SELF-CARE ABILITIES OF PATIENTS ON MAINTENANCE HEMODIALYSIS AT KENYATTA NATIONAL HOSPITAL RENAL UNIT, NAIROBI CITY COUNTY, KENYA

BY

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REG. NO. R50/39762/2016

A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE (NEPHROLOGY NURSING) IN THE SCHOOL OF NURSING SCIENCES DEPARTMENT OF MEDICAL SURGICAL NURSING AND PRE-CLINICAL SCIENCES, KENYATTA UNIVERSITY

SEPTEMBER, 2022

DECLARATION

This Thesis is my original work and has not been presented for a degree in any other University.

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ABBREVIATIONS AND ACRONYMS

AVF- Arterio-venous Fistula

ESRD- End Stage Renal Disease

OPERATIONAL DEFINITIONS

Basic Conditioning Factors: These are factors influencing ones' capacity to undertake self-care activities. For this study, some basic conditioning factors that were assessed include stage in life, sex, one's education level, and knowledge, marital status, social support & support by the health care providers.

End Stage Renal Disease: It is irreversible kidneys dysfunction that necessitates regular long-term use of renal replacement therapy.

Self-Care Behaviour: This is carrying out of activity which promote health as well as wellbeing.

Self-Care: It is execution of activities by an individual on his/her behalf so as to lead a sound life. For example, taking medication as prescribed by a doctor, preventing infection by taking infection prevention/control measures or following diet recommended by a nephrologist.

Self-Care Ability: It is the human obtained competency to take part in self- care. Dorothea Orem termed Self-Care Ability as Self-Care Agency. It is the capacity to undertake, promote and maintain self-care. Sufficiency of self-care agency enables one to effectively achieve health needs, take responsibility for his/her health and avoid dependency on others. Lack of self-care ability brings about low self-care and increased dependency on others

ACKNOWLEDGEMENT

I would like to recognize the following individuals for standing with me all the way through my study period.

First I am graciously thankful to the Almighty God His ever present help as well as faithfulness all the way through my study time.

Secondly am very indebted to my supervisors, Dr. Grace Githemo and Dr. Lister Onsongo for their invaluable expertise, dedication, time, and understanding to ensure quality of my research.

Finally, I give thanks with grateful heart to my family for their encouragement and perseverance through this study period.

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ABSTRACT

Haemodialysis is the most common management modality for patients suffering from End Stage Renal Disease. A high number of haemodialysis patients have been reported to have inadequate self-care abilities which negatively affect their haemodialysis treatment outcomes. This cross-sectional study aimed at evaluating self-care abilities among patients on maintenance haemodialysis at Kenyatta National Hospital Renal Unit. Census method was used to identify study participants who met the eligibility criteria. Self- and interviewer administered semi-structured questionnaire was used in data collection. SPSS version 24 was used in the analysis of data. Descriptive statistics was used to summarise the data. Chi square was used to determine the relationship between independent and dependent variables while predictors of self-care abilities were determined using logistic regression. The findings revealed that majority of the patients on hemodialysis treatment had adequate self-care ability. Patients with secondary and tertiary education were more likely to follow recommended diet (**OR** 0.824, **95% CI** 0.545-1.739) and (**OR** 0.428, **95% CI** 0.251-0.834) respectively. The married and widowed patients were more likely to practice AVF arm site care (**OR** 1.44, **95% CI** 0.671-23.259) and (**OR** 1.17, **95% CI** 0.928-11.32) respectively. The patients who received social support on compliance to fluid restriction were more likely to follow recommended fluid (**OR** 2.714, **95% CI** 1.856-5.21). Clients who received social support on care of vascular access site were more likely to keep catheter access site clean and dry (**OR** 5.819, **95% CI** 1.05-29.187).The study concluded that self-care ability was significantly influenced by marital status, education level, social support and healthcare provider support. It was recommended that health care team should provide education on self-care to clients with low level or no education in simple ways that they will be able to understand so as to improve self-care abilities. Health care providers to continue offering frequent support to their patients in order to improve their self-care knowledge and skills. Multidisciplinary team to encourage social support as it was shown from the study findings to positively influence self-care abilities among hemodialysis patients.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Kidney failure is a condition that leaves kidneys in a state of inability to carry out physiological functions, which lead to accumulation of fluid and other metabolic waste products (Orr & Bridges, 2017). Kidney failure is categorized into acute kidney injury (AKI) and chronic kidney disease (CKD) (Naalweh., et al 2017).

AKI is a rapid fall in glomerular filtration rate (GFR) which occurs within hours or days and is characterized by retention of metabolic waste, electrolytes imbalance, acid-base imbalance and accumulation of fluids in the body. AKI is reversible if treated promptly. As opposed to AKI, CKD occurs slowly and the physiological functioning of the kidney is irreversibly reduced. CKD is classified according to the rate of GFR reduction. It has 5 stages in which stage five is the End Stage Renal Disease (Steddon et al., 2014). End stage renal disease is an irretrievable damage of kidneys functions where long term renal replacement therapy becomes inevitable (Naalweh et al., 2017)

The currently available replacement therapy include dialysis and kidney transplant. Dialysis is categorized into two; haemodialysis and peritoneal dialysis (Naalweh et al., 2015). Among the three, haemodialysis is the commonly used renal replacement therapy (Mengistu, 2018).

Patients on renal replacement therapy often have self-care deficits to be met both independently and dependently in a study done in Australia by Zimbudzi et al., (2017). Variables such as person's age, developmental stage, knowledge and skills pertaining one's chronic condition, social support, health state, availability of resources, diagnosis and treatment modalities influence self-care (Samina, 2016).

A lack of self-care ability in patients results in low self-esteem, which in turn translates into non-compliance with treatment and undesirable health outcomes such as frequent hospitalization, increased morbidities and mortalities (Poorgholami et al., 2016). High self-care ability on the other hand translates to treatment compliance and positive treatment outcomes (Unsar et al., 2018).

Patients on maintenance haemodialysis have limited self-care abilities (Rahmini 2014; Naalweh et al., 2017; Cavanaugh et al., 2015; Mohamed et al., 2016; Ibrahim et al., 2015; Mengistu, 2018). The limited self-care abilities can be seen in their low level of compliance to recommended diet,fluid intake restriction and treatment (Rahmini, 2014; Barakat et al., 2017; Ibrahim et al., 2015). The limited self-care is also evidenced by the patients on hemodialysis being dependent on others to meet their health needs (Mohamed, 2016). Factors such as low level of knowledge on one's condition and treatment process contribute to limited self-care abilities (Cavanaugh et al., 2015; Xhulia et al.,, 2016). Consequently, limited self-care abilities lead to complications such as septicaemia and cardiovascular related complications contributing to increased mortalities among patients on maintenance haemodialysis (Mengistu, 2018).

Dialysis is a complex treatment procedure that leads to fundamental changes in the patients' normal life, reduction on self-care abilities and increased dependence on caregivers as stated in a study done in Tehran in Iran by Sajadi et al., (2017). In order to cope with these changes, it is crucial for haemodialysis patients to sustain adequate self-care abilities, as this provides empowerment to participate in the treatment process. Maintained self-care abilities also lead to declining in the occurrence of complications and mortality among patients on maintenance haemodialysis, which in turn improve their total wellbeing (Mengistu, 2018).

A vital task is played by nurses in facilitating adequate self-care abilities among patients on maintenance haemodialysis. They assist patients on maintenance

haemodialysis in meeting some of their daily living activities besides acting as sources of information related to individual-care. It is therefore their responsibility to assist patients acquire relevant knowledge needed to carry out self-care activities as stated by Sidani & Doran, (2014). From the global and regional perspectives, few studies have been conducted to explore self-care abilities of patients on maintenance haemodialysis

There is also scarcity in evidence related to the self-care abilities in patients on maintenance haemodialysis, in Kenya. This translates into an increased need for a change in global management of renal-related conditions to more aggressive primary as well as secondary level-focused interventions that enhance their management. Therefore, as part of the strategy to improve health outcomes among haemodialysis patients, it critical for nurses to assess as well as support self-care capability of patients.

1.2. Problem Statement

Dialysis patients face numerous physical, psychological and social stressors that diminish their self-care ability. Some of these stressors include lifestyle changes they have to make due to the disease and treatment process. Some of the lifestyle changes include; diet modification, fluid intake restrictions, daily intake of multiple drugs, frequent hospitalisation and limitations in leisure activities. Sexual problems and uncertainty about the future are also among the stressors faced by dialysis patients as seen in a study done in Turkey (Unsar et al., 2018). In another study done in Cameroon it was noted that 94.5% of hemodialysis patients are worried about their sexual drive while 88% are stressed by the uncertainty of their future (Odette et al.,2018).

Due to the above stressors, patients' self-care abilities are greatly diminished putting them in a state of overreliance on caregivers. A study done in Nigeria to explore caregiver burdens of families with patients on ESRD showed that 28.1% of caregivers experience mild to moderate burden while 35.4% went through severe burden as a result of caring for their ESRD patients on hemodialysis. The estimated time spent per day

with their patients was reported to be 20.7 with 20% of them feeling that they had lost control over their own lives as a result of caregiving (Oyegbile & Brysiewicz, 2017).

A study by Jafari et al., (2018) in Iran revealed that 37.7% of caregiver experienced very high levels of care burden while 42.7% went through moderate care burden level due to diminished self-care abilities of their haemodialysis patients. The quality of life of these care givers was significantly and negatively reduced ($r=-0.436$, $p<0.001$). Another study in Iran showed that 75.5% of care givers of haemodialysis patients reported moderate to severe levels of caregiver burden necessitating the need for healthcare providers to enhance self-care abilities among these patients so as to reduce dependency (Mashayekhi et al. , 2015).

Studies have shown that low self-care ability results in low self-esteem, which in turn negatively affects treatment outcome. On the other hand, patients who have high self-care ability have better treatment outcome (Unsar et al., 2018).

Research studies reveal that haemodialysis patients have diminished self-care abilities contributing to complications and poor treatment outcomes such as frequent hospitalization, increased morbidities and mortalities. (Ibrahim et al., 2015; Mohamed et al, 2016; Rahmini, 2014; Mengistu, 2018; & Naalweh et al 2017).

Cavanaugh et al, (2015) in USA examined health literacy and found out that out of the 90 million people with low understanding of their health, 50% were patients on dialysis who showed inadequate knowledge on one's condition alongside treatment process, which translated into low participation in self-care. A research done in Egypt on self-care ability among haemodialysis patients by Mohamed et al., (2016) indicated that 30% of the patients were independent while the rest were dependant on caregivers for Daily Life Activities (DLA). After intervention of education, the percentage increased to 66.7%.

Another study by Ibrahim et al., (2015) in Egypt revealed that 30-70% of the participants could not adhere to fluid restrictions while 2-34% did not follow the recommended dietary regimen and haemodialysis patients who did not comply to prescribed medication ranged from 19-99%.

It was revealed in a study done in Ethiopia by Mengistu (2017) that 57.4% of the study participants (n=178) had low self-care abilities where 45% of them died as a result of developing septicaemia due to catheter sepsis and cardiovascular complications.

Haemodialysis patients attending the Renal Unit at the Kenyatta National Hospital are not exempt. It was observed by the researcher that some of the haemodialysis patients in this hospital returned to haemodialysis unit with inter-dialytic weight gain (IDWG) and fluid overload. Others got their catheter changed due to catheter access site infections. Some of the clients who had started using AVF resorted to catheter use due to failed AVF and others relied on caregivers for information on their medication use. Moreover, the fact that some of the patients attending the renal unit rely on caregivers; for instance, they are always in the company of their spouses, close relatives or caregivers may be an indication that their self-care abilities are low.

There have been limited studies that evaluate self-care abilities of haemodialysis patients in Kenya. Documented evidence on self-care abilities and associated factors influencing self-care among haemodialysis patients was lacking. Therefore, there was a need to conduct a study on self-care abilities among haemodialysis patients and factors influencing patients' self-care abilities in the select national hospital in Kenya.

1.3. Research Questions

1. What is the level of knowledge on self-care abilities among patients on maintenance haemodialysis at KNH?

2. What is the level of self-care ability among patients on maintenance haemodialysis at KNH Renal Unit?
3. What is the relationship between patients' demographic characteristic and self-care ability among patients on maintenance haemodialysis at KNH Renal Unit?
4. What is the relationship between social support and self-care ability among patients on maintenance haemodialysis in KNH?
5. What is the relationship between health provider support and self-care ability among patients on maintenance haemodialysis in KNH?

1.4. Research Objectives

1.4.1. Broad Objective

To describe Self-Care Abilities and self-care behaviour among patients on maintenance haemodialysis at Kenyatta National Hospital

1.4.2. Specific Objectives

1. To determine level of knowledge on self-care abilities among patients on maintenance haemodialysis at KNH renal unit.
2. To assess the level of self-care ability among patients on maintenance haemodialysis at KNH Renal Unit
3. To assess the relationship between demographic characteristics of patients on maintenance haemodialysis and self-care ability at KNH renal unit
4. To determine the influence of social support on self- care abilities among patients on maintenance haemodialysis health at KNH renal unit
5. To determine the influence of health care providers on self-care abilities among patient on maintenance haemodialysis at KNH renal unit

1.5 Study Justification

Haemodialysis patients face a lot of challenges that negatively impact on their self-care abilities. It is therefore important for nurses to explore self-care abilities of haemodialysis patients and encourage optimum utilization of these abilities in order for them to have autonomy and control of their health and consequently improve overall treatment outcome. (Zimbudzi et al., 2017)

The study focused on haemodialysis patients because it had been observed that a high number of haemodialysis patients were over reliant on caregivers for care (Jafari et al., 2018). Many of them returned for dialysis sessions with inter-dialytic weight gain (IDWG), fluid overload, catheter access site infections, anaemia, and failed AVF. Some of these patients also have low knowledge on medications they are on and rely on caregivers for information on drugs they use. Some of the clients, even though in stable condition always want their spouses or other caregivers to accompany them for haemodialysis sessions. These situations put them in a state of dependency on caregivers. (Mashayekhi et al., 2015)

KNH caters for a high number of haemodialysis patients, results of the study can therefore be generalized to the rest of the population on maintenance haemodialysis. The recommendations that have been given will go a long way in benefiting a large patient population.

1.6. Study Benefits

The results of this study were used to provide recommendations that will succour nurses in training patients on self-care-related skills for their chronic condition. This will give them confidence in dealing with issues related to self-care which in turn translate into desired treatment outcome and improvement of their quality of life and

that of caregivers. These findings will be utilized by nurses to increase their knowledge on self-care abilities of haemodialysis patients.

The health care team will use these findings to identify gaps in self-care among hemodialysis patients and implement the recommendations provided to improve self-care abilities for the ultimate benefit of these patients. It will further provide insight into how multidisciplinary team will provide appropriate support to hemodialysis patients to maximize self-care capabilities which has positive impact on health outcome. These study results found will also create further areas for advanced research studies. Finally, the recommendations which were made will be used to formulate policies that will improve nursing practice and nursing care given to patients on maintenance haemodialysis.

1.7 Theoretical Framework

This study was guided by Dorothea Orem's theory of Self-care Deficit. The theory stresses on patients' participation in own care. It focusses on patients providing own care as opposed to leaving all the care to nurses. It emphasizes on individual's responsibility in provision of care or self-reliance in order to improve health and general wellbeing. (Calero et al., 2021)

Dorothea Orem outlined 3 requisites in self-care theory. These include universal self-care which are indispensable to everyone, interrelated and also needed in everyone's developmental stage. The other two requisites are developmental and health care deviation self-care requisites. Developmental self-care requisites involves situations that occur throughout different stages in life cycle for example adopting to a different occupation or adopting to new body changes (Younas, 2019).

Dorothea Orem stated health care deviation self-care requisites were linked to heredity and abnormalities of the body, individual structural and functional

nonconformities such as pursuing therapeutic aid, being aware of disease conditions, and being able to effectively undertake effective therapeutic and rehabilitative measures. It involves accepting the state that one is in through modification of self-concept and image and seeking health care. It is about learning to live with a particular condition and lifestyle that promote continued personal development. (Smith & Parker, 2015).

End Stage Renal Disease patients on hemodialysis have changes in their body which developed as a result of the disease process. Physiologically, these patients have kidneys that are dysfunctional hence have to adopt to the new body changes. Renal replacement therapy becomes their new way of life. Other body changes include the use of arteriovenous fistula (AVF) or central venous catheter which are used in hemodialysis treatment. The AVF and central venous catheter are these patients' life line and hence need to be taken care of to maintain viability. These patients therefore have to acquire knowledge and skills on how to take care of these lines. Their self-care abilities have to be optimized (Sidani & Doran, 2014).

Apart from vascular access lines, there are other several lifestyle changes that Hemodialysis patients need to make: diet modification, restriction of fluid intake, multiple medication intake and change of the dressing. They have to avoid tight clothing as part of self-care of AVF. They need to avoid wearing tight jewellery or watches on AVF arm. They need to keep the catheter access site covered, dry and clean all the time to prevent bloodstream infections (Fisher et al., 2020).

In order for the above changes to effectively take place and improve health and wellbeing, self-care abilities (Self-care Agency) among HD patients need to be at its optimum level. They need to be well equipped with self-care knowledge and skills.

Where they have self-care deficit, Dorothea Orem in her theory of Self-care Deficit states that competency of a nurse becomes obligatory. Nursing becomes inevitable when the person/ guardian/ dependent are incapable/ limited on their capability to deliver constant active self-care (Smith & Parker, 2015). In this theory, the nurse comes in to assist the patient where there is inadequate skills on self-care until they are capable of carrying out the tasks on their own. In this study application of self-care deficit occurs where there is inadequate knowledge and skills on self-care activities such as improper care of catheter access site, AVF site care, right diet and right amount of fluid to take and knowledge on medication. Once the patient is well conversant with these activities, he/ she should continue with self-care.(Younas, 2019)

It is important to note that the nurse does not leave the patient to take care of him/herself completely. The services of a nurse are still needed by the patient. Dorothea Orem stressed in her theory of nursing systems that a nurse is needed in supportive-educative system. In this system, the patient executes self-care nonetheless assistance of a nurse cannot be eliminated. The patient needs a nurse to provide guidance and direction on decision making, behavior control, obtaining information and expertise (Smith & Parker, 2015). In this study, nurse is still needed to continually support hemodialysis clients with knowledge and skills so as to improve self-care abilities. In the questionnaire, study participants in this study were asked to state if they received any support on self-care abilities from the healthcare providers.

1.8 Conceptual Framework

This study was directed by Dorothea Orem's Theory of Self-Care. Orem outlined basic conditioning factors that influence self-Care ability (Self-Care Agency). They include factors like age, sexual category, and health state, education level and marital status, available resources which were evaluated in this study. In her theory, Orem emphasized that knowledge is a prerequisite to self-care, knowledge on one's

condition and treatment process influence self-care care abilities. When patients have adequate knowledge on the disease affecting them, the treatment modalities, and self-care strategies related to that condition, they will be in a better position to perform self-care (Sidani & Doran, 2014). This study aimed at evaluating self-care abilities of patients on maintenance haemodialysis, Dorothea Orem's theory of self-care was therefore best suited to bring out how various dynamics impacted self-care abilities amongst these patients.

Some of the conditioning factors mentioned in this theory that have been used as the study variables include demographic characteristics (age, sex, marital status and level of education), available resources (social support and health care provider support). According to Dorothea Orem, these basic conditioning factors influence self-care abilities of patients (Smith & Parker, 2015). In this study, demographic characteristics, social support and health care provider support were assessed to determine their relationship with self-care ability. Therefore, independent variables were the demographic factors, social and healthcare provider support while the dependent variable was the self-care abilities.

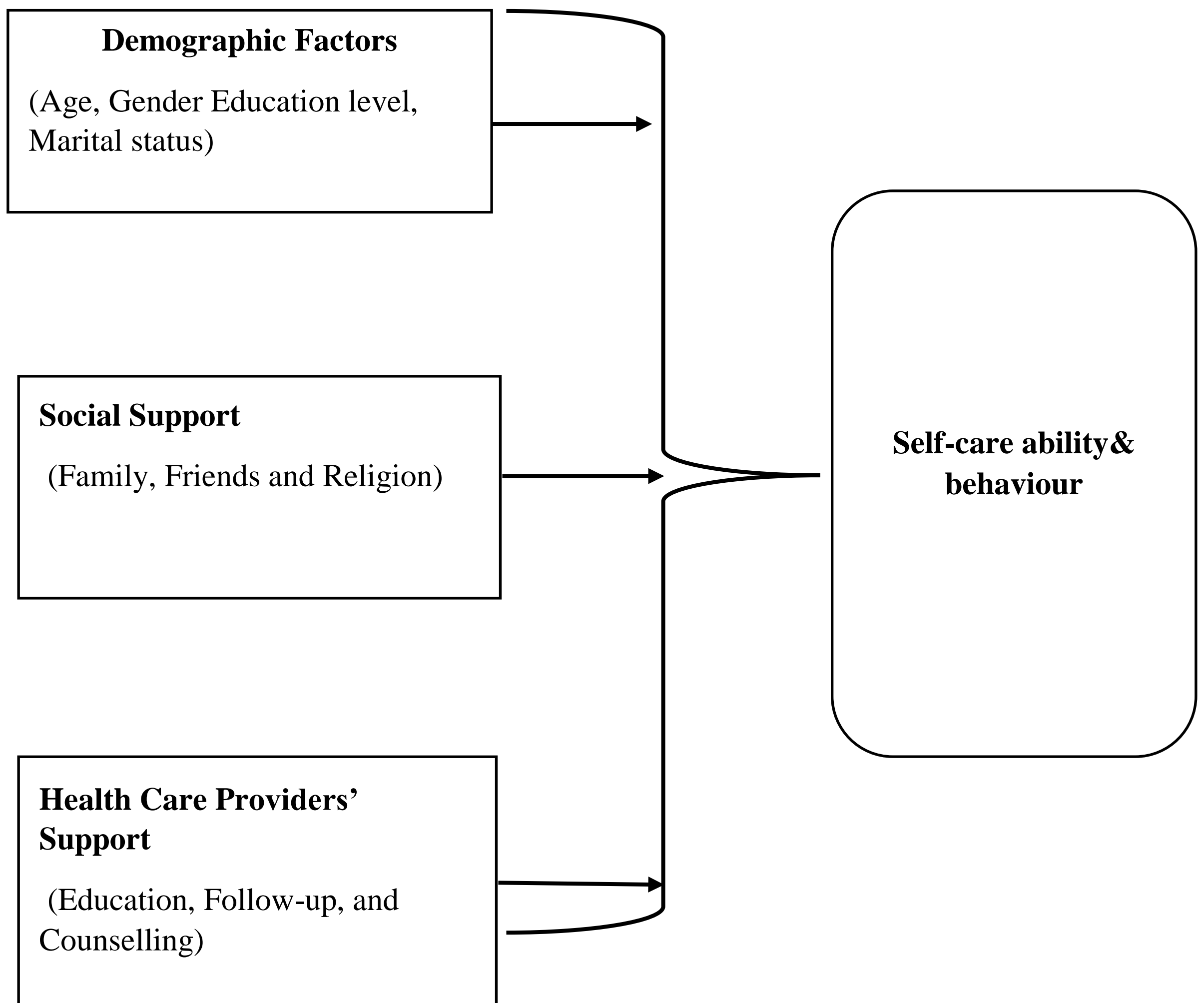

Figure 1.1: Conceptual Framework

Modified Self-Care Ability Model: Adapted from Orem's Theory

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1. Introduction

The section is purposely meant to provide an overview of End Stage Renal Disease and review literature regarding aspects influencing self-care ability as well as behaviour among patients on maintenance haemodialysis. An overview of the Theory of self-care deficit by Dorothea Orem will also be highlighted. Affiliation existing among a number of basic conditioning factors and self-care ability of haemodialysis patients will be thoroughly elucidated.

2.2 End Stage Renal Disease (ESRD)

End Stage Renal Disease is an irreversible chronic condition that render the kidneys incapable of performing their physiological functions resulting in accumulation of toxic metabolic substances and fluid overload which are only eliminated from the body through renal replacement therapy (Mengistu, 2018). If appropriate intervention is not taken, death becomes inevitable.

ESRD is the most advanced stage of CKD (stage 5) where the Glomerular filtration Rate (GFR) is less than 15ml/min/1.73m^2. This is the phase where renal replacement therapy is inevitable to maintain patient's wellbeing (Steddon et al., 2014). The available interventions include; peritoneal dialysis, hemodialysis and renal transplantation (Naalweh et al., 2015).

Dialysis acts as substitute for normal functioning of the kidneys. It is however somewhat effective. As compared to dialysis, kidney transplantation wholly supplants normal kidney function and is considered the prime treatment for ESRD. Patients who have successfully undergone kidney transplant have longevity and better quality of life compared to ESRD individuals on dialysis. However, not all ESRD patients qualify for

transplantation (Steddon et al; 2014). Haemodialysis is the commonest among the three treatments (Mengistu, 2018).

Haemodialysis is the most popular management for ESRD despite it having challenges such as requiring patient's active participation to reduce the complications which are eminent without proper intervention, (Borji et al., 2017). One most important requirement of the haemodialysis patients is self-care ability. Therefore, haemodialysis patients need to be equipped with knowledge and skills on self-care abilities to actively participate in their own care.

2.3. Knowledge on Self-Care Abilities and Self-Care Behaviours among Haemodialysis Patients

Self-care is an essential health promoting behaviour that helps to advance the health standards of patients on maintenance hemodialysis. Patients' participation in treatment process is therefore important as it can be effective in the reduction of complications. In order for haemodialysis patients to assertively take part in self- care, knowledge and awareness on self-care is paramount as stated by (Raheb, 2018) in a study done in Iran,

In her theory, Dorothea explained that self-care is intentionally learned. This includes undertakings implemented by persons to maintain life and uphold both individual and family members' wellbeing, High level of self-care ability translate into high performance of self-care activities. (Smith & Parker, 2015). Haemodialysis patients therefore need to obtain knowledge through learning to enable them participate actively in self-care.

Raheb (2018) in her study pointed out that a connection exists between poor compliance to self-care behaviours and inadequate knowledge on self-care and is associated with frequent hospitalization of haemodialysis patients. Raheb (2018) further added that key to successful reduction of frequent hospitalization, morbidity and

mortality rate among hemodialysis persons is promotion of self-care ability so is behaviour by empowering patients with knowledge.

A study done in Iran by Ramezani et al., (2019) on knowledge and awareness indicated that haemodialysis patients who have knowledge on their condition and treatment are more confident in self-care when compared to those without or have inadequate knowledge. Lack of knowledge and awareness by patients on haemodialysis treatment process and self-care (such as compliance to right diet, restriction in fluid intake, or care of vascular access) may lead to complication and even death (Ramezani et al., 2019). Sidani and Doran, (2014) in a study done in Montréal, Canada emphasized that self-care ability reflects the capacity to engage in self-care behaviour and it involves understanding of one's condition, treatment process and being knowledgeable of actions required to be taken in order to preserve and promote health.

A similar study by Ramezani *et al.*, (2019) revealed significant improvement on self-care after education intervention on knowledge and awareness of self-care. Haemodialysis patients who went through training on self-care demonstrated improved self-care behaviours in comparison to control group. These patients were able to maintain the right diet, take the right volume of fluids, take care of vascular access site and take medication regularly as opposed to control group. The intervention group was also taken through training on activity and rest and the results disclosed that there was a substantial escalation in activity and rest among the experimental group as compared to control group. Physical activity particularly stretching for flexibility improved physical function and quality of life among the intervention group (Ramezani et al., 2019).

Another study done in Taiwan on health literacy among haemodialysis patients by Shih et al., (2016) showed that clients with advanced health literacy had improved personal-care abilities and behaviour when compared to those with inadequate or low

health knowledge. The study indicated that health literacy was associated with patient empowerment and successful self-care. Patients who had higher health literacy were able to utilize health related information when taking care of their health, which led to reduction of complications.

Study findings by Ozen et al., (2017) in Germany on awareness, approach and action of haemodialysis patients on own-care of AVF revealed that 97.7% of participants had inadequate knowledge on how to take care of AVF during maturation period. The only adequate knowledge patients had during this period was exercise with a malleable objects by 40% and avoiding carrying heavy weights on the AVF arm by 50% of the patients. Additionally, 3.3% of the patients did continual confirmation of the existence of thrill in the fistula situate while only 23.3% maintained their dressing clean and dry after surgery.

Ozen et al., (2017) similarly noted that AVF care during curative period had some deficiencies with 86.7% of patient avoiding lifting of heavy objects on AVF arm while 66.7%, 60% and 70% had knowledge on significance of avoiding taking Blood Pressure, blood collection and administration of IV medication and fluids on AVF arm respectively. Therefore, all chronic kidney disease patients without any exception should be given health education on the preservation of major vessels located on forearm because it will come a time when they will be needed for creation of vascular access ((Molavizadeh et al.,2014); Ozen et al., 2017).

2.4 Relationship between Demographic Characteristics of Haemodialysis Patients and Self-Care Ability

Several researches have been done to assess how demographic factors influence self-care abilities and behaviour of patients on maintenance haemodialysis. Bowling et al., (2017) found out that there was noteworthy correlation linking demographic characteristics and self-care ability of haemodialysis patients.

2.4.2. Gender

In terms of sex however, (Sadat et al., 2021) discovered that men, manifested better self-care abilities when compared to women. This was associated with the fact that in Iran, men are more educated than women are. Ahrari et al., (2014) on the contrary found no distinction between male and female in individual care behaviour particularly on recommended diet and fluid restrictions. Study on effect of self-care education among haemodialysis patient demonstrated insignificant difference in gender between control and investigational group. Both male and female improved after being empowered with self-care education (Rahimi et al., 2014).

2.4.1. Age

Age influences a patients' capacity to uphold care that promotes good health. Advanced age, in accordance with (Sadat et al., 2021), is associated with reduced self-care ability, which translates into low self-care behaviour. Patients with advanced age had less self-care abilities and behaviour compared to patients with younger age in the care of catheter access site. This was attributed to the fact that younger patients are more energetic and have higher vitality. Bowling et al., (2017) discovered in their study focusing on elderly patients that patients who are 70 years and above had low self-care abilities due to numerous recommendations and multiple drugs that they have to take daily.

Ahrari et al., (2014) found opposing outcomes that as one advanced in age non adherence level of recommended diet and fluid restriction significantly decreased. The findings were associated with fact that conformity was observed in older patients which makes them more adherent in comparison with younger patients. Similarly, Naalweh et al.,(2017) in a study on treatment adherence among haemodialysis patient revealed that the elderly male patients were more adherent to haemodialysis treatment, fluid and diet restriction and medication compared to younger male patients. Study on

effects of self-care education among haemodialysis revealed insignificant alteration in age between control group and experimental groups (Rahimi & Gharib , 2014).

2.4.3. Marital Status

The marital status of the patient also has an effect on self-care ability. (Zhang & Xu, 2021) discovery was that single or divorced patients possessed better self-care skills compared to married patients. However, Ahrari et al., (2014) findings were contrary as single patients were more non-adherent by 87.5% as compared to married patients who had 46.2% non-adherence to recommended diet. The same study also revealed that 100% of the single patients were not compliant to fluid restriction as opposed to married haemodialysis patients who had 49.2% non-adherence. Rad et al., (2013) added that quality marriage significantly enhanced self-care behaviours. This can be seen from the fact that patients who were in good relationships with their spouses adhered well to recommended instructions such as diet, regularly taking medications and performing of physical exercises.

2.4.4. Education Level

On the level of education, (Sadat et al., 2021) discovered that patients who were more educated had better self-care ability when compared to those with low education level. The authors attributed this discovery to the fact that educated people had better understanding of their conditions, were able to recognize their self-care needs, and confronted them. Educated patients were also able to follow instructions and understood the need for self-care.

Rahmi and Gharib (2014) reiterated that clients with greater level of education had improved self-care behaviours when compared to those with low education level. This was because with increasing level of education these haemodialysis patients were able

to understand easily the knowledge being impacted on them on self-care and the importance of health promotion in prevention of complications.

Study findings by Mengistu (2018) similarly revealed that haemodialysis patients with low education had low self-care ability in comparison to those with diploma and above. The author associated these findings with the fact that patients that are more educated were able to grasp information easily and had better understanding in following instructions provided by health care providers on their health.

2.5. Influence of Social Support on Self-Care Abilities of Haemodialysis Patients

In accordance with Dorothea Orem's theory, available resources include health facilities, healthcare providers and social support that patients get (Smith & Parker, 2015). In order for patients on maintenance haemodialysis to have self-care ability, they require social support. Raheb (2018) added that social support involves the environmental support in which a patient is living in. Its essential role is to offer support and encouragement to patient so as to continue carrying out self-care activities.

Ahrari et al., (2014) indicated that clients who have adequate social support were more compliant to recommended nutrition and fluid limitations and they had improved quality of life. Family support was observed to be stronger than support from friends. This difference was associated with the impact haemodialysis has on patients' relationships with their friends. Haemodialysis patients have restricted lifestyle, limiting their socialization with friends. They no longer perform activities and drink and eat freely as they did when they were well widening the gap between them and their friends (Ahrari et al., 2014).

A related research done in Indonesia on social support and self-management among ESRD patients undergoing hemodialysis revealed a significant relationship (p=.027; alpha=0.05) between social support and self-care management among HD

patients. Patients who received social support had better self-care management in comparison to those who did not receive social support (Noviana & Zahra, 2022).

Other researches have been done to demonstrate the importance of social support in boosting self-care amongst individuals suffering from chronic illnesses. For instance, a study carried out in Turkey on association linking own-care ability, exhaustion and aloneness among patients on haemodialysis revealed that patients with elevated lonesomeness had inadequate capability to care for oneself (Akin et al., 2013).

2.6. Influence of Health Care Providers' Support on Self-Care Ability of Haemodialysis Patients

The health care providers are very important in dissemination of expert knowledge and skills on self-care. Mohamed et al.,(2016) stated that in order for haemodialysis patients to be efficient in self-care; they must be motivated and be willing to learn. They also emphasized that it is the accountability of the nurses to evaluate capacity of patients to perform self-care and address the gaps observed in order to maintain optimal self-care.

Sidani and Doran (2014) added that nurses' evaluation of patients' self-care ability is key because it enables them to determine the effectiveness of the intervention provided and shows patient's readiness to take part in self-care activities.

A study done on interventional education revealed a substantial improvement on health of hemodialysis individuals after personal-care education was given to them by healthcare providers. For instance, after interventional education, insomnia was reduced from 100% to 59.4%, oedema decreased from 34.4% to 0%, participation in exercise was increased from 46.8% to 59.4 and itchiness was reduced from 56.2% to 0% (Bahadori et al., 2014).

Another study done in Iran by Poorgholami et al., (2016) showed that nurses have a great and important responsibility in educating haemodialysis patients on self-

care behaviours and constantly reminding them of the dangerous complications brought about by inability to engage in self-care behaviours.

Poorgholami et al., (2016) and his colleagues showed that patients who were given knowledge and skills on self-care efficiently took part in self-care roles and were able to adopt to lifestyle changes well. There was also enhancement in quality of life when comparison was made to patients who did not received training on how to perform self-care.

Salomé et al.,, (2014) emphasized that it is crucial for nurses to persistently equip patients with knowledge and skills to increase independence, boost self-esteem and motivation to engage in self-care. This is because patients who have inadequate knowledge of their disease and treatment process tend to be dependent on others hence their self-esteem is lowered leading to poor treatment compliance.

Another study done by Royani et al., (2013) on the use of empowerment program to enhance self-care behaviour among haemodialysis patients revealed a direct substantial connection between empowerment level and personal-care in that self-care increased with increase in empowerment level. The study group participants had greater self-care ability and behaviour when compared to control group. The empowered patients were more confident about their self-care capabilities when compared to the less empowered group.

Continuous empowerment of haemodialysis patients by health care providers through impacting them with knowledge, skills and encouragement to share experiences so as to learn from one another's experiences and actively participate in their own care is significantly paramount (Royani et al., 2013).

2.7 Dorothea Orem's Theory of Self-Care Deficit

Orem centred mainly on concept of personal-care. The theory stresses on patients' participation in own care. The theory stresses on patients providing own care

as opposed to leaving all the care to nurses alone. It emphasizes on individual's responsibility in provision of care (Sitzman, 2017).

The theory also emphasizes on the role of a nurse in enabling patient make decision concerning his/her health and perform self-care activities except in situation where it is impossible. (Alligood, 2017).

Dorothea Orem's theory of self-care deficit is contain of 3 theories namely; theory of self-care, theory of self-care deficit and theory of nursing systems.

2.7.1 Theory of Self-Care

Self-care according to Orem means execution of actions by a person on his/her behalf so as to lead a healthier life and wellbeing. Effective performance of self-care translates into maintenance of integrity and human functioning (Hartweg, 2015).

She defined Self-care agency as the individually obtained capability /power to participate in personal- care. This capacity to get involved in own -care is influenced by aspects including; age, sexual category, individual wellbeing, knowledge on disease and treatment modalities, socio-cultural factors, environmental support and availability and adequacy of resources

Ordinarily adults provide self- care while infants, children, aged and people living with disabilities need holistic upkeep/support in performance of individual- care undertakings. Dorothea moreover well-defined therapeutic self-care demands as entirety of self-care measures implemented for certain extent for individual to achieve self-care requisites. Self-care requisite was stated by Dorothea Orem as the reason for undertaking self-care as it expresses intended or desired results (Smith & Parker, 2015) Self-care theory contains requisites/requirements that are categorized in 3 parts including; universal, developmental and health deviations.

In accordance with Dorothea Orem, universal self-care requisites are indispensable to everyone, interrelated and also needed in everyone's developmental stage. They include daily living activities such as maintenance of air intake, sufficient water intake, and sufficient elimination, balancing action and relaxing, between seclusion and societal interaction, and deterrence of threats to health. (Alligood, 2017).

Developmental self-care requisite is related to human growth and development process and situations that occur throughout different stages of life cycles that can unfavourably influence development. Example may include; adapting to a different occupation, or new body changes (Sitzman, 2017).

Dorothea Orem stated health care deviation self-care requisites were linked to heredity and abnormalities of the body, individual structural and functional nonconformities such as pursuing therapeutic aid, being aware of disease conditions, being able to effectively undertake effective therapeutic and rehabilitative measures. It involves accepting the state that one is in through modification of self-concept and image and seeking health care. It is about learning to live with particular condition and lifestyle that promote continued personal development. (Alligood, 2017).

2.7.2 Theory of Self-Care Deficit

Self- care deficit comes in when competency of a nurse becomes obligatory. Nursing becomes inevitable when the person/ guardian/ dependent are incapable/ limited on their capability to deliver constant active self-care.

Orem identified five approaches that a nurse can employ in helping the patient. These include; acting or performing for another, guiding or directing, catering and sustaining an environment that support personal growth, instruction and helping a patient acquire new skills and knowledge through training (Smith & Parker, 2015).

2.7.3 Theory of Nursing Systems

Orem delineated the how individual's self-care requirements can be achieved by nurse as health provider, client or mutually. She grounded it on evaluation of personal-care essentials and assessment of the capacities of client in accomplishing self-care undertakings (Sitzman, 2017).

She explained that nursing is inevitable when an individual is incompetent to implement personal care.

Orem acknowledged 3 classifications of nursing systems as necessary to achieve self-care requisites: Wholly compensatory system, partly compensatory system and supportive- educative system. Wholly compensatory is applicable when persons are incapable of engaging in personal-care activities necessitating total nursing care (Hartweg, 2015).

In partly compensatory nursing system, the nurse and the patient mutually takes part to maintain health while in supportive- educative system, patient executes personal-care nonetheless assistance of a nurse cannot be eliminated. The patient needs a nurse to provide guidance and direction on decision making, behavior control, obtaining information and expertise (Smith & Parker, 2015).

Part of Dorothea Orem's theory that will guide this study is Self-care. . Patients on maintenance haemodialysis need to be equipped with knowledge on their condition and treatment modalities. It is necessary for them to acquire adequate skills on self-care related to disease and treatment process so as to assertively partake in personal care, prevent complications and attain desired treatment outcome. Low self-care abilities translate to low self-care behaviours and consequently poor treatment outcomes (Sidani

& Doran, 2014; Mengistu, 2018; Raheb, 2018; Unsar et al., 2018; Ramezani et al., 2019).

2.8. Summary of Knowledge Gap

According to the literature reviewed, self-care abilities among patients on haemodialysis have not been widely studied both globally and regionally. The few studies that have been done showed that haemodialysis patients have low self-care abilities. Literature from the reviewed articles also revealed that in order to have a desired haemodialysis treatment, it is important for haemodialysis patients to be adequately equipped with knowledge, skills and actively participate in their own health care.

Currently, documented data in Kenya describing the self-care abilities and behaviour of patients on maintenance haemodialysis is lacking. There is therefore an increased need for study to be conducted in this area as so to assess the self-care ability and behaviour among these patients in KNH. The results attained from the study and recommendations will be useful in advancing nurses' knowledge on how to enhance patients' participation in own care resulting in the desired haemodialysis treatment outcome and reduction of morbidity and mortality rate.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

The purpose for section is to describe the approaches that were utilized to undertake the study. This chapter embraces information about study design, setting, as well as population. Inclusion and exclusion criteria, sampling criteria, sampling method, instruments, and data analysis techniques were applied.

3.2 Study Design

The study embraced cross-sectional study design to evaluate self-care ability of patients who are on haemodialysis at KNH. This is a type of research design in which the researcher is primarily interested in describing relationships among variables at a point in time without seeking to establish a causal connection (Crawford 2014). This study design was applicable for this study because it described relationship between factors influencing self-care ability and self-care amongst patients on maintenance haemodialysis at KNH at a point in time without seeking to establish a causal connection.

The study aimed to describe the relationship between few of the basic conditioning factors and self-care ability among patients on maintenance haemodialysis at KNH, hence the researcher found cross-sectional study design appropriate to utilize.

3.3 Study Area

Study took place in Kenyatta National Hospital Renal Unit. The hospital is situated in Nairobi County, the capital city of Kenya. It is approximately 3.5km from Nairobi City Centre. (**Appendix II**). It is the largest teaching and referral hospital in East and Central Africa offering specialized medicinal care, teaching and diverse health research. The hospital has 50 wards with bed capacity of 2,000. It also has twenty four

operating theatres and private wing of 208 bed capacity. Among the many specialized units in KNH is the Renal Unit. Its Renal Unit offers services for both renal and renal related conditions. KNH Renal Unit offers both dialysis (haemodialysis and peritoneal dialysis) and kidney transplant. It serves the largest number of haemodialysis patients in the country.

The KNH renal unit contain segregation room for clients who have or have previously had hepatitis B & C. Transplanted patients also have a separate room where they receive care until they are ready for discharge. There are 20 haemodialysis machines which run for seven days a week and 24 hours a day serving averagely 50 patients daily. The total number of patients on haemodialysis is averagely 150. KNH paediatric peritoneal dialysis unit is separately situated from haemodialysis section and has a bed capability of 6.

3.4 Study Population

Every patient who had been on maintenance haemodialysis for three months and over at KNH Renal Unit took part. According to KNH Renal Unit patients' records, there were averagely 150 patients on maintenance haemodialysis. Since haemodialysis patients at KNH is a small population, all eligible clients were included in the study using Census Method.

3.5. Inclusion and Exclusion Criteria

3.5.1. Inclusion Criteria

All patients undergoing maintenance haemodialysis were included in the study. Patients on maintenance haemodialysis for 3 months and over were included because 3 months and above was adequate time to assess the self-care ability.

3.5.2 Criteria of Exclusion

Patients who were on maintenance haemodialysis but refused to consent and those that were critically ill because they could not effectively perform own-care were not included in the study.

3.6 Study Variables

3.6.1 Independent Variables

Independent variables in this study included; sociodemographic characteristics (age, gender marital status and level of education), influence of social support and health care provider support on self-care. These variables were assessed to determine if they had any influence on self-care of this particular group of hemodialysis patients.

3.6.2 Dependent Variable

Self-care ability. The self-care activities that were assessed using questionnaire included the ability of the client to: take medications as prescribed by nephrologist, follow diet as recommended, adhere to restricted fluid intake, care for central venous catheter access site to avoid infections and care for AVF arm so as to remain viable. This variable was determined by use of questionnaire where clients were to indicate whether or not they carry out these self-care activities.

3.7 Method of Data Collection

3.7.1 Instruments

Collection of data was done by means of semi- structured self and interviewer administered questionnaires consisting of both closed and open ended questions. **(Appendix III).**

This type of questionnaire was appropriate for this study because of anonymity and hence subjects were free to air out their views with no fear victimization. Use of questionnaire also enabled the researcher to collect a lot of information concerning

personal-care abilities of patients on maintenance hemodialysis at KNH. Questions were generated based on the objectives of the study.

3.7.2 Pre-Testing

The above instruments was pre-tested at Moi Teaching and Referral Hospital in Eldoret, Uasin Gishu County. MTRH is a level 6 hospital and offers similar renal services as KNH. This hospital offers haemodialysis services as KNH and its patients faced similar self-care ability challenges which made it an ideal hospital for pre-testing the research tool. Both hospitals have similar staff (nephrologists, highly trained renal nurses and renal nutritionists). Since participants were assessed on how health care providers influence their self-care abilities, MTRH became the appropriate centre for pre-testing the study tools. The reason for pre-testing was to confirm its reliability and errors found were corrected before the tool was subjected to the actual participants.

Fifteen questionnaires, which was 10% of the 150 haemodialysis patients were exposed to pre-test to determine dependability and validity of investigation tools. Questionnaires of 10% was used since the population was less than 10,000 hence a sample size of 10% was a good presentation of the study population as supported by Mugenda and Mugenda (2012).

3.7.2 Pre-Test Results

Cronbach Alpha was used in assessing the internal consistency of the instruments. The results are as shown in Table 3.1

Table 3.1: Cronbach Alpha Results

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Level of Knowledge on self-care abilities	.817	.803	12
Level of self-care ability	.753	.721	13
Social support	.864	.839	4
Health-care providers' support	.788	.772	5

Source: Pilot Study (2020)

3.7.3 Data collection Process

The data gathering progression was initiated with the development of data collection tools and preceded by enrolment of research assistants by the principal investigator.

3.7.3.1 Enrolment of Research Assistant

The researcher was the principal investigator and 2 nursing students who were doing their higher diploma in renal nursing were used as research assistants. Reason for selecting student nurses specialising in renal nursing was because they had background knowledge on research and since they were specializing in renal nursing, they were familiar with the environment and study population. Data collection therefore was efficient.

3.7.3.2 Training of Research Assistants

The research assistants were trained by principal investigator before data collection for the purpose of familiarization with the research instruments and intention of the data collection. The training was mainly on the administration of questionnaires, real gathering, cleaning and storage of data. Research assistants were supervised by the principal researcher to ensure accurate data collection, adherence of confidentiality and covi-19 protocols.

3.7.3.3 Data Collection Process

The chief investigator together with research assistant went to the place where study took take place with the aim of sampling the respondents. The samples were screened for eligibility. Eligible individuals were given information on the study, time to ask questions and make clarifications. Patients who accepted to partake in the study were given consent forms to read, ask questions and sign the forms **(Appendix III).**

After obtaining consent, participants were served with structured and semi-structured questionnaire to obtain data. The principle researcher and assistants assisted participants who were unable to self-administer the questionnaire. Confidentiality and privacy was assured by having the participants' identity coded

3.7.4 Data Management

The questionnaires were verified for inclusiveness after the data collection was completed. The questionnaires were reserved securely in locker to guarantee maintenance of privacy and discretion. Data was stored in a computer that was safeguarded with a password, and backed up in external hard drive.

3.7.5 Data Analysis

Analysis of data was done with the use of Statistical Package for Social Science (SPSS version 24.0). Data on the level of participants' knowledge and self-care ability was rated by scoring each of the correct response given by the respondent a score of 1 and 0 for no correct response. Closed ended questions on knowledge and self-care were also be scored, where always was scored 2, sometimes 1, and never 0. The results were presented in tables after conducting descriptive analysis to examine bivariate relationships.

Participants who scored 2 were rated as having adequate self-care ability, those who scored 1 were deemed to have inadequate self-care and score of 0 as low self-care ability.(Oren, 2018)

Descriptive statistics like percentages was applied to scrutinize categorical data. Chi-Square was used to analyse categorical data. The predictors of self-care abilities was determined using logistic regression.

Critical p value was tested at significant level of 0.05 which is 95% confidential interval. The presentation of data was done using tables for ease of understanding and interpretation.

3.8 Limitations

Limitation for this particular study was that some of the participants felt that they were burdened with a lot of questionnaires from different researchers. This was mitigated through explanation of the importance of the research and how the findings and recommendations would have a positive impact on their self-care and consequently treatment outcomes.

3.9 Ethical Considerations

The institutional consent was sought from KNH Scientific Research and Ethical Committee, KU Graduate School and National council for Science Technology and Innovation (NACOSTI). Informed consent was obtained from the patients on maintenance haemodialysis on voluntary basis. Confidentiality and privacy of the participants was observed throughout study period. Generation of informed consent was done so that merely persons who signed it took part in the study.

The principle of autonomy was applied to let the participants make a knowledgeable option whether to join in the study or not. This included revealing what the study was all about to contestants, risks, advantages and giving them the chance to

ask question. The participants were also made to understand that they had a choice of pulling out from participation with no penalty.

Principle of Beneficence was also applied where the participants were given explanation that no invasive procedures were involved. The principle of justice was applied in that eligible participants were chosen equitably and no coercion used.

Covid 19 protocols were observed throughout data collection period to avoid contraction of the infection. Among the preventive measures observed included maintenance social distance of 1.5m, proper wearing of facial mask throughout the entire interview period and use of sanitizer and proper hand washing.

CHAPTER FOUR

4.0 FINDINGS

4.1 Introduction

The purpose of this study was to determine the self-care ability of patients on maintenance haemodialysis at Kenyatta National Renal Unit. This section provides the findings of the study presented as descriptive statistics and inferential statistics. Descriptive statistics involve the use of frequencies and percentages while inferential statistics involve the use of Chi-Square statistics.

From the pre-test results, the Cronbach Alpha results are 0.817, 0.753, 0.864 and 0.788 which are all greater than 0.7 (the study's rule of thumb). Mugenda and Mugenda (2012) indicated that if the Cronbach Alpha exceeds 0.7, then the internal consistency of the research instrument is high. Further scrutiny of the "Item-Total Statistics" under the Cronbach Alpha showed that removal of each of the items from the reliability analysis resulted in lower Cronbach Alpha coefficients. Therefore, no questionnaire items were removed.

4.3 Response Rate

A total of 150 questionnaires were distributed. Out of these, 128 were returned and deemed appropriate for analysis. This presented a return rate of 85.3%.

4.4 Descriptive Statistics

4.4.1 General Characteristics of the Respondents

The respondents were required to indicate their general characteristics and the findings are as reported. Out of the total respondents, 33.7% (43) were aged 50 years and above, majority were male, 53.1% (68). It is also evident from the findings that 95.3% (122) of the respondents were Christians. The findings also showed that majority 60.2% (77) of the respondents were married. On education level, it was evident that most 42.2%

(54) of the respondents had completed secondary education as their highest education level and 45.3% (58) of the respondents were self-employed. See Table 4.1.

Table 4.1: Profile of the Respondents

Characteristic		Frequency	Percent (%)
Age (in years)	<18 years	6	4.7%
	18-25 years	14	10.9%
	26-33 years	24	18.8%
	34-41 years	18	14.1%
	42-49 years	23	18.0%
	50-57 years	24	18.8%
	58-65 years	12	9.4%
	66-73 years	7	5.5%
Gender of the participants	Male	68	53.1%
	Female	60	46.9%
Religion of the participant	Christian	122	95.3%
	Muslim	6	4.7%
Marital status of the respondents	Single	41	32.0%
	Married	77	60.2%
	Widowed/separated	10	7.8%
Level of education	No formal education	2	1.6%
	Primary	36	28.1%
	Secondary	54	42.2%
	Tertiary	36	28.1%
What do you do for a living	Government/private employer	20	15.6%
	Self-employed	58	45.3%
	Student/in school	10	7.8%
	Unemployed	40	31.2%

Source: Research Data (2020)

4.4.2 Level of Knowledge on Self-Care abilities among Patients on Maintenance Hemodialysis at KNH Renal Unit

The participants were presented with some statements testing their knowledge on self-care as hemodialysis patients. The knowledge attributes were assessed on medication, fluid restriction, diet, AVF care and catheter access site care. On medication knowledge, 72.7% (93) of the participants know all the medication prescribed to them by their doctors while 63.3% (81) of the respondents fully understand the indication

for each drug prescribed. See Table 4.2

Table 4.2: Knowledge on Medication

		Frequency	Percent (%)
I know all the medication prescribed to me by my doctor?	not under medication	3	2.34%
	Yes	93	72.7%
	No	15	11.7%
	some of them	17	13.3%
I fully understand the indication for each drug prescribed?	not under medication	3	2.34%
	Yes	81	63.3%
	No	21	16.4%
	some of them	23	18.0%

Source: Research Data (2020)

Respondents were also assessed on their knowledge on fluid restriction. The respondents were required to indicate the importance of restricting their fluid intake and how they would know if their bodies had excess fluid. Those who responded correctly were deemed to possess some form of knowledge while those whose responses were wrong or indicated they were not sure were deemed to possess no form of knowledge. From the findings, 80.5% (103) of the respondents had some form of knowledge on the importance of fluid restriction while 19.5% (25) did not know or were not sure on the importance of fluid restriction. The findings also demonstrated that 96.9% (124) of the respondents possessed some form of knowledge on when their bodies have excess fluid with 3.1% (4) not knowing or not being sure when their bodies have excess fluid. See Table 4.3

Table 4.3: Knowledge on Fluid Restriction

		Frequency	Percent (%)
Knowledgeable on importance of fluid restriction	Possessed some form of knowledge	103	80.5%
	Do not know, not sure	25	19.5%
Knowledgeable when body has excess fluid	Possess some form of knowledge	124	96.9%
	Do not know, not sure	4	3.1%

Source: Research Data (2020)

A scrutiny on the open ended question on the importance of fluid restriction revealed that the main reasons for restricting the fluid intake by the respondents included avoidance of swelling/edema, 33.6% (43), avoid excess fluid in the body as a

dialysis requirement, 21.1% (27), maintain body health, 12.5% (16), avoid chest complications, 5.5% (7), avoid difficulty in breathing, 4.7% (6), avoid swelling & difficulties in breathing, 3.1% (4) and 19.5% (25) were not sure. See Table 4. 4

Table 4.4: Common Responses on Importance of Fluid Intake Restriction

Importance of restricting fluid intake	Frequency	Percent (%)
Avoid chest complications	7	5.5
Avoid difficulty in breathing	6	4.7
Avoid oedema/swelling	43	33.6
Avoid excess fluid	27	21.1
Avoid swelling, avoid breathing difficulty	4	3.1
Maintain body health	16	12.5
Am not sure	25	19.5

Source: Research Data (2020)

Similarly, the open-ended responses on how the respondents knew that their bodies had excess fluid revealed that the major signs and symptoms of excess body fluid included swelling/edema, 34.4% (44), chest pains and swelling, 17.2% (22), breathing difficulty & edema, 16.4% (21), swelling & breathing difficulties, 12.5% (16), breathing difficulties, 10.1% (13), breathing difficulty and chest complications, 8.6% (11), swelling and gaining weight, 0.78 % (1). See Table 4.5

Table 4.5: Responses of Major Signs of Excess Fluids

Major signs of excess fluids in the body	Frequency	Percent (%)
Breathing difficulty	13	10.2
Breathing difficulty, chest complications	11	8.6
Breathing difficulty, edema	21	16.4
Chest pains, swelling	22	17.2
Edema/swelling	44	34.4
Swelling, breathing difficulty	16	12.5
Swelling, gaining weight	1	0.78

Source: Research Data (2020)

In terms of knowledge on diet, 83.6% (107) of the participants were knowledgeable on why they were advised not to take certain foods; 16.4% (21) were not sure or did not know why they were advised not to take certain. See Table 4. 6

Table 4.6: Knowledge on Recommended Nutrition

		Frequency	Percent (%)
Knowledgeable on why they are advised not to take certain foods	Yes	107	83.6%
	Not sure, do not know	21	16.4%

Source: Research Data (2020)

An assessment of the reasons listed as to why the respondents were advised not to take some foods revealed that the main reasons listed included avoidance of excess wastes, 29.7% (38), maintenance of body health, 22.7% (29) and avoidance of excess potassium, calcium, urea, creatinine and sodium, 33.6 (43). See Table 4. 7

Table 4.7: Knowledge on Why Clients Needed to Avoid Certain Foods

Main reasons to not take certain foods	Frequency	Percent (%)
Avoid excess potassium, calcium, urea, creatinine and sodium	43	33.6
Avoid excess wastes	38	29.7
Maintain body health	29	22.7
I do not know/am not sure	18	14.0

Source: Research Data (2020)

The respondents under AVF care were assessed on their knowledge regarding AVF care. Specifically, they were assessed on whether they knew how to check vibrations on the AVF arm. Out of the respondents under AVF care, 98.2% (54) had knowledge on how to check vibrations on their AVF arm while 1.8% (1) did not have knowledge on how to check vibrations on AVF arm. See Table 4.8

Table 4.8: AVF Care Knowledge

		Frequency	Percent (%)
Knowledge on AVF care	Yes	54	98.2%
	Not sure, do not know	1	1.8%

Source: Research Data (2020)

An analysis on the open-ended responses revealed that the respondents checked the AVF vibrations on their arm using their other arm, either by placing fingers, 52.7% (29) or using the palm of their hand, 45.5% (25). See Table 4.9

Table 4.9: Responses on Knowledge on AVF Care

		Frequency	Percent (%)
How do you check for vibrations on your AVF arm?	don't know	1	1.8%
	Placing fingers	29	52.7%
	Placing hand palm	25	45.5%

Source: Research Data (2020)

Knowledge on the presence of catheter access site infections was assessed using open ended question where respondents were required to indicate how they could tell when their catheter access site had an infection. Some of the signs and symptoms given by clients included; fever, 35.3% (24), pain, 11.5% (11), pain, pus & fever, 3.1% (3), pain & pus, 3.1% (3), feeling itchy on the site, 3.1% (3), swelling on the site, 2.1% (2) and those who were not sure were the majority with 52.1% (50). See Table 4.10

Table 4.10: Knowledge on Catheter Access Site Infection

Signs & Symptoms of catheter access site infection	Frequency	Percent
Feeling itchy	3	3.1
Fever	24	25
Pain	11	11.5
Pain, pus	3	3.1
Pain, pus, fever	3	3.1
Swelling at site	2	2.1
Am not sure	50	52.1

The overall knowledge on catheter access site infection was determined based on the open ended questions whereby, patients with two or more correct responses were deemed to possess adequate knowledge, one response was deemed to have inadequate and no response or not sure had low knowledge. See Table 4.11

Table 4.11: Overall Knowledge on Catheter Access Site Infection

		Frequency	**Percent (%)**
Signs/symptoms of catheter access site infections	Not sure, do not know	50	52
	Adequate Knowledge	6	6.3
	Inadequate knowledge	40	41.7

Source: Research Data (2020)

4.4.3 The Level of Self-Care Ability among Patients on Maintenance Hemodialysis

The participants were assessed on various self-care ability aspects, so as to determine the overall level of self-care among hemodialysis patients. The first aspect assessed was on medication. It was evident that 88.3% (113) of the respondents indicated that they took all their medication as prescribed, 7.1% (9) sometimes took their medication as prescribed, 2.34% (3) did not take their medication as prescribed. See Table 4.12

Table 4.12: Self-Care Ability on Medication

		Frequency	Percent (%)
I take all my medication as prescribed?	not under medication	3	2.34%
	Yes	113	88.3%
	No	3	2.34%
	sometimes	9	7.1%

Source: Research Data (2020)

The respondents were also required to respond on some items regarding self-care ability on fluid restriction. Evidents from the findings was that 49.6% (63) of the respondents measured their fluid input and output on daily basis, 27.6% (35) did not measure their fluid input and output on daily basis and 22.8% (29) sometimes measured their fluid input and output on daily basis. From the results, 64.6% (82) always followed the recommended fluid intake, 22.0% (28) sometimes followed the recommended fluid intake, and 13.4% (17) did not follow the recommended fluid intake. See Table 4.13

Table 4.13: Self-Care Ability on Fluid Restriction

		Frequency	Percent (%)
I measure my fluid input and output on daily basis.	yes	63	49.6%
	no	35	27.6%
	sometimes	29	22.8%
I always follow the recommended fluid intake.	yes	82	64.6%
	no	17	13.4%
	sometimes	28	22.0%

Source: Research Data (2020)

The respondents were also assessed on their self-care ability on diet aspect. The results showed that 83.6% (107) of the participants followed the recommended diet, 12.5% (16) sometimes followed the recommended diet and 3.9% (5) did not follow the recommended diet. See Table 4.14

Table 4. 14: Self-Care Ability on Diet

		Frequency	Percent (%)
I follow the recommended diet.	yes	107	83.6%
	no	5	3.9%
	sometimes	16	12.5%

Source: Research Data (2020)

Those respondents who had AVF were assessed on their self-care ability on AVF. From the results, 87.3% (48) of the respondents who had an AVF always avoided carrying heavy loads on AVF arm, 10.9% (6) never avoided and 1.8% (1) avoided sometimes. Majority of the respondents who had AVF, 81.8% (45) did not allow blood pressure or blood samples to be taken on AVF arm, 14.5% (8) never resisted while 3.6% (2) sometimes did not allow. The findings also showed that 60.0% (33) of the respondents always checked pain, redness, swelling or fever on AVF arm, 27.3% (15) sometimes checked and 12.7% (7) never checked. It was also evident from the findings that 89.1% (49) of the respondents with AVF always monitored for bleeding on AVF site after dialysis, 7.3% never monitored and 3.6% (2) sometimes monitored. On washing AVF arm with soap and water before hemodialysis, 58.2% (32) of the respondents always did so, 30.9% (17) never did so while 10.9% (6) sometimes did so. Majority of the participants with AVF as shown by 76.4% (42) always avoided wearing

watch, jewellery and tight sleeves on AVF arm, 18.2% 910) never avoided, and 5.5% (3) sometimes avoided. The results also demonstrate that 74.5% (41) always did not lie on AVF arm, 16.4% (9) sometimes lied on AVF arm and 9.1% (5) never slept on AVF arm. Lastly, 92.7% (51) of the respondents with AVF checked for thrills many times per day while 7.3% (4) rarely checked for thrills (vibrations) on their AVF. See Table 4.15

Table 4.15: Self-Care Ability on AVF Care

		Frequency	Percent (%)
I avoid carrying heavy loads on AVF arm	Always	48	87.3%
	Sometimes	1	1.8%
	Never	6	10.9%
I do not allow blood pressure or blood samples to be taken on AVF arm	Always	45	81.8%
	Sometimes	2	3.6%
	Never	8	14.5%
I check pain, redness, swelling or fever on AVF arm	Always	33	60.0%
	Sometimes	15	27.3%
	Never	7	12.7%
I monitor for bleeding on AVF site after dialysis	Always	49	89.1%
	Sometimes	2	3.6%
	Never	4	7.3%
I wash AVF arm with soap and water before hemodialysis	Always	32	58.2%
	Sometimes	6	10.9%
	Never	17	30.9%
I avoid wearing watch, jewellery and tight sleeves on AVF arm	Always	42	76.4%
	Sometimes	3	5.5%
	Never	10	18.2%
I do not lie on AVF arm	Always	41	74.5%
	Sometimes	9	16.4%
	Never	5	9.1%
Check for thrills (vibrations)	Several times per day	51	92.7%
	Rarely	4	7.3%

Source: Research Data (2020)

On catheter access site care, 72.9% (70) avoided water contact, 11.5% (11) avoided water/wiped with antiseptic/avoided interfering with dressing, 10.4% (10) avoided touching/interfering with dressing on the catheter access site, 3.1% (3) did not know how to attend to the catheter access site and 2.1% (2) wiped the catheter access

site with antiseptic. These findings were considered as the overall level of catheter access site care. See Table 4.16

Table 4.16: Self-Care Ability on Catheter Access Site Care

Describe how you keep your catheter access site clean and dry?	Avoid water contact	70	72.9%
	wipe with antiseptic	2	2.1%
	avoid touching/interfering with dressing	10	10.4%
	avoid water/wipe with antiseptic/avoid interfering with dressing	11	11.5%
	do not know	3	3.1%

Source: Research Data (2020)

4.4.4 Level of Social Support on Self- Care Abilities among Patients on Maintenance Haemodialysis Health at KNH Renal Unit

The fourth objective of the study was to determine the influence of social support on self-care abilities among patients on hemodialysis maintenance at KNH renal unit. Respondents were required to respond on questionnaire items regarding some dimensions of social support such as social support on hemodialysis treatment, social support on medication, social support on fluid restriction compliance and social support on vascular access site care. Presence of support from close associates such as relatives/close family members, friends etc. on the dimensions signified presence of social support. From the responses, overall status of social support was determined through ranking the extent of social support based on the mean.

The findings indicated that 74.2% (95) of the respondents received no social support on hemodialysis schedule maintenance; 25.8% (33) received social support (get reminded (family member, friends or religious members) on the date/time for haemodialysis treatment). For those under medication, 72.8% (91) received no social support on medication adherence; 27.2% (34) indicated that they received social support on medication (get reminded (family member, friends or religious members)

when to take my medication). The findings indicated that 70.3% (90) of the respondents indicated that they received no social support of compliance to fluid restriction; 29.7% (38) indicated that they receive social support on fluid restriction compliance (get social support (family member, friends or religious members) on compliance to fluid restriction and recommended diet). From the findings, 73.4% (94) of the respondents indicated that they received no social support on vascular/catheter access site care; 26.6% (34) received social support (get social support (family member, friends or religious members) on vascular/catheter access site care). On the overall extent of social support, it is evident from the findings that 68.0% (87) of the respondents receive no social support on the different aspects of self-care abilities; 32.0% (41) receive social support. The findings on presence of social support in different self-care aspects are as presented in Table 4.17.

Table 4.17: Social Support on Self-Care Abilities

		Frequency	Percent (%)
I get reminded (family member, friends or religious members) on the date/time for haemodialysis treatment	Yes	33	25.8%
	No	95	74.2%
I often get reminded (family member, friends or religious members) when to take my medication	Yes	34	27.2%
	No	91	72.8%
I get social support (family member, friends or religious members) on compliance to fluid restriction and recommended diet	Yes	38	29.7%
	No	90	70.3%
I get social support (family member, friends or religious members) on vascular/catheter access site care	Yes	34	26.6%
	No	94	73.4%
Overall extent of social support on self-care aspects	Yes	41	32.0%
	No	87	68.0%

Source: Research Data (2020)

4.4.5 Level of Healthcare Providers Support of Patients on Maintenance Hemodialysis

The fifth objective was to assess the influence of health care providers' support on self-car abilities among patients on hemodialysis at the renal unit of KNH. Respondents were required to indicate whether there is health care providers' support on the four aspects of self-care: hemodialysis schedule maintenance, adherence to medication, compliance to nutrition and recommended fluid restriction and advice on taking care of catheter access site/AVF care.

It was evident from the findings that 53.9% (69) of the respondents indicated that their health care provider sometimes counselled them on the significance of following their dialysis schedule, 25.0% (32) were counselled on the significance of following dialysis schedule every session while 21.1% (27) were never counselled by their health care provider on the significance of following their dialysis schedule.

The findings also show that 59.8% (76) of the respondents were never called by their health care providers to find out why they have missed their dialysis sessions, 27.6% (35) were sometimes called and 12.6% (16) were always called. On being educated by the health care providers on the importance of taking medication as prescribed, 59.3% (76) were sometimes educated, 21.9% (28) were educated on every hemodialysis session, and 18.8% (24) were never educated.

From the findings, 58.6% (76) of the participants are sometimes counselled by their health care providers on the significance of compliance to recommended nutrition and fluid restriction, 22.7% (29) were counselled in every dialysis session, and 18.8% (24) are never counselled. Lastly, 50.0% (64) of the respondents are sometimes educated by their health care providers on how to take care of their vascular/catheter access sites, 27.3% (35) were educated in every dialysis session and 22.7% (29) are

never educated. The overall extent of availability of health care providers' support is sometimes available as per the responses by 55.5% (71) of the respondents; 22.7% (29) indicated that health care providers support was always available and 21.9% (28) indicated that health care provider support is never available. The findings are as reported in Table 4.18

Table 4.18: Healthcare Provider Support

		Frequency	Percent (%)
My health care provider counsels me on the significance of following my dialysis schedule?	every dialysis session	32	25.0%
	Sometimes	69	53.9%
	Never	27	21.1%
When I miss my dialysis session, my health care provider calls to find out why?	always	16	12.6%
	sometimes	35	27.6%
	Never	76	59.8%
My health care provider educates me on the importance of taking medication as prescribed by nephrologist?	every hemodialysis session	28	21.9%
	sometimes	76	59.3%
	Never	24	18.8%
My health care provider counsels me about the significance of compliance to recommended nutrition and of fluid restriction?	every dialysis session	29	22.7%
	sometimes	75	58.6%
	Never	24	18.8%
My health care provider educates me on how to take care of my vascular access site?	every dialysis session	35	27.3%
	sometimes	64	50.0%
	Never	29	22.7%
Overall extent of health care provider support	Always	29	22.7%
	Sometimes	71	55.5%
	Never	28	21.9%

Source: Research Data (2020)

4.5 Inferential Statistics

4.5.1 The relationship between demographic characteristics of patients on maintenance haemodialysis and self-care ability at KNH renal unit

Chi-Square tests were conducted to test the association between the respondents' demographic characteristics and the various self-care aspects. There was a positive association between marital status and daily checking of vibrations on AVF arm was significant, $\chi 2$ (4, N=53) =7.75, p=.02. Married participants were able to check for vibrations on AVF arm. This is a likely indication that couples support each other in enhancing self-care.

The relationship between level of education and following recommended diet was positive, $\chi 2$ (6, N=128) =14.98, p=.01. Participants with secondary level of education and above followed recommended diet as opposed to those with lower level of education. This is an indication that level of education determines ones understanding and application of self-care abilities.

The association between employment type and measurement of input and output was significant. Participants who were employed were more likely than unemployed to measure their fluid input and output, $\chi 2$ (N=128) =13.23, p=.01. See Table 4.19.

Table 4.19: Self-care Ability and Demographic Characteristics

Demographic Characteristics		Self-care Ability						
		Measure fluid input output	Follow recommended fluid	Take medicine as prescribed	Follow recommended diet	Checking vibrations on AVF arm	AVF arm site care	Keeping catheter access site clean & dry
Age in categories	$\chi2$values	2.5	2.8	4.34	1.43	6.65	11.08	7.21
	Df	6	6	6	6	4	6	9
	P-value	0.87	0.83	0.63	0.96	0.35	0.09	0.62
Gender	$\chi2$values	1.62	0.17	1.23	4.47	0.24	3.36	0.91
	Df	2	2	2	2	1	2	3
	P-value	0.44	0.92	0.55	0.11	0.62	0.19	0.82
Religion	$\chi2$values	2.52	0.68	0.53	2.24	0.06	0.7	3.57
	Df	2	2	2	2	2	2	3
	P-value	0.77	0.71	0.77	0.33	0.81	0.71	0.31
Marital status	$\chi2$values	5.18	4.44	4.89	5.37	7.75	16.74	7.05
	Df	6	6	6	6	4	6	9
	P-value	0.52	0.62	0.56	0.5	**0.02**	0	0.63
Level of education	$\chi2$values	2.5	2.8	4.34	14.98	5.25	11.08	7.21
	Df	6	6	6	6	4	6	9
	P-value	0.87	0.88	0.63	**0.01**	0.16	0.09	0.62
Employment type	$\chi2$values	13.23	2.09	6.33	1.33	0.64	4.27	1.41
	Df	4	4	4	4	2	4	6
	P-value	**0.01**	0.72	0.18	0.86	0.73	0.37	0.97

4.5.2 Influence of Social Support on Self-Care Abilities among Patients on Maintenance Haemodialysis at KNH Renal Unit

Through the use of Chi-Square test statistic, the association between social support on self-care aspects and self-care ability was assessed. The association between compliance to fluid restriction and social support was significant, $\chi2$ (2, N=128) =7.54. p=.02. There was also a significant association between catheter site care and social support, $\chi2$ (3, N=112) =9.86, p=.02. See table 4.20

Table 4.20: Self-care Ability and Social Support

Social Support		Self-care Ability						
		Measure fluid input output	Follow recommended fluid	Take medicine as prescribed	Follow recommended diet	Checking vibrations on AVF arm	AVF arm site care	Keeping catheter access site clean & dry
Family support on compliance to fluid restriction	χ2values	2.57	7.54					
	Df	2	2					
	P-value	0.28	**0.02**					
Reminded to take your medication	χ2values			0.95				
	Df			2				
	P-value			0.62				
Family support on compliance to recommended diet	χ2values				5.4			
	Df				2			
	P-value				0.07			
Assisted to take care of vascular access site	χ2values					2.65	3.91	9.86
	Df					1	2	3
	P-value					0.1	0.14	**0.02**

4.5.3 The influence of Health Care Providers Support on Self-Care Abilities among Patients on Maintenance Haemodialysis

To determine the association between health care support on the different self-care aspects and self-care ability among hemodialysis patients, Chi-Square test statistics was used and the findings showed that there was a significant association between health care provider counselling on importance of compliance to recommended nutrition and following recommended diet, χ^2 (6, N=128)=13.82,p=.03. See Table 4.21

Table 4.21: Self-care Ability and Health Care Provider Support

Health Care Providers Support		Self-care Ability: Measure fluid input output	Follow recommended fluid	Take medicine as prescribed	Follow recommended diet	Checking vibrations on AVF arm	AVF arm site care	Keeping catheter access site clean & dry
HCP counsel on significance of compliance to fluid restriction	$\chi2$values	4.54	7.66					
	Df	6	6					
	P-value	0.6	0.26					
HCP educate me on importance of taking medication as prescribed	$\chi2$values			2.09				
	Df			6				
	P-value			0.91				
HCP counsel on significance of compliance to recommended nutrition	$\chi2$values				13.82			
	Df				6			
	P-value				**0.03**			
HCP educates me on how to take care of my vascular access site	$\chi2$values					0.87	2.47	6.48
	Df					2	4	6
	P-value					0.65	0.65	0.37

4 .6 Predictors of Self-care Ability

Logistic regression was used to determine the predictors of self-care ability among haemodialysis patient at KNH. In this model, measure of fluid input and output, following recommended fluid, following recommended diet, AVF arm site care, and keeping catheter access site clean and dry were the dependent variables. The findings established that most of the variables were not significant predictors of self-care ability. The factors that were significant were: patients who were employed in either public or private sector were more likely to measure fluid input and output (**OR** 0.097, **95% CI** 0.012-0.78).

The patients receiving social support on compliance to fluid restriction were more likely to follow recommended fluid intake (**OR** 2.714, **95% CI** 1.856-5.21). Patients with secondary and tertiary education were more likely to follow recommended diet (**OR** 0.824, **95% CI** 0.545-1.739) and (**OR** 0.428, **95% CI** 0.251-0.834) respectively. The married and widowed patients were more likely to practice AVF arm site care (**OR** 1.44, **95% CI** 0.671-23.259) and (**OR** 1.17, **95% CI** 0.928-11.32) respectively. This implied that these particular group of clients may be getting support from family members and significant to ensure that the AVF site remained viable. Finally, those patients who received social support on taking care of vascular access site were more likely to keep catheter access site clean and dry (**OR** 5.819, **95% CI** 1.05-29.187).

In summary the model established that demographic factors such as marital status, education level and employment type were significant predictors of self-care ability. Social support was also observed to be a significant predictor of self-care ability. See Table 4.22

Table 4.22: Logistics Regression Model Test on Predictors of Self-care Ability

Dependent Variable	*Independent Variable*	*Wald Statistics*	*P-value*	*ODs*	*95% C.I. for EXP(B)*	
					Lower	*Upper*
Measure fluid input output	***Employment type***					
	No employment(ref)					
	Self employed	2.572	0.109	0.176	0.021	1.47
	Employed in public/private	4.815	0.028	0.097	0.012	0.78
Follow recommended fluid	***Family support on compliance to fluid restriction***					
	No(ref)					
	Yes	10.201	0.001	2.714	1.856	5.21
	Marital status					
Follow recommended diet	Single(ref)					
	Married	2.564	0.109	2.341	0.827	6.629
	Widowed	0	0.999	0	0	0
	Separated	0	1	1	0	0
	Education level					
	No education (ref)					
	Primary	0.504	0.478	2.424	0.21	27.933
	Secondary	3.932	0.026	0.824	0.545	1.739
	Tertiary	8.46	0.019	0.428	0.251	0.834
	HCP counsel on significance of compliance to recommended nutrition					
	Always(ref)					
	Sometimes	0	1	1	0	0
	Never	0	0.998	0	0	0
AVF arm self- care	***Marital status***					
	Single (ref)					
	Married	20.219	0.012	1.44	0.671	23.259
	Widowed	5.803	0.026	1.17	0.928	11.32
Keeping catheter access site clean & dry	***Family support on care of the vascular site***					
	No(ref)					
	Yes	4.032	0.042	5.819	1.05	29.187

CHAPTER FIVE

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

In this chapter, findings of this study were discussed in accordance with the objectives. The results of the study have been compared with other study findings regionally as well as internationally. Conclusions made from the findings, recommendations and areas for further research have been outlined in the chapter.

5.2 Discussion

5.2.1 Knowledge on Self-Care among Patients on Maintenance Haemodialysis

On the overall level of knowledge, hemodialysis patients attending KNH renal unit were knowledgeable on self-care abilities. Additionally, the findings revealed that the patients were knowledgeable on aspects such as medication, fluid restriction, diet, and AVF care and catheter access site. Therefore, hemodialysis patients attending the renal unit are knowledgeable in the appropriate undertakings that they should implement to maintain life and uphold their well-being. According to Smith and Parker (2015) being knowledgeable translates to adherence to and high performance of self-care abilities.

The findings agreed with Ramezani *et al.,* (2019) who conducted a study in Iran and found that hemodialysis patients had a high knowledge level on compliance to diet, fluid intake restrictions and care of vascular access. Ramezani iet al., (2019) added that the high level of knowledge by patients translates to increased confidence in self-care abilities as compared to low knowledge levels. According to Sidani and Doran (2014), who also support the findings of this study, knowledge on self-care ability is a reflection on the capacity to engage in behaviours that do not deteriorate one’s condition such

knowledge on adhering to the treatment process and other actions that should be undertaken to preserve and promote health.

The findings contradicted Ozen *et al.,* (2017) who demonstrated that hemodialysis patients in Germany possessed inadequate knowledge on self-care of AVF. Having adequate knowledge on how to check for thrills is very important because it will enable the client to know the viability of the AVF and prompt reporting to health care provider when there is a deviation from the normal. Therefore, hemodialysis patients should be given health education on self-care abilities based on different aspects so that they engage in self-care activities that promote their overall well-being.

On knowledge of catheter access site infections, the study revealed that only 6 .3% (6) of the respondents had adequate knowledge on the signs and symptoms of catheter exit site infections. Catheter access site infections are most common among hemodialysis patients. Patients using central venous catheter are two to three times more likely to get infections as compared to patients using AVF (Miller et al., 2016).

In addition a report done in USA on bloodstream infection showed that use of central venous catheter for hemodialysis was associated with an eight-fold higher rate of vascular access-related bloodstream infections when compared with an arteriovenous fistula (Fisher et al., 2020). It is therefore paramount for hemodialysis patients to know the signs and symptoms to look for on catheter exit site because this kind of infection will result in septicaemia if not prevented or treated early. Clients who are well informed of these signs and symptoms will be able to report promptly or prevent their catheter exit site from getting the infection through self-care.

During the insertion of central venous catheter, patients need to be given adequate education on hand hygiene, use of masks every time the site is cleaned and dressed by nephrology nurse. Provision of standardized education to all hemodialysis

patients on infection prevention topics including vascular access care, hand hygiene, risks related to catheter use, how to recognize signs of infection, and guidelines on catheter access care when away from the dialysis unit is key (Schweiger & Marschall, 2015).

5.2.2 Level of Self-Care among Patients on Maintenance Haemodialysis

Various self-care ability aspects, which included medication, fluid restriction, diet, AVF care and catheter access site care, were assessed. From the findings, it was evident that majority of the patients took all their medications as prescribed. The findings also revealed that the overall level of self-care ability in fluid maintenance & monitoring and AVF care to be high. Additionally, the self-care ability on catheter access site was also high based on the findings that patients adhered to practices that would not deteriorate the condition of the catheter access site such as avoiding contact with water, wiping with antiseptic and not interfering with the dressing. The determined overall level of self-care ability among hemodialysis patients was adequate.

These findings are in alignment with Naalweh *et al.,* (2017) who conducted a study in Palestine and found that patients complied with recommended diet requirements and fluid restrictions. The reason behind adherence in Palestine as outlined in Naalweh *et al.,* (2017) was that patients had an adequate understanding of their hemodialysis condition and thus the significance of observing their dietary and fluid restrictions.

A study conducted in China by Zhang & Xu, (2021) contrasted with this study in that majority of dialysis patients did not follow the recommended diet with only 33.9% adherence. In Saudi Arabia, Al-Khattabi (2014) also reported adequate level of self-care, thus concurring with the findings of the current study. Therefore,

hemodialysis patients had an understanding of their renal condition and the significance of lifestyle changes that they had to make so as to enhance treatment outcome.

Contrasting findings were however seen in other studies, for instance Ibrahim *et al.,* (2015) who showed that majority of hemodialysis patients did not comply with prescribed medication. Further, Ibrahim *et al.,* (2015) found that 70% of hemodialysis patients were not compliant to fluid restrictions with close to 50% not following the recommended diet. Similar findings were also found in Rahmini (2014) where close to 50% of the hemodialysis patients reported non-adherence to recommended diet and fluid restrictions. This low self-care ability of renal patients was contributed by inadequate adherence counselling which is key for hemodialysis patients. Ozen *et al.,* (2017) found that only 3.3% of hemodialysis patients had adequate self-care on AVF, a contradiction to this study. This low self-care ability was attributed to inadequate education on how to take care of AVF arm.

5.2.3 Association between Sociodemographic Characteristics and Self-Care

The findings revealed no significant association between age and self-care ability among patients on hemodialysis. This contrasted with Sadat *et al.,* (2021) who found that advanced age was associated with reduced self-care ability. Patients with advanced age exhibit reduced self-care abilities and behavior as compared to those younger in age due to recommendations that are numerous and the multiple treatments that they have to adhere to on a daily basis (Bowling *et al.,* 2017).

From the findings, gender had no significant association with self-care ability. The findings on gender contradicted Sadat *et al.,* (2021) who found that gender was significant in self-care ability in Iran with men manifesting better self-care abilities. According to Sadat *et al.,* (2021), Iranian men are more educated as compared to women, thus possessed more knowledge on hemodialysis treatment. The fact that

gender had no significant association with self-care ability in this study agreed with Ahrari *et al.,* (2014) who found no distinction between male and female in terms of self-care ability. However, both male and female patients improved after being empowered with self-care training and education (Ahrari *et al.,* 2014).

Marital status had a significant relationship with self-care ability. Married patients had better self-care abilities compared to single patients. A study done by Ahrari et al., (2014) showed similar findings in that single participants were non-adherent to self-care practice as compare to married participants. This was an indication that couples support each other in enhancing self-care. Rahimi Foad, Gharib Alireza, (2014) opined that single patients had better self-care skills compared to married patients. These authors attributed their findings to the fact that single patients in Iran had lower age and so they have increased energy to perform self-care as compared to married clients who were much older than single clients.

From the findings, education had a significant association with self-care ability. Patients with higher level of education had better self-care. These findings were in agreement with a study by Mengistu (2018) who found that clients with tertiary level of education had better self-care. Clients with better level of education were able to understand their renal condition and rationale for following the recommended diet as supported by Mengistu 2018. Sadat *et al.,* (2021) discovered that patients who were more educated had better self-care ability than those with low education level. The authors attributed this discovery to the fact that educated clients had better understanding of their conditions, and therefore able to recognize their self-care needs, and confronted them. Educated patients were also able to follow instructions and understood the need for self-care.

5.2.4 Relationship between Self-Care and Social Support

The findings demonstrated that there was a significant association between social support self-care ability. These findings agreed with Ahrari *et al.,* (2014) who demonstrated that clients with adequate social support were more compliant to recommended nutrition and fluid restrictions. According to a study done in Greece by Theodoritsi *et al.,* (2016), a significant association existed between social support and self-care ability among hemodialysis patients. Patients who received support from family members and significant others were able to adhere to dietary and fluid restrictions as recommended.

Raheb (2018) reiterated that social support ensured that the environment in which a patient lived in was supportive and encouraged patients to continue carrying out self-care activities. Further, Noviana & Zahra, (2022) found a significant relationship between social support and self-care management among hemodialysis patients in Indonesia in that those who received social support had better self-care and treatment outcome.

5.2.5 Association between Self-Care and Healthcare Provider Support

The results of the study found a significant relationship between healthcare provider support and self-care ability among hemodialysis patients. Participants who often received counselling from healthcare providers on significance of compliance to recommended nutrition had better self-care than those who did not receive health care provider support. They were able to follow diet that was recommended for them as patients on haemodialysis.

The above findings concurred with a study done by Bahadori., et al, (2014) which revealed that clients who were empowered with knowledge on self-care by health care providers had better self-care compared than those who received no knowledge support. The researchers found that after health education, insomnia was reduced from

100% to 59.4%, oedema decreased from 34.4% to 0%, participation in exercise was increased from 46.8% to 59.4 and itchiness was reduced from 56.2% to 0% among the participants.

This study finding also concurred with another study done by Royani, Arab, Behnampour, Rayyani, & Goleij (2013) on the use of empowerment program to enhance self-care behaviour among haemodialysis patients which revealed a direct substantial connection between empowerment level and personal-care in that self-care increased with increase in empowerment level. The study group participants had greater self-care in terms of adherence to dietary and fluid restrictions, and also in taking prescribed medication as compared to control group. The empowered patients were more confident about their self-care capabilities when compared to the less empowered group.

A research done in Egypt on self-care ability among haemodialysis patients by Mohamed et al., (2016) also agreed with this study in that 30% of the patients were independent while the rest were dependant on caregivers for Daily Life Activities (DLA). After healthcare provider support through knowledge on self-care, the percentage increased to 66.7%. This was an indication that empowering patients with knowledge by healthcare providers helped improve self-care ability and consequently better treatment outcome

5.3 Conclusion

Based on the findings of the study, the following conclusions were drawn:

i) On overall, hemodialysis patients were knowledgeable on self-care aspects which included medication, diet, fluid intake and AVF care. It was however noted that knowledge on signs and symptoms of catheter access site infections was low.

ii) From the variables that were assessed which included taking medication as prescribed, adherence to fluid and diet restrictions, catheter site care and arterio-venous fistula care, majority of these patients had adequate self-care ability.

iii) That marital status and education level were the socio-demographic characteristic that had a significant association with self-care ability of hemodialysis patients.

iv) That overall social support had a significant influence on self-care ability among hemodialysis patients.

v) Healthcare providers sometimes provided support and that healthcare provider support had a positive influence on adherence to recommended diet among hemodialysis patients.

5.4 Recommendations

It was recommended that multidisciplinary team should take time to educate patients on the signs and symptoms of catheter access site infections to observe and promptly report for early interventions by the heath care team.

It was also recommended that health care team should hold awareness campaigns to empower single patients on the significance of self-care abilities on hemodialysis treatment outcomes. The team should also encourage significant others to support these patients obtain optimal self-care abilities. Finally, it was recommended that multidisciplinary team should educate patients with low or no education on self-care in the simplest way so as to gain understanding of various self-care abilities.

5.5 Dissemination of Study Findings

The researcher intends to disseminate the study findings to the study area; Kenyatta National Hospital Renal Unit. The findings will also be shared with stake holders which include; the National Commission for Science, Technology and Research (NACOSTI) and Kenyatta National Hospital/ University of Nairobi Ethics and Research Committee who provided ethical approval for carrying out the study.

The research findings will be also be sent for publications in local and international journals.

5.6 Future Research Areas

The study assessed the level of knowledge on self-care ability but did not assess the relationship between knowledge and self-care among hemodialysis patients. Further research can done to determine the relationship between knowledge and practice among hemodialysis patients.

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APPENDICES

APPENDIX I: CLIENT CONSENT FORM

Introduction

My name is Cecily Chebet Tangus, postgraduate student from Kenyatta University, School of Nursing, and Department of Medical Surgical Nursing. I am conducting a study on Evaluation of Self-Care Ability among Patients on Maintenance Haemodialysis at KNH, Renal Unit.

Participation in the study

I have come to seek permission and request you to take part in the above study. I am asking you to read this consent or have someone read to you carefully. The participation is free and you are at liberty to or not accept to participate. If you would like to have a copy of the results of the study, please write your phone number at the end of the form. You will be asked to sign or thumb print in front of a witness to show that you have accepted to participate voluntarily. Unfamiliar words may be contained in the form; you are free to ask us to explain anything you do not understand.

Study Procedure

The chief investigator and research assistants will give you a clear explanation of the whole procedure before you take part in the study. You are required to answer every question in the questionnaire in accordance with the instructions provided. The principal investigator and the research assistants will be available for any information that is not clear. The questionnaire will take approximately 20 minutes to complete

Confidentiality

Confidentiality will be maintained throughout the study. Your name will not feature in the form but a number will be used instead.

Risks and Distress

There are no expected risks to you as there no drugs to be taken or samples to be drawn in this study. In case of any discomfort or distress during the study, you are free to comfortably discuss with the principal investigator or research assistants. Your services in the hospital will not be affected in anyway by choosing or not choosing to take part in the study.

Study Benefits

There are no payments to be given to you for participating in the study.

The results of the study are intended to assess the ability of haemodialysis patients in taking care of their own health and wellbeing. The results will also inform areas to improve in order to ensure optimum self-care ability of haemodialysis patient.

I, participant number---------------------- having been informed about the study and having read and understood all the above do willingly without any coercion consent to participate in the study.

Client sign/ thumb print--------------------------------------- Date-------------------------

Investigator/ Interviewer-------------------------------------- Date-------------------------

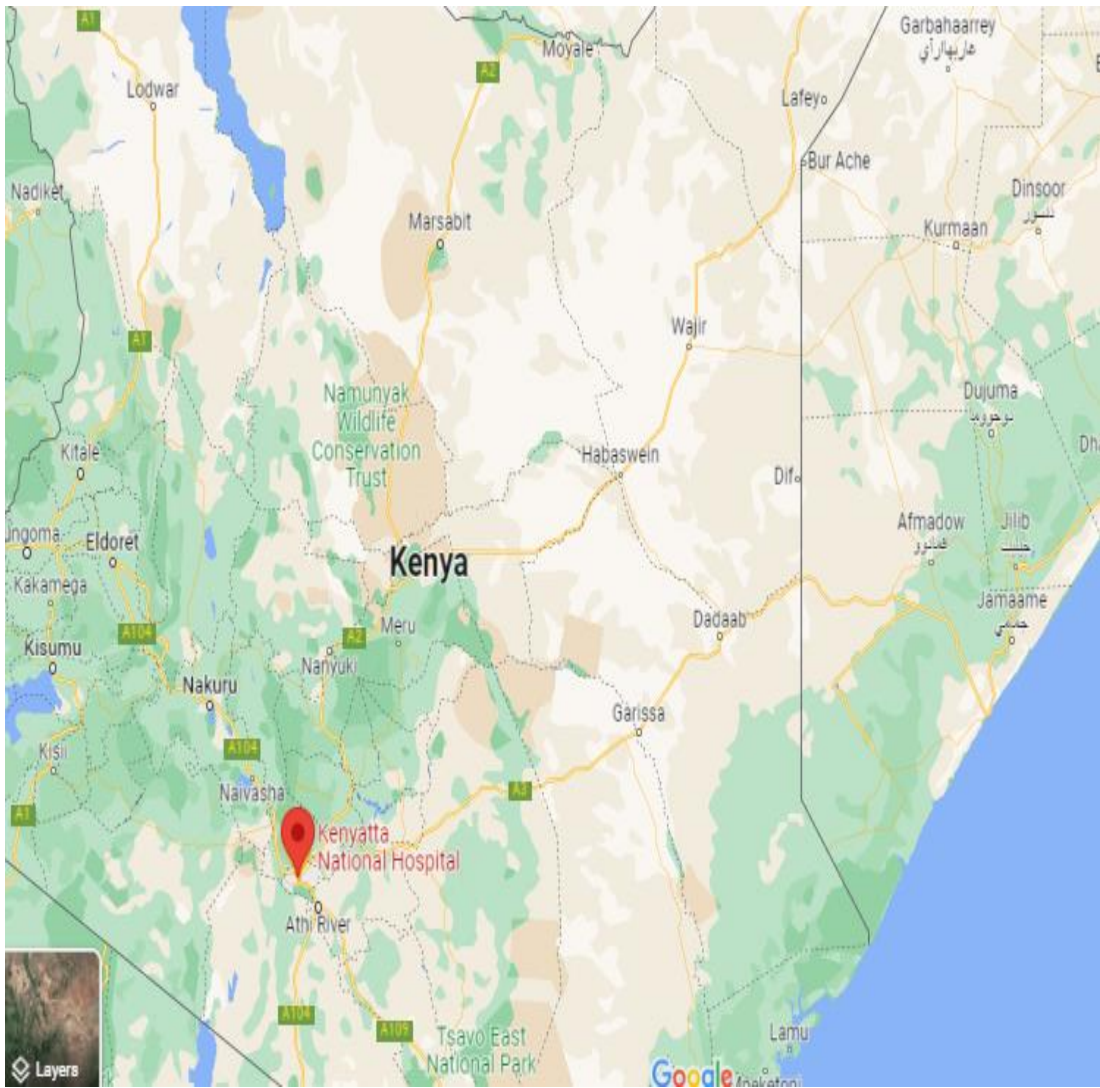
In case of any question, complaints, clarification or further information contact the following

1. Principal Investigator- Cecily Chebet Tangus telephone number – 0726425821, Email cechet14@gmail.com
2. Kenyatta University department of Medical/Surgical Nursing or Kenyatta National Hospital Research Department Box 2726300.00202 Nairobi or KNH Ext 44102
3. Dr. Grace Githemo Chairperson Department of Medical/Surgical Nursing Kenyatta University P.O Box 43844-00100 NAIROBI, Tel: O722787862, Email: githemog@yahoo.com

4. Dr. Lister Onsongo Chairperson Department of Community Health & Reproductive Health Nursing Kenyatta University P.O Box 43844-00100-NAIROBI, E mail: onsongo.lister@ku.ac.ke, Tel. 0700004288
5. Kenyatta University Ethics and Review Committee P.O Box 43844-00100 Nairobi Telephone: 8710901/2 Fax: 87111242/8711575. Email: kuerc.chairman@ku.ac.ke

Thank you

APPENDIX II: MAP OF KENYATTA NATIONAL HOSPITAL



APPENDIX III: QUESTIONNAIRE

TOPIC: SELF-CARE ABILITY OF PATIENTS ON MAINTENANCE HAEMODIALYSIS AT KENYATTA NATIONAL HOSPITAL RENAL UNIT, NAIROBI CITY COUNTY-KENYA

Date: ------------------

Questionnaire number: -------------------------- Code No. -----------------

Instructions to the participant:

1. Tick where appropriate
2. Do not leave any question unanswered.

PA RT A: DEMOGRAPHIC DATA

(Mark the appropriate box with X)

1. What is your age in complete years?

   <18 ☐ 18-25 ☐ 26-33 ☐ 34-41 ☐ 42 -49 ☐ 50-57 ☐

   58-65 ☐ 66-73 ☐ above 73 ☐
2. Please indicate your gender? Male ☐ Female ☐
3. Indicate your religion? Christian ☐ Muslim ☐ Others, specify……
4. What is your marital status? Single ☐ Married ☐ Widowed ☐

   Divorced ☐ Separated ☐
5. What is your level of education?

   No Formal Education ☐ Primary ☐ Secondary ☐ Tertiary ☐
6. What do you do for a living? ……………………………………

PART B: KNOWLEDGE AND PRACTICE ON SELF-CARE ABILITY

(Please select one best response that applies to you). Yes=2 some of them or sometimes=1 and No=0

I. Knowledge and Practice on Medication

1. I know all the medication prescribed to me by my Doctor? Yes ☐ No ☐ Some of them ☐

2. I fully understand the indication for each drug prescribed? Yes☐ No ☐ some of them ☐

3. I take all my medication as prescribed? Yes ☐ No ☐ sometimes ☐

II. Knowledge and practice on Fluid Restriction

1. I measure my fluid input and output on daily basis? Yes ☐ No☐ sometimes ☐
2. I always follow the recommended fluid intake? Yes ☐ No Sometimes ☐
3. Why is it important for you to restrict your fluid intake?-- ------------------------
   ----
   ----
4. How will you know that your body has excess fluid? - --------------------------
   ----

III. Knowledge and Practice on Recommended Diet

1. I know the diet that is recommended for me as a patient on haemodialysis? Yes ☐ No ☐
2. I follow the recommended diet? Yes ☐ No ☐ Sometimes ☐

3. As a hemodialysis patient, why are you advised by your doctor, nurse or nutritionist not to take certain foods?--
----

IV. Knowledge and Practice on Arterio-Venous Fistula Care

Please respond to this session if you have an Arterio-venous Fistula (AVF)

Always =2, sometimes=1 and No=0

1. **Please tick ONE response that applies to you**

Serial No.	Practice	Always	Sometimes	Never
I.	I avoid carrying heavy loads on AVF arm			
II.	I do not allow blood pressure or blood samples to be taken on AVF arm			
III.	I check pain, redness, swelling or fever on AVF arm			
IV.	I monitor for bleeding on AVF site after dialysis			
V.	I wash AVF arm with soap and water before hemodialysis			
VI.	I avoid wearing watch, jewellery and tight sleeves on AVF arm			
VII.	I do not lie on AVF arm			

2. How often do you check for thrills (vibrations) on your AVF arm? -------------

----

3. How do you check for vibrations on your AVF arm?------------------------------

----

V. Knowledge and Practice on Catheter Access Site Care

Please respond if you have a central venous catheter

1. Describe how you keep your catheter access site clean and dry? ----------------

   ----

   ----

2. How can you tell that your catheter access site has infection?--------------------

   ----

PART C: SOCIAL SUPPORT

PLEASE TICK WHERE IT IS APPROPRIATE FOR YOU. Yes=2 N0=0

1. I get reminded (family member, friends or religious members) on the date/time for haemodialysis treatment. Yes ☐ No ☐

2. I often get reminded (family member, friends or religious members) when to take my medication. Yes ☐ No ☐

3. I get social support (family member, friends or religious members) on compliance to fluid restriction and recommended diet.

   Yes ☐ No ☐

4. I get social support (family member, friends or religious members) on vascular access site care. Yes ☐ No ☐

PART D: HEALTH CARE PROVIDER SUPPORT

Please tick where it is appropriate for you. Every dialysis session=2 sometimes=1 Never=0

1. My health care provider counsels me on the significance of following my haemodialysis schedule? Every dialysis session ☐ Sometimes ☐ Never ☐

2. When I miss my dialysis session, my health care provider calls to find out why?

Every dialysis session ☐ Sometimes ☐ Never ☐

3. My health care provider, educates me on the importance of taking medications as prescribed by nephrologist? Every haemodialysis session ☐ Sometimes ☐ Never ☐

4. My health care provider counsels me about the significance of compliance to recommended nutrition and fluid restriction? Every dialysis session ☐ Sometimes ☐ Never ☐

5. My health care provider educates me on how to take care of my vascular access site? Every dialysis session ☐ Sometimes ☐ Never ☐

Thank you