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Staff Education for Providers in an Outpatient Hemodialysis Center

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Walden University
2019

Abstract

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by

Ibijoke Owolabi

MS, South University, 2016

BS, Kennesaw State University, 2014

Project Submitted in Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

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Abstract

The impact of end-stage renal disease (ESRD) on healthcare costs is significant. In 2013, the cost of providing care for the ESRD patient population was 7.1% of total Medicare expenses. ESRD patients' non-adherence with the medical plan is a reason for the high cost of care and poor patient outcomes. Staff education can have a positive impact on patient adherence in terms of the management of chronic illnesses, such as ESRD. This DNP project was an education program for hemodialysis (HD) staff regarding empowering patients to learn about self-care strategies aimed at improving ESRD patients' adherence to fluid restriction and treatment schedules. The staff education project was developed using Malcolm Knowles' adult learning theory and Dorothea Orem's self-care theory. Three in-center hemodialysis (ICHD) clinics located in a large southeast inner city of the United States with predominantly African American patients participated in the DNP project. All the participating clinics were selected based on their underperformance in missed patient treatments and fluid goals. The goal of the educational program was to teach staff current evidence-based practice self-care strategies for patients to improve adherence to required fluid restrictions and treatment schedules. The program was delivered through 5 different sessions over 3 days at 2 locations. Thirty staff members participated in the program. Missed treatment rates and the intradialytic weight gain (IDWG) percent showed improvement 1-month post education for each of the 3 clinics. This project has the potential to promote social change through staff education on patient self-care strategies for adherence to fluid and treatment plans, thus improving patient outcomes and quality of life.

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Dedication

To my late mother, Bernice Solanke. You laid the foundation for it all. Your fight against gender discrimination and emphasis on education has been a motivation for me. You modeled perseverance, hard work, and excellence in all you did. Your legacy lives on in us.

Acknowledgments

It was practically impossible for me to achieve this milestone without the support of many people. First and foremost, I am grateful for the mentoring and guidance provided by Dr. Margaret Harvey. You helped me navigate my path through the maze and created a smooth way throughout the journey. To all the faculty of Walden University who shared their knowledge with me along the line, especially Dr. Francisca Farrar and Dr. Diane Whitehead, I am grateful.

Special thanks to Sheila Martin for the time commitment throughout the practicum and research process. To all the wayfarers who have contributed directly or indirectly to my growth professionally and personally, I want to say thank you.

To my children, for your understanding and support throughout the whole process of accomplishing this goal, I am grateful. The successful completion of my study could not have been possible without you. You inspired me all the way.

Lastly and most importantly, I am grateful to the lover of my soul - Jesus. The one who stood by me when the future I envisioned faded away and gave me a new hope for life. My Anchor, Redeemer, and Friend, I owe it all to you. I am eternally grateful.

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Section 1: Nature of the Project

Introduction

Adherence to prescribed treatment regimen has been documented to be a significant issue among end-stage renal disease (ESRD) patients on hemodialysis (HD). One of the problems involving this patient population is the challenge of managing multiple chronic conditions alongside kidney failure. Some of the documented issues among these populations involve lack of access to care, lack of understanding and knowledge of the disease process, the ESRD patients' need for an extensive lifestyle change, and psychosocial problems (Botdorf et al., 2011; Eskeridge, 2010; Johnson et al., 2013). The burden of adherence to plan of care among patients dealing with chronic illnesses and their impact on clinical outcomes, quality of life, family dynamics, society, and health economics is enormous. Quality of life and mortality among patients dealing with chronic illnesses often require a significant behavior modification from the patients (Sav et al., 2015).

Two primary reasons for prescribing HD treatment for ESRD patients are to remove toxins in the blood and excess fluid from the body. Fluid retention is typical for these patients since they often experience oliguria (small amounts of urine) or anuria (no urine). Since adhering to the prescribed treatment schedule and fluid restrictions rests on patients and their caregivers, an in-depth understanding of the disease process as well as self-care strategies are critical in terms of compliance and positive outcomes among these patient populations. Adherence to prescribed regimen has been reported to be a significant issue in ESRD patient population, with 86% of the patients reporting

adherence issues regarding at least one of the prescribed regimens (Rambod et al., 2010). Non-adherence to fluid restrictions and treatment schedule have been reported to be 78% and 32.3%, respectively (Kim et al., 2010; Sinclair & Parker, 2009). Non-adherence among ESRD patient population is one of the reasons for poor clinical outcomes, hospital admissions/readmissions, increased mortality rates, and healthcare costs (Sinclair & Parker, 2009).

ESRD is a chronic problem that predisposes patients to be on dialysis for the rest of their lives or until they find a donor for kidney transplantation. The chronicity of this problem and the cost of renal replacement therapy have made ESRD disease process a substantial economic and social burden not only on patients but also the family, nursing practice, healthcare systems. The United States Renal Data Services (URSDS, 2015) said that approximately 30 million Americans have chronic kidney diseases, which eventually progresses to ESRD. About 500,000 people are currently on dialysis as of 2015, with 124,111 incident cases. The Medicare cost of providing care for the ESRD patient population alone in 2013 was $30.9 billion (USRDS, 2015, para. 1). The financial burden of providing care for the ESRD patients made the Centers for Medicaid and Medicare Services (CMS) initiate a quality incentive program which monitors essential patient clinical outcomes. Providers are reimbursed based on patients' established clinical outcomes with up to a 2% payment reduction penalty for providers with clinical data below the benchmark (Saunders, Lee, & Chin, 2017).

Problem Statement

There is a disparity in terms of incidence, prevalence, and adherence among ESRD patients on HD. Obialo et.al. (2014), in their study reported that African Americans are more likely to miss scheduled HD treatments when compared to other races. Also, people of low socioeconomic status, residents of rural areas and inner cities, and people with lower education levels are more likely to struggle in adhering to plan of care (Som et al., 2017). Adherence to treatment plan among minorities had been a significant concern in healthcare due to health disparities, psychological, behavioral, and social issues.

This DNP project addressed adherence to HD treatments and fluid restrictions at three in-center hemodialysis (ICHD) clinics located in a large southeast inner city with predominantly African American patients. Based on previous research findings, the geographical location of the clinic, and the race of the patient population served, there was an obvious need to provide a more focused intervention that can address the issue of adherence. This project aimed to empower staff at three ICHD clinics through in-service training so they can be better equipped to provide required interventions that will enhance patients' adherence to treatment schedule and fluid restriction. Patients who are provided ongoing education and empowerment by hemodialysis staff have a better understanding of dialysis and what is required to develop a lifestyle that is consistent with adherence. The project determined the impact of staff education on adherence to prescribed treatment schedule and fluid restriction among patients in inner city clinics with mainly African American patients.

The burden of non-adherence and the cost of care in ESRD patients is enormous. The average per patient expense for hemodialysis is about $89,000 annually (CMS, 2016). Often, patients have low albumin and hemoglobin due to hemodilution resulting from fluid overload. Savings on unnecessary expenses on medication to treat falsely low hemoglobin, which could have been corrected by attendance and fluid management strategies, is a potential cost benefit. Improved adherence will help reduce the cost of hospitalization and emergency room visits due to shortness of breath, congestive heart failure, hyperkalemia resulting from fluid overload, and missed treatments. Adherence also helps reduce family time and work time lost due to avoidable hospitalizations. Improving adherence to treatment schedule and fluid restriction has a substantial positive impact on primary ESRD quality metrics set by the CMS. Adherence will limit the effect of fluid overload on cardiovascular morbidity. Adherence to prescribed treatment schedule and fluid restriction in ESRD patients will improve the quality of patients' lives and reduce the cost of providing care for this patient population (Gray, Cohen, & Brunelli, 2017).

This project aimed to determine the effect of staff education on patients' adherence to treatment schedules and fluid restriction. Also, since adherence has been proven to decrease hospitalization rates and complications that accompany HD such as fluid overload, anemia, hypoalbuminemia, congestive heart failure, hyperkalemia, and vascular access issues, the project will help decrease healthcare costs that are spent on the avoidable HD complications.

Purpose

Two primary reasons for prescribing HD treatment for ESRD patients are to remove toxins in the blood and excess fluid from the body. One of the measure used by CMS to rate hemodialysis centers' clinical performance is missed treatment rate. Since treatment adherence is one of the ways by which CMS measures clinical performance of outpatient HD clinics, it is important to come up with strategies to improve adherence to treatment schedule (Weiner & Lacson, 2016). Nissenson (2014), in his study discusses how past focus of HD centers on the adequacy of dialysis and anemia management has not led to any significant improvements in mortality rate, hospitalization, and patient satisfaction, since both metrics are the resultant effect of non-adherence to treatments and fluid restrictions. Providers continue to struggle on how to empower ESRD patients on HD, and their families in the management of this disease and the accompanying lifestyle changes. Mahmud et al. (2017), in their study established the benefit of staff education on quality improvement in healthcare Self-care strategies and patient engagement are effective in managing the problem of adherence (Evangelista & Shinnick, 2008). Informed and empowered patients are able to make better choices when it comes to their care. Patient engagement requires interdisciplinary collaboration. Despite the documented benefit of the impact of education on adherence in patients, the problem of adherence persists in hemodialysis patients, which has created a gap in research and actual practice. The practice question is: Will an education program for hemodialysis staff which empowers ESRD patients to learn about self-care strategies improve their adherence to fluid restriction and treatment schedule? Education was provided to the patient care

technicians, nurses, dieticians and social workers at the dialysis clinics regarding the importance of adherence after a baseline review of clinic performance on missed treatments and fluid gains between February, March, and April 2019. Missed treatment rates and fluid gains percentages were monitored for one month after staff education to determine if educating the staff was impactful on patient adherence.

Nature of the Doctoral Project

Sources of evidence include evidence-based peer-reviewed literature accessed through Walden University online databases. Specific databases searched were CINAHL, MEDLINE Ovid Nursing Journal, ProQuest, Google Scholar, CMS, and USRDS websites. Search terms used were *adherence*, *missed hemodialysis treatment*, *chronic diseases*, *staff education*, *fluid restriction*, *end-stage renal disease*, and *compliance*. Walden University Institutional Review Board (IRB) approval was obtained before data collection from the clinic providers The clinics used for this project were located in a southeast inner city in the United States with mainly African American patients. All three clinics had between 65 to 80 patients, with an average of 12 staff members excluding per diem staff. Staff education was conducted during 'the staff regularly scheduled lunchtime to ensure participation did not affect patient care time.

The project followed the guidelines in the Walden University DNP Staff Education Manual. A staff education manual was developed based on current evidence-based literature and including information to address identified barriers and concerns. The staff members at the three clinics that participated in the educational program were instructed on strategies that would promote patient empowerment and engagement in

terms of self-care strategies to enhance adherence. Intradialytic weight gain (IDWG) which is the amount of fluid gains between hemodialysis treatments and missed treatment rates were obtained for 3 months before the education program and 1 month after staff education to determine if the intervention was successful. Training was delivered during a lunch program to allow for better participation and avoid taking time away from the patient care schedule. IRB approval was granted before implementation.

Significance

Adherence to treatment schedule and prescribed fluid restriction are critical in terms of quality outcomes for ESRD patients. Improved clinical outcomes have shown to improve patients' quality of life and mortality and morbidity rates (Saunders et al., 2017). When patients are healthy, they can perform at their optimum. The findings in this project will benefit not only patients, but also help improve family life. There will be decreases in healthcare costs, reduced hospitalizations, and improved reimbursements to providers who potentially face a penalty for poor patient outcomes according to the CMS. The findings of this project can be used to empower nursing personnel providing care for patients who share the same demographic background in other healthcare facilities.

Summary

Section 1 discussed the burden of adherence to prescribed treatment schedule and fluid restriction among ESRD patients. This section explored implications of complications that arise from non-adherence among this patient population in terms of tax dollars and healthcare providers. Addressing adherence is a benefit to patients since it leads to improved clinical outcomes, better quality of life, and reduced hospitalizations.

Costs of providing care for patients with complications arising from the consequences of adherence will be reduced and can be reappropriated to help drive improvement in other areas of healthcare that are currently suffering due to lack of funds. The identified practice question was: Will an education program for hemodialysis staff which empowers ESRD patients to learn about self-care strategies improve their adherence to fluid restriction and treatment schedule? Three months of data on missed treatment and fluid gain percentages were reviewed to establish baseline performance of the participating clinics before educating the staff a month after the education program to determine improvement. Section 2 discusses the theoretical underpinnings of the project.

Section 2: Background and Context

Introduction

Managing chronic diseases is a burden not only to patients but also immediate families, local communities, healthcare providers, and taxpayers. ESRD is a peculiar chronic illness with a substantial financial burden in terms of tax dollars. The total number of ESRD patients is about 1% of Medicare beneficiaries and accounts for 5.6% of Medicare spending in 2012 (CMS, 2015). Adherence to prescribed treatment regimen and plan of care is a significant detriment in terms of expected clinical outcomes and quality of care. There are different reasons for poor adherence among patients dealing with chronic illnesses. Some of the reasons for poor adherence are internal, which are solely patient-driven and separate from healthcare systems, healthcare providers, and socioeconomic factors (Rafii et al., 2014). The chronicity of ESRD makes adherence nonnegotiable for quality clinical outcomes and patients' quality of life. Treatment schedules and fluid restriction are two crucial aspects of care among this patient population. Failure to adhere to prescribed treatment schedule and fluid restriction has dire consequences. For instance, nonadherence to treatment schedules and excessive IDWG puts the patient at risk for fluid overload, hospitalizations, anemia due to missed medication doses, low albumin from fluid overload, shortness of breath, and hyperkalemia (Gray et al., 2017). This project aimed to determine the effect of staff education on patients' adherence to treatment schedules and fluid restriction. Educating the staff responsible for the delivery of care to this unique population is very important since patients tend to rely on providers for information regarding their disease process.

The perceptions of staff and patients regarding the burden of the disease process and reasons for adherence may differ. Providing education for staff at the HD clinics regarding how to assist patients with adherence issues and understanding the uniqueness of each patient's barriers may help solve ongoing adherence issues among the ESRD patient population.

This section discusses the theoretical underpinnings of this project that were used to develop the education plan. The theory selected were chosen based on the relevance to adult learners since all the participants are adults. Evidence-based literature regarding adherence to treatments and fluid in ESRD patients, the impact of educating staff providing care for patients, and benefits of educating patients dealing with chronic illnesses were also discussed.

Concepts, Models, and Theories

The staff education program for this project was developed using Malcolm Knowles' adult learning theory. It was imperative to create and deliver staff education in a way that adult learners could comprehend. The theory identified five different assumptions about adult learners that makes the theory relevant to the participants of the education program:

1. An adult learner is matured with a concept of self which makes them to be self-directed and independent - the participants for this program are adult providers in the hemodialysis unit
2. An adult learner has a reservoir of experience which makes them resourceful – the participants have experience in providing care for hemodialysis patients

3. Adult learners overtime have developed readiness to learn that is closely related to their social roles - managing patient clinical outcomes is part of the roles of all the participants and understand the reporting requirements from CMS
4. The orientation for adult learner is more problem centered - the participants understand that there is a problem in the percentage of patients with adherence to treatments and fluid restrictions
5. Motivation for learning is internal - as healthcare providers, the learners understand the need to be self-directed in their learning to help patients. The purpose of the program is to guide them towards this learning

Dorothea Orem's Self-Care Theory

Orem's theory has three parts: self-care, self-care deficit, and systems theory. Self-care include the activities the patients perform independently towards their health. Self-care deficit is the responsibility of the nurse in assessing the patients' limitations and developing a plan of care based on the identified deficit. Systems theory involves how the patient care needs will be met by the patient, nurse or both. The main purpose of the theory is to help the patient achieve a reasonable level of autonomy in their care. Information obtained from patients regarding perceived barriers to self-care (self-care deficits) was used to identify strategies that providers may use to help patients address their self-care. Major focus of the theory as it applies to this project was to empower the hemodialysis providers on how to provide the environment needed by the patients for

personal development, how to provide guidance, teaching and support for the ESRD patients on hemodialysis.

Relevance to Nursing Practice

ESRD

The burden of ESRD transcends the United States healthcare system. It is a global problem that has been reported to impact morbidity and mortality rates adversely. Radhakrishnan et al. (2014) said there was an "82.3% increase in chronic kidney disease (CKD) mortality rate between 1990 and 2010 globally" (p. 2). This represents the third largest increase in mortality worldwide after HIV and diabetes. Hasan et al. (2018) ranked CKD as the 27th leading cause of death in 1990, rising in 2010 to 18th worldwide. The International Society of Nephrology has called for the World Health Organization (WHO) to see CKD as a non-communicable public health disease that requires public health policies at the global level for early detection and screening (Couser et al., 2011; Jha et al., 2013).

Routine lifetime appointments for hemodialysis treatments which is three times weekly on either Mondays, Wednesdays and Fridays or Tuesdays, Thursdays and Saturdays has been reported to be a burden for many ESRD patients. The treatment schedule often conflict with other engagements and family life (Som et al., 2017). Patients have to be cannulated with about a 15-gauge needle to establish access for HD treatments. This painful procedure is mandatory for HD treatment initiation. Prolonged bleeding after treatment termination is an unexpected outcome that often happens. All these experiences have impacted ESRD patients' motivation to attend scheduled

treatment negatively (Chan, Thadhani, & Maddux, 2014). Other barriers identified as deterrents to adherence among ESRD patient population on hemodialysis include depression, transportation issues, demographics, age, and lack of understanding of the implications of nonadherence (Efe & Kocaoz, 2014; Obialo et al., 2014).

Adherence

Nonadherence among ESRD patients is a deterrent for clinical outcomes. Som et al. (2014) said the impact of nonadherence on emergent hospitalizations among the patients who participated in the study, 'Improving dialysis adherence for high risk patients using automated message,' was 5% within 2 days of missed appointments compared to 1.2% in patients who did not miss their appointments. Nonadherence to prescribed fluid restrictions has been identified as a significant risk factor for cardiovascular death (Subbiah, Chhabra, & Mahajan, 2016). Anemia of ESRD is another health marker that is adversely affected by nonadherence. Patients with ESRD and CKD are predisposed to low hemoglobin, which worsens when patients miss doses of erythropoietin due to missed treatments (Stauffer & Fan, 2014).

Patient Education

Educating patients has proven to improve adherence in ESRD patients. However, there is a gap in these findings and actual practice. Barriers to providing required education have been identified to include lack of time, competing priorities, limited health literacy, clinical confidence, low baseline awareness, and lack of readiness to learn.

Improving the rate of missed treatments and adherence to fluid restrictions among the ESRD patient population will likely decrease the frequency of hospitalizations, thereby reducing costs associated with hospital admissions. Improving treatment adherence in the ESRD patient population requires patient engagement to change the underlying behavior driving non-adherence. Providing a blanket solution has proven to be ineffective and inefficient. On a general note, most of the outlined causative factors of non-adherence have underlying psychosocial and behavioral reasons as well as a knowledge deficit attached. The lack of knowledge regarding the consequences of missed treatments often makes patients compromise hemodialysis appointments for other appointments whenever there is a conflict (Chan, Thadhani, & Maddux, 2014). The HD providers are in an excellent position to help these patients understand the importance of adherence. An education plan for the staff who provides HD, and implementation of processes learned should have a resultant effect on adherence.

Definition of Concepts

Anemia: A condition where patients do not have enough red blood cells that can carry oxygen to the body tissues.

ESRD: A disease process where the kidney has failed to perform its functions. It has a gradual onset and progresses from chronic kidney disease (CKD). Diabetes and Hypertension are the two leading causes of ESRD. This patient population has diverse symptoms that range from edema (swollen extremities), fatigue from low hemoglobin because the kidney can no longer produce erythropoietin, dry mouth, muscle cramps, and pruritus from elevated phosphorus levels. ESRD can be life-threatening in the absence of

alternate renal replacement therapy. The complications described above make dialysis and other RRT necessary for survival (O'Connor & Corcoran, 2012).

Hemodialysis: One of the primary treatment options for ESRD patients that is delivered in-center, nocturnal, or at home. Other alternatives include peritoneal dialysis (PD), and transplant. ICHD has the highest number of ESRD patients. In HD, blood flows from the body through the patients' vascular access. The vascular access can be an arteriovenous fistula (AFV), an arteriovenous graft (AVG), or central venous catheter (CVC). The patients' blood is made to pass through an artificial kidney called dialyzer. The dialyzer, connected to the dialysis machine, filters the blood to remove toxins and excess body fluid based on what the staff programmed in the device.

Intradialytic weight gain (IDWG): A parameter which measures the amount of fluid the patient gains between treatments. It is calculated from deducting the patient's prescribed treatment weight from the pre-weight before hemodialysis initiation. It is typically expected to be less than 5% of the patient’s dry weight. Anything more than that is termed excessive.

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Local Background and Context

The clinical sites chosen for this project were located in inner cities in the southeast region in the United States. There were about 65 to 80 patients and an average of 12 staff in each clinic. The patient demographics are similar to the outlined population with adherence problems from the literature review. The expenditures on providing care for patients due to avoidable hospitalizations and complications from missed treatments

and fluid overload should be decreased if the adherence issue is addressed. The clinics had similarities in terms of capacity and operations. Each clinic had 20 hemodialysis stations with two shifts of patients on MWF and TTS. The average patient census ranges from 65 to 80. The staff members include patient care technicians, licensed practical nurses, registered nurses, social workers, renal dietician, and administrative assistants. Addressing the problem of adherence in ESRD patients require a team approach. The causative factors for non-adherence in individual patients vary and may range from psychosocial issues to knowledge deficit. Engaging and empowering all the team members can help address particular patient issues by the staff with the best expertise and skills to solve the specific problems.

There were about 12 staff members in each clinic, excluding per diem staff. The clinics are part of a for-profit chain dialysis center with Medicare or Medicaid insurance coverage for most of the patients. The centers have reporting obligations to CMS on identified quality metrics and stand the chance of losing up to 2% of their reimbursement if the quality metric goals outlined by CMS are not met. Also, the participating clinics has missed treatments and fluid restriction on the list of items that require focus and needs improvement. Staff education was not actively explored in all the clinics before the time this project was implemented.

Role of the DNP Student

As part of my practicum experience, I developed the questionnaire that the staff members used to obtain deidentified information from patients on perceived barriers to self-care. The deidentified questionnaire responses were incorporated into the staff

education program. All data received pre-post education were collated and were utilized in developing an evidenced-based education plan for ESRD staff. The program was presented during a lunch event was held on three different days to accommodate all the various staff schedules. The Director of Clinical Services served as a content expert and reviewed the presentation before the program event.

My motivation for this project stems from the day to day needs of the patient population in terms of dialysis knowledge. Most of the patients I serve ended up on hemodialysis without any form of pre-ESRD education. Adjusting to the new lifestyle has always been a challenge for the majority of them since they were not prepared for the sudden change that requires lifestyle modification from what they have been used to. The majority of this patient population also lack social support and awareness of community resources. Adherence is a significant issue for them due to a lack of motivation. There was no bias identified throughout the whole process of planning and implementing this project. The sites for the project are independent of my work site, and I do not know any of the patients or staff at the centers. The education material is proposed to be incorporated into a new staff training curriculum and annual refresher training for existing staff.

Summary

Section 2 discussed the theory of adult learning and Orem's theory of self- care and their application to this project. Current evidence on ESRD, adherence, and patient education was presented. Addressing the issue of adherence to treatment schedule and fluid restrictions among inner city ESRD patients has a benefit to patients' quality of life,

clinical outcome, and family life. Adherence also benefits HD providers because improved quality outcomes will eliminate potential reimbursement penalties. Healthcare spending will also be impacted because expenses due to hospitalizations, and complications of nonadherence will no longer be warranted. Section 3 presents the education program plan as well as the participants, procedures, and protections for the project.

Section 3: Collection and Analysis of Evidence

Introduction

The successful management of ESRD requires that patients attend scheduled HD appointments consistently, adhere to prescribed fluid restriction, follow a specialized renal diet, and be engaged in their plan of care. This patient population requires ongoing education and support from providers. Nonadherence has been established to be a deterrent to the realization of good clinical outcomes, quality of life, and unnecessary healthcare spending (Som et, al., 2017). Evidence-based practice has established the influence of staff education on adherence among patients dealing with chronic diseases; however, adherence continues to be an issue in some of the HD centers which has created a gap in research findings and actual practice. Section 3 addresses the process used to collect, organize, analyze, and interpret data used to develop staff education and measure the impact of the intervention on adherence.

Practice-Focused Question

The project question was: Will an education program for hemodialysis staff which empowers ESRD patients to learn about self-care strategies improve their adherence to fluid restriction and treatment schedule? The HD centers chosen for the implementation of this project have unique challenges because of their geographical location and patient populations served. Also, the centers are underperforming in missed treatment and fluid goals.

Sources of Evidence

Evidence for this project was generated from a database search of scholarly articles. The Walden University Library was used to search CINAHL, MEDLINE Ovid Nursing Journal, ProQuest, and Google Scholar. Google searches were done to find up to date statistics that have relevance to the project through web sites such as the CMS. Key search terms used were *adherence*, *missed hemodialysis treatment*, *chronic diseases*, *staff education*, *fluid restriction*, *end-stage renal disease, patient education*, and *self-care strategies*. Exclusion criteria were set to exclude articles involving other treatment modalities such as peritoneal dialysis and home hemodialysis. Most articles were published between 2014 and 2019. However, articles with relevance to the project that were published after 2009 were also reviewed.

Local evidence required for this project was obtained from the director of clinical services (DCS). Rate of missed treatments and excessive IDWG for each clinic for the past 3 months before staff education program and 1 month after the program were obtained from the DCS. The two metrics are currently monitored monthly by the participating clinics and reported to the CMS as part of required quality measures for pay for performance program. The pay for performance program penalizes underperforming hemodialysis clinics by cutting up to 2% of the normal reimbursement. The rate of missed treatments and IDWG before and after intervention assisted in determining if educating staff has an impact on patient adherence or not. Deidentified perceived barriers to adherence according to patients were collected from the participants.

Evidence Generated for the Doctoral Project

Procedures

The project followed the steps for developing a staff education project using the DNP Manual for Staff Education. The following steps were followed: planning, implementation and evaluation. The evaluation process began during the initial planning period which made planning the most time consuming aspect of the process.

Planning

All clinics are mandated to report quality metrics monthly. The DCS who is responsible for clinical services has access to all individual clinics' overall performance and provided the rates of missed treatments and IDWG reported by clinics. The participating clinics were not identified by name. Each clinic was assigned a number. Only the DCS knew participating clinics by name. Full-time and part-time staff members of the clinics were invited for the education program.

Implementation

Participation in the education program was voluntary, and recruitment of staff was done by posting flyers announcing dates and times for each clinic. Participants had the option of attending any of the clinic sessions that were convenient for their schedule. There were no special incentives for participation. Lunch was provided by the DNP student for all participants since lessons were delivered during the participants' scheduled lunchtime. Participants were required to sign in on the organization in-service attendance form for proof of participation. All data provided for the project were deidentified, and a summary of findings was given to the DCS to be kept in a secure place for 3 years. The

staff education program was developed using the theoretical frameworks of Knowles and Orem, evidence from the literature review, and perceived barriers from patient interviews delivered in the form of a PowerPoint presentation.

Protections

Walden University IRB approval and letters of commitment from organizational leadership were obtained. All data shared by the facility were deidentified. All data were stored in a locked cabinet in a secured place at each participating clinic for a period of 3 years. The DCS or designee will have access to the data. The data will be destroyed per organization document retention policies.

Evaluation

An anonymous evaluation of the program (see Appendix C) was developed by the DNP student. The evaluation form was provided to all the participants to provide feedback on the education that was delivered by the DNP student. The form was anonymous so that participants could be comfortable to share the opinion.

Analysis and Synthesis

The missed treatment and IDWG rates obtained before and after the training were documented in Table1. The data was obtained from the DCS and reviewed by the DNP student. Feedback from the participants perceived barriers questionnaire were also collated and common issues were extracted. The frequently occurring barriers were emphasized during the education

Summary

Section 3 discusses the process that was used to gather and analyze data for developing staff education programs required for interventions to improve adherence among ESRD patients on HD. Section 4 discusses findings, implications, and recommendations for the project.

Section 4: Findings and Recommendations

Introduction

The burden of ESRD on healthcare costs and the complexity of its management has been well documented. In 2013, the estimated cost of providing care to patient with ESRD was $30.9 billion (USRDS, 2015, para. 1). The ESRD patient population was reported to account for only 1% of Medicare expenditures and accounted for 7.1% of Medicare expenses in 2013 (USRDS, 2015, para 1). According to Som et al. (2017), failure to adhere to prescribed treatment regimen had been a significant cause of poor clinical outcomes, unwarranted healthcare expenditures, and poor quality of life. Some of the demands of ESRD management include three times weekly HD session attendance for an average of three and a half hours per session, lifestyle modifications, dietary modifications, fluid restrictions, and daily pharmacotherapy.

Effective management of this patient population requires ongoing patient teaching and support from providers since knowledge deficits are one of the barriers to adherence. Despite evidence-based practice regarding strategies to improve adherence, there are still obvious frequent instances of nonadherence in terms of treatment attendance and fluid restrictions among ESRD patients. The aim of this project was to determine if educating staff members in hemodialysis centers will improve adherence to treatment schedules and fluid restriction. Lack of time, low awareness, limited health literacy, competing priorities, and lack of clinical confidence are some of the hindrances identified by staff in providing required patient education (Sandlin et al., 2013). The practice question was: Will an education program for hemodialysis staff which empowers ESRD patients to

learn about self-care strategies improve their adherence to fluid restriction and treatment schedule? Sources of evidence for this project were generated from evidence-based peer-reviewed literature obtained through Walden University's online library and Ovid Nursing Journal, ProQuest, MEDLINE, and CINAHL. Google Scholar was also used as well as CMS and USRDS web sites. Local evidence, which includes clinical data regarding missed treatments and fluid restrictions and relevant organizational information such as clinic schedules for the education program was obtained from the DCS, clinic center managers, and staff members.

Findings and Implications

The education program was delivered through five different sessions over 3 days at two locations. The pre-education assessment questionnaire (see Appendix B) was used to test participants' knowledge base and understanding of the subject. Answers to the first question showed 70% of participants had less than two years of experience with the patient population and only 30% of participants have over 2 years of hemodialysis experience. 80% of participants neither knew their clinic's current month missed treatment and fluid rate nor the organization's goal for missed treatment. 90% of participants reported educating their patients monthly. However, topics varied from month to month. 100% of participants listed transportation as the main issue their patients verbalized as the reason for missed treatments Other issues that were reported as causative factors of non-adherence included illnesses, family care issues, knowledge deficit, schedule conflicts with other medical appointments, staff members' attitudes, laziness, and work schedules. 100% of participants stated that adherence could be

improved Suggested resources that can improve adherence include partnering with transportation companies, providing alternate schedules, and ongoing patient education. The Walden University Staff Education Manual was used to provide guidance for the development of staff education, which included three phases: planning, implementation, and evaluation.

Planning

A series of meetings took place between the DCS and DNP student before the delivery of the staff education. Preparation for the education program was done over a month in April 2019 after Walden University IRB approval was obtained. Outlier clinics were identified, and emails were sent to managers to get their support and secure a convenient schedule for the education program. The DCS provided preliminary clinical data regarding missed treatments and IDWG for the past 3 months for all identified centers. The clinic managers assisted in assessing the patient perceived barriers assessment form developed by the DNP student (see Appendix A). The DCS went over the organization's goal for missed treatment, which was set at no more than 5.5% of the patient census at the individual clinic. The IDWG goal was set to be no more than 28% of the total number of patients in each center will gain more than 5% of their prescribed treatment weight (TW) between treatments. This is a challenge for patients with missed treatment because they automatically gain more than the expected 5% IDWG. Each clinic should have a dedicated staff member to champion the management of each clinical outcome for accountability reasons. The DCS went over the toolbox, which is a resource for missed treatment and fluid management on the organization website. The

DCS approved the pre-assessment questionnaire developed by the DNP student based on the content of the education. The DNP student also met with clinic managers before the education program to discuss their concerns regarding missed treatment and fluid restrictions adherence in their clinics as well as peculiar challenges. A significant concern verbalized by managers was staffing issues. There are more staff members on their teams who are new to hemodialysis and are still trying to learn how to care for their patients. None of the clinics had a dedicated staff member who was assigned to lead the missed treatment performance. However, one of the clinics did not have a registered dietician (RD) as at the time of this project and the remaining two clinics only have RD presence two to three times a week since the RD has an assignment in more than one clinic.

Table 1

Baseline Missed Treatment and IDWG Data

	Clinic A	Clinic B	Clinic C
Feb Missed Tx	7.5%	9.8%	8.9%
Mar Missed Tx	8.2%	9.9%	7.8%
Apr Missed Tx	8.4%	10.2%	7.8%
Feb IDWG	36%	45%	39%
Mar IDWG	34%	39%	38%
Apr IDWG	35%	42%	36%

Implementation

A total of 30 participants took part in the in-service. However, only 22 stayed throughout the whole education delivery. Twenty-five people completed the pre-assessment questionnaire, three answered the questionnaire partially, and two did not

return the survey. The people that left before the end of the in-service had to attend to other patient care priorities that could not wait. Everyone was fully engaged as the in-service was delivered through an interactive conversation around adherence based on the questionnaire responses. Audiovisual equipment was also used to help the learners explore the toolbox resources provided by the organization and available to help in managing adherence to missed treatments and fluid restrictions. At the end of the education delivery, all the participants knew how to navigate the online toolbox. They were also able to verbalize their organization's goal for missed treatments and IDWG as well as how to locate their clinic's monthly performance.

Evaluation

The program evaluation form (see Appendix C) was used to evaluate the DNP student, the content, and the structure of the training. Twenty-two people completed and returned the evaluation forms. In assessing the DNP student, all participants strongly agree that the DNP student is knowledgeable of the subject matter, was able to explain and illustrate concepts as well as answer questions thoroughly. On the structure of the training, all participants strongly agree that the information and training materials were useful and appropriate for their level of experience. Twenty participants strongly agree that the training schedule was convenient, and two agree that the timing was convenient. There was no specific feedback or recommendation from staff for the DNP student. Two of the participants volunteered to lead the missed treatment initiatives for their clinics. They were both advised to speak with their manager on the next steps. There was an

improvement in the missed treatment rates and IDWG one month after the training in all the clinics (Table 2).

Recommendations

Based on the feedback and information gathered from the participants and DCS, the organization has a process in place for managing adherence. However, 80% of the participants of this project were not aware of the existence of the processes and resources available to them. It is recommended that the clinics have a lead person and a backup person to champion missed treatment. Having a back-up lead person for fluid management will also support the effort of the RD and provide continuity and a more accountable structure. There is documented evidence on the positive impact of having a champion spearhead a new or essential initiative. This provides for accountability and guaranteed success of the expected change (Shaw et al., 2012). Also, including missed treatment and fluid adherence education in the onboarding of new staff members may help them understand the importance of the clinical outcomes from the onset. Eighty percent of the participants are new to ESRD patient population, and this may be one of the reasons why the selected clinics were underperforming compared to other centers within the organization, as reported by the DCS. Incorporating the training from this project to routine annual staff skills check training may also be beneficial. Offering reschedules treatments for patients with transportation issues may also help reduce missed treatments. This may require the assistance of the social worker to help source for available resources within the community. There should be an organizational structure for

training champions for clinical initiatives to empower them to provide training and support for other team members.

Further study may be needed to determine the impact of years of experience of healthcare providers on patient adherence to plan of care and effectiveness of patient education. It will also be beneficial to study the impact of staffing shortages on patient education. Some of the staff members verbalized fatigue due to mandatory overtime as a result of shortages.

Strengths and Limitations of the Project

One of the strengths of this project was the cooperation and support of the DCS and the clinic managers. The existing process within the organization at large, which has proven to be effective in other centers as verbalized by the DCS was also a strength. The opportunity to hold the in-service in multiple sessions was also a strength since one session would have limited the class size. There are some limitations to this project. I was unable to engage with patients and have an understanding of their perceived barriers. The information used for patient-perceived obstacles were based on feedback from the staff members, which could not be tallied since the questionnaire (Appendix A) were not returned to the student. Some of the participants left before the end of the in-service due to emergent patient care needs that were more important. Staffing schedule shortages were also an issue since the in-service was rescheduled a couple of times as a result of staffing issues. Table 2 depicts post staff education missed treatment and IDWG data. The sustainability of the improvement in clinical outcomes could not be ascertained in this project due to time constraints.

Table 2

Post Staff Education Missed Treatment and IDWG Data

	Clinic A	Clinic B	Clinic C
June Missed Tx	7.1%	8.1%	6.2%
June IDWG	29%	33%	27%

Conclusion

Section 4 discusses findings, implications, and recommendations for the project. The strength and limitations of the project were also discussed in section 4. Dissemination plan and self-analysis of the DNP student will be discussed in section 5.

Section 5: Dissemination Plan

The DCS, who is the overall clinical leader for the clinics, guided the dissemination of findings. Each clinic was treated as a unique entity, and feedback was given to each manager individually through phone conferences based on the uniqueness of their centers and verbalized needs of their staff members during the education program. The DCS, however, received full information regarding the entire process. The DCS plan involved incorporating some of the recommendations from the project into existing processes within the organization, specifically having a training program for a designated person that will take leadership of managing missed treatment and IDWG outcomes. Abrazll clinics will also be required to have a lead and backup person to oversee all clinical initiatives.

Analysis of Self

The entire journey from the start of this project helped me to discover innate and untapped potential. Obtaining IRB approval was an experience that emphasized the practicality of what it takes to engage in advance education at the doctoral level process as a scholar. The requirements and rigor involved in the process of obtaining IRB approval were detailed. Despite evidence-based practices and available resources in all the participating clinics, it was still challenging to achieve the desired goal. A key takeaway for me as I embark on future projects is that processes can only thrive where people are equipped and empowered. As a healthcare practitioner, I was able to appreciate better the importance of every role in patient care and the importance of collaboration with assistive personnel. Another benefit of this project for me is the

understanding of the importance of engaging in ongoing education and staying current with trends and new research findings. It was very challenging to coordinate the in-service program schedule with managers. Their priorities and focus were on patient care. The experience helped me to work on how to solicit and obtain support from other people in the face of opposing priorities.

Summary

Patients' adherence to prescribed plan of care has been documented to be a significant concern in the management of patients dealing with chronic illnesses. This project focused on how to improve adherence to treatments and fluid restrictions in the ESRD patient population undergoing hemodialysis in three outpatient hemodialysis centers. Despite evidence-based practice that has proven successful, some of the centers are still underperforming clinically. The project explored the impact of staff education on patient adherence. Patients typically depend on providers for health information and guidance regarding their care. Pre-assessments done before providing staff education showed that 80% of participants in this project have a knowledge deficit concerning organizational goals for missed treatments and fluid restrictions. Empowering staff through education will help them empower patients in turn and provide the necessary support needed for adherence to plan of care. There was immediate improvement within 30 days after the staff education program in two of the clinics that participated in the project. Further study is still needed to establish the impact of years of experience of providers and staffing shortages on patient adherence.

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Appendix A: Perceived Barriers Interview Questions

1. What is your main concern about your dialysis treatment?
2. Do you know how much fluid you are supposed to take daily?
3. What can prevent you from coming to your scheduled treatment?
4. How often are you educated about missed treatment and fluid restriction?
5. What can the team do to help you improve adherence to treatment and fluid restriction?

Appendix B: Education Program

ESRD Missed Treatment and Fluid Adherence Pre-Education Assessment Form

How long have you been taking care of ESRD patients on hemodialysis?

Do you know your center's missed treatment and fluid rate for the current month?

What is your organization current goal for missed treatment and fluid?

How often do you educate patients about adherence?

What reasons have patients verbalized as the cause of non-adherence to treatment schedule and fluid restriction

What do you do when a patient calls to cancel their shift or does not show up as scheduled?

Please list five impact of missed treatments and fluid overload?

Do you think your patient can improve their adherence to treatments?

What can you do to help your patients improve adherence?

What resources do you think your patients need to help improve adherence?

Are there other thoughts you want to share on improving missed treatment and fluid outcome?

Appendix C: Program Evaluation

Post Evaluation Form

Title: _____ Date Attended: _____

Please select the rating for the each section based on the following criteria:

5=excellent 4=good 3=average 2=fair 1=poor

Please rate Joke Owolabi on the following:

1. Knowledge of the subject matter. □5 □4 □3 □2 □1
2. Ability to explain and illustrate concepts. □5 □4 □3 □2 □1
3. Ability to answer questions completely. □5 □4 □3 □2 □1
4. What recommendations do you have for Joke Owolabi to improve?

Please rate the content and structure of the training:

5. The usefulness of the information received in training. □5 □4 □3 □2 □1
6. The structure of the training session(s). □5 □4 □3 □2 □1
7. The pace of the training session(s). □5 □4 □3 □2 □1
8. The convenience of the training schedule. □5 □4 □3 □2 □1
9. The usefulness of the training materials. □5 □4 □3 □2 □1
10. Was this training appropriate for your level of experience? □ Yes □ No

If you said "No" to #10, please explain: