change, advancing health.* Washington, D.C.: National Academy of Science.

Keele, R. (2011). *Nursing research and evidence-based practice: Ten steps to success.* Sudbury, MA: Jones & Bartlett.

Kidney Disease Improving Global Outcomes. (2013). 2012 clinical practice guidelines for the evaluation and management of chronic kidney disease. Chapter 1: Definition and

classification of CKD. *Kidney International Supplements, 3*(1), 19–62.

doi:10.1038/kisup.2012.64

Kirkpatrick, J. D., & Kirkpatrick, W. K. (2016). *Kirkpatrick's four levels of training evaluation*.

Alexandria, VA: Association for Talent Development.

Levey, A. S., Coresh, J., Balk, E., Kausz, A. T., Levin, A., Steffes, M. W., . . . Eknoyan, G.

(2003). National kidney foundation practice guidelines for chronic kidney disease:

Evaluation, classification, and stratification. *Annals of Internal Medicine*, *139*(2), 137-47.

doi:10.7326/0003-4819-139-2-200307150-00013

Lonnemann, G., Duttlinger, J., Hohmann, D., Hickstein, L., & Reichel, H. (2016). Timely

referral to outpatient nephrology care slows progression and reduces treatment cost of

chronic kidney disease. *Clinical Research Kidney International Reports, 2*, 142–151.

doi:10.1016/j.ekir.2016.09.062

Macha, K., McDonough, J. P. (2012). *Epidemiology for advanced nursing practice.* Sudbury,

MA: Jones & Bartlett Learning.

Mathew, S. K., Secrest, J., & Muirhead, L. (2008). The interaction model of client health

behavior: A model for advanced practice nurses. *Journal of the American Academy of*

Nurse Practitioners, 20(8), 515–422. doi:10.1111/j.1745-7599.2008.00343.x

McManus, M. S., & Wynter-Minott, S. (2017). Guidelines for chronic kidney disease: Defining,

staging, and managing in primary care. *Journal for Nurse Practitioners, 13*(6), 400–410.

doi:10.1016/j.nurpra.2017.04.017

Moran, K., Burson, R., & Conrad, D. (2017). *The Doctor of Nursing Practice scholarly project:*

A framework for success. Burlington, MA: Jones & Bartlett Learning.

Narva, A. S., Norton, J. M., & Boulware, L. E. (2016). *Clinical Journal of the American Society of Nephrology, 11*(4), 694–703. doi:10.2215/CJN.07680715

National Institute for Health and Care Excellence. (2014). *Chronic kidney disease in adults: Assessment and management*. Retrieved from http://nice.org.uk/guidance/cg182

National Kidney Foundation. (2016). *Kidney disease: The basic.* Retrieved from https://www.kidney.org/news/newsroom/factsheet/FastFacts

Peeters, M. J., van Zuilen, A. D., van den Brand, J. A., Bots, M. L., van Buren, M., Ten Dam, M. A., … Wetzels, J. F. (2013). Nurse practitioner care improves renal outcome in patients with CKD. *Journal of the American Society of Nephrology*, *25*(2), 390–398. doi:10.1681/ASN.2012121222

Qaseem, A., Hopkins, R. H., Sweet, D. E., Starkey, M., & Shekelle, P. (2013). Screening, monitoring, and treatment of stage 1 to 3 chronic kidney disease: A clinical practice guideline from the American College of Physicians. *Annals of Internal Medicine*, *159*, 835–847. doi:10.7326/0003-4819-159-12-201312170-00726

Saran, R., Li, Y., Robinson, B., Abbott, K. C., Agodoa, L. Y. C., Ayanian, J., . . . Hirth, R. A. (2016). U.S. Renal Data System 2015 annual data report: Epidemiology of kidney disease in the United States. *American Journal of Kidney Diseases, 67*(3), A7–A8. doi:10.1053/j.ajkd.2015.12.014

Sturdwick, G., & Booth, R. (2016). Review article: Quality improvement in vascular access care through the use of electronic health records. *Journal of the Association for Vascular Access, 21*, 30–34. doi:10.1016/j.java.2015.11.004

Texas Department of State Health Services. (2009). *Addressing chronic kidney disease in Texas:*

   Report of the Chronic Kidney Disease Task Force. Retrieved from

   http://www.dshs.state.tx.us/WorkArea/linkit.aspx?LinkIdentifier =id&ItemID=21337

Wright, J. A., Wallston, K. A., Elasy, T. A., Ikizler, T. A., & Cavanaugh, K. L. (2010).

   Development and results of a kidney disease knowledge survey given to patients with

   CKD. *American Journal of Kidney Diseases*, *57*(3), 387–395.

   doi:10.1053/j.ajkd.2010.09.018

Appendix A: Nursing Profession Self-Efficacy Scale

Considering a typical working day, **I can . . .**

completely no

moderate confidence   complete confidence

confidence

1	2	3	4	5

1.	Respect patients and their autonomy (e.g. principles of freedom of choice or self-determination)	1	2	3	4	5
2.	Base my work on scientifically validated and updated knowledge	1	2	3	4	5
3.	Safeguard health and the safety of society	1	2	3	4	5
4.	Ensure health care is delivered in line with professional standards, regardless of any singular situation	1	2	3	4	5
5.	Deliver individualized health care, based on the principle of equity and provided without discrimination or prejudice	1	2	3	4	5
6.	Compensate for the shortcomings and inefficiencies that may occur in the facility where I work	1	2	3	4	5
7.	Promote the use of ethics consultation for ethical dilemmas related to caring work	1	2	3	4	5
8.	Promote respect for professional confidentiality	1	2	3	4	5
9.	Examine the quality (accuracy/completeness) of clinical documentation	1	2	3	4	5
10.	Use the support of other colleagues to evaluate a particular situation or problem	1	2	3	4	5
11.	Implement the results of research in professional practice	1	2	3	4	5
12.	Safeguard the legal and moral rights of patients	1	2	3	4	5
13.	Refuse to participate in treatment if is contrary to professional values	1	2	3	4	5
14.	Take part in nursing research	1	2	3	4	5
15.	Safeguard the right of patients' privacy and confidentiality in data processing	1	2	3	4	5
16.	Collaborate with nursing organizations to ensure the best standards of care in my practice	1	2	3	4	5
17.	Report any abuse or unethical behavior of colleagues to the appropriate Regulatory Authority/Body	1	2	3	4	5
18.	Ensure the fair use of the resources that I have in my professional practice	1	2	3	4	5
19.	Practicing the profession, recognizing and addressing the ethical/moral dilemmas and problems of everyday working life	1	2	3	4	5

Appendix B: Permission to Use Questionnaire

Dr. Agrawal

Yes, you can certainly do so. Would you be kind to send me the results or the manuscript once it is completed? This would be just for my curiosity.

On Thu, 2/7/19, Juan Hernandez <xxxxxxxxxxx > wrote:

 Subject: Re: Permission Letter to Use Questionnaire
 To: "Varun Agrawal" <xxxxxxxxxxxxx >
 Date: Thursday, February 7, 2019, 11:36 AM

 Dr.Agrawal, I will cite the reference. Can I also have
 permission to modify the tool to fit my project?

Thanks a million
Juan Hernandez FNP
 On Wed, Feb 6,
 2019 at 9:39 PM Varun Agrawal <xxxxxxxxxxxxx>
 wrote:

 Thank you for your interest. Sure you can use
 my questionnaire - pls do cite the reference in your work.
 All the best!

Appendix C: Permission to Use NKF/KDOQI Guidelines

Copyrights permissions

Dear Juan Hernandez,

Thank you for your inquiry.

Please accept the following as permission to use the NKF/KDOQI guidelines and information published online from our website.

The National Kidney Foundation is the copyright holder and owner of all content. As such, the National Kidney Foundation hereby grants permission to use the KDIGO guideline and content from our website in your presentation.

We require that credit and copyright is clearly noted as follows:

"Produced by the National Kidney Foundation, Inc. All rights reserved."

We appreciate your interest in helping us share NKF content and educational tools.

Please let me know if you need more information or further assistance.

Kind regards,

Lesley Hunter

Medical and Scientific Programs Assistant

Address: xxxxxxxxxxxxx

New York, NY 10016

Phone: xxxxxxxxxx

Email: xxxxxxxxxxx

Appendix D: KDIGO Permission to Use Guidelines

On Mon, Feb 11, 2019 at 5:31 PM Danielle Green <xxxxxxxxxxxxxx> wrote:

Hi Dr Hernandez,

Happy to provide permission by way of this email. Wishing you the best of luck in the project.

Regards,
Danielle

Danielle Green

Executive Director

KDIGO

Email: xxxxxxxxxxxx

Phone: xxxxxxxxxx

www.kdigo.org

On Fri, Feb 8, 2019 at 5:04 PM Juan Hernandez <xxxxxxxxxxx > wrote:

Good Afternoon Mrs. Green,

Can you please see the attached document for permission to use guidelines for my capstone project?

Appendix E: Permission to Use Nursing Profession Self-Efficacy Scale

From: **Rosario Caruso** <xxxxxxxxxxxx>
Date: Tue, Apr 23, 2019 at 3:46 AM
Subject: R: Permission to use Nursing Profession Self-Efficacy Scale
To: Juan Hernandez <xxxxxxxxxxxx>
Cc: Catherine Garner <xxxxxxxxxxxx>

Dear Colleagues

Glad to read about your interest in NP-SES. Hereby I grant the permission to use the scale as long as you cite the original work.

Eventually, please feel free to emend it in case of some modification requirements that could arise from a possible validation process that could be undertaken prior to the survey, as the NP-SES in English might benefit from a cultural and linguistic validation. I hope these information are helpful for your project, let me know if you need further support.

Best wishes
Rosario

Rosario Caruso, PhD, RN
Head of Health Professions Research and Development Unit
IRCCS Policlinico San Donato
Adjunct Professor
University of Milan
Address: xxxxxxxxxxxx
20097 San Donato Milanese (Mi)
Phone: xxxxxxxxx | Skype: xxxxxxxxxxx
Fax: xxxxxxxxxxxx
Email: xxxxxxxxxxxxx
 Da: Juan Hernandez [mailto: xxxxxxxxx]
Inviato: martedì 23 aprile 2019 03:37
A: Rosario Caruso <xxxxxxxxxxxxx>
Cc: Catherine Garner <xxxxxxxx>
Oggetto: Permission to use Nursing Profession Self-Efficacy Scale

Good Evening Ms/Mrs. Rosario Caruso
Can you please see the attached documents for permission to use the Nursing Profession Self-Efficacy Scale for my capstone project? If you have any questions please let me know.
Thank you in advance for your help
Juan Hernandez

Appendix F: Nurse Practitioners Invitation

Appendix G: IRB Approval

ABILENE CHRISTIAN UNIVERSITY
Educating Students for Christian Service and Leadership Throughout the World

Office of Research and Sponsored Programs
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103
325-674-2885

May 24, 2019

Juan Hernandez

Department of DNP

Abilene Christian University

Dear Juan,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled
"Chronic Kidney Disease: The Need to Increase Nurse Practitioners Awareness,

was approved by expedited review (Category 7   ) on 5/24/2019   (IRB # 19-050   ). Upon completion of this study, please submit the Inactivation Request Form within 30 days of study completion.

If you wish to make any changes to this study, including but not limited to changes in study personnel, number of participants recruited, changes to the consent form or process, and/or changes in overall methodology, please complete the Study Amendment Request Form.

If any problems develop with the study, including any unanticipated events that may change the risk profile of your study or if there were any unapproved changes in your protocol, please inform the Office of Research and Sponsored Programs and the IRB promptly using the Unanticipated Events/Noncompliance Form.

I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs