THE SELF MANAGEMENT CHALLENGES AND SUPPORT NEEDS AMONG POST KIDNEY TRANSPLANT PATIENTS IN THE RENAL UNIT - KENYATTA NATIONAL HOSPITAL

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DECLARATION

I Jane Ngiri Marangu, hereby declare that this research thesis submitted for the Master of Science in Nursing (Nephrology Nursing) is my original work and it does not include any material previously published or presented in any institution of higher learning, scientific conferences.

I have acknowledged the contribution of other scholars in this paper and therefore declare that all materials cited or quoted in this research proposal, which is not mine, are acknowledged through a comprehensive list of references.

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APPROVAL BY THE SUPERVISORS

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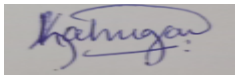
Signature .....  ..... Date 25/11/2021……

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DEDICATION

I dedicate this thesis work to my late mom and dad who always encouraged me that it is possible. Mom you left too soon without seeing the outcome of this project.

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ABBREVIATIONSANDACRONYMS

CKD	Chronic Kidney Disease
ESRD	End Stage Renal Disease
GODT	Global Observatory on Donation and Transplantation
HCPs	Health Care Providers
HD	Haemodialysis
HDI	Human Development Index
HLA-ID	Human Leukocyte Antigen – Identical
IST	Immunosuppressive Therapy
KDHS	Kenya Demographic Health Survey
KNH	Kenyatta National Hospital
KDIGO	Kidney Disease Improving Global Outcomes
KTRs	Kidney Transplant Recipients
LMICs	Low and Middle Income Countries
ONT	Organización Nacional de Trasplantes
PD	Peritoneal Dialysis
PMP	Per Million Population
RRT	Renal Replacement Therapy
SPSS	Statistical Package for Social Sciences
US	United States
WHO	World Health Organization

DEFINITION OF TERMS

Chronic kidney disease: Is the slow and progressive deterioration of kidney function

End stage renal disease: Is the last stage of chronic kidney disease characterized by irreversible total loss of kidney function.

Dialysis: A treatment for kidney failure which removes wastes and water from the blood through a porous membrane. It's an artificial process by which the toxic waste products of food and excess water are removed from the body.

Donor: A person who donates (gives) an organ to another person (the recipient).

Kidney transplantation: An operative procedure during which a new/donated kidney is given to the recipient.

Cadaveric transplant: A transplant kidney removed from someone who has died.

Living related transplant: A transplant kidney donated (given) by a living relative of the recipient.

Living unrelated transplant: A kidney transplant from a living person who is biologically unrelated to the recipient

Immunosuppressive therapy: Treatment medications offered to kidney transplant recipients to prevent rejection of the transplanted kidney.

OPERATIONAL DEFINITIONS

Post kidney transplant patient: A person who has undergone kidney transplantation as treatment for end stage renal disease.

Self-management: Those activities/strategies carried out by an individual post kidney transplant to maintain physical and psychosocial health.

Challenges: Refers to the difficulties and barriers experienced by individual post-transplant recipients as they attempt to self-manage.

Support needs: Refers to any kind of assistance the kidney transplant recipients require to manage their lives to be independent.

Nutrition related challenges and support needs: Refers to any difficulties, barriers and/or needs experienced by the kidney transplant recipients that relate to compliance with the recommended diet regimen.

Therapy related challenges and support needs: Refers to any difficulties, barriers and/or needs experienced by the kidney transplant recipients that relate to compliance with their medications or treatment regimen.

Physical activity related challenges and support needs: Refers to any difficulties, barriers and/or needs experienced by the kidney transplant recipients that relate to their physical activity capacity or the ability to perform physical activities.

Psychosocial challenges and support needs: Refers to any mental and social related difficulties, barriers and/or needs experienced by the post kidney transplant recipients.

ABSTRACT

Background: Kidney transplantation has become the preferred renal replacement therapy (RRT) for patients with end stage renal disease both for improved quality of life and cost effectiveness. There has been a remarkable improvement in short-term survival rates of kidney transplant recipients. However, this has not been translated to long-term benefits, thus improving long-term survival rates remains a challenge both internationally and locally. Investing in post kidney transplant self-care strategies with a focus on improving various factors such as nutrition, therapy, exercising and psychosocial support is a promising pathway to improving long-term post-transplantation outcomes.

Broad objective: To establish the self-management challenges and support needs among post kidney transplant patients at Kenyatta National Hospital.

Study design and site: This study was a descriptive cross-sectional study whereby both quantitative and qualitative data were obtained. The study was conducted in the Renal Unit of Kenyatta National Hospital. A total of 140 post kidney transplant patients were sought, though 135 questionnaires were completely filled and included in the analysis. The collected data was entered into Epidata and then exported into SPSS version 26 for analysis. Quantitative data was analyzed both descriptively and inferentially where Fischer's test for association was used to investigate the association between patient characteristics and self-management practices. Qualitative data was analyzed using content analysis.

Results: The findings showed that, 54.8% (n=74) of the respondents were male, 55.6% (n=75) of the respondents had secondary level education, 54.8%(n=74) of the respondents had average monthly income of ≤Ksh. 20,000. The finding from the study established that 93% of the patients viewed nutrition in care as essential in improving their health outcomes, However, 11.1% of the patients were having challenges in following the prescribed dietary regimen. The support needs included regular dietary counselling and financial support. The findings revealed that majority of the respondents, 89.6% take medication as prescribed while only 10.5% reported missing some doses in the last one month. The common challenges leading to missed doses included high cost of medications, forgetfulness, lack of support from caregivers and development of adverse side effects. The support needs identified included identifying other sources of financing in purchasing treatment drugs and ensure drug affordability. Majority of the respondents, 65.2% of the respondents did not have any negative effect of physical, emotional problems on their normal activities, 68.1% of the respondents perceived their physical activity level or capacity as being fairly adequate. Education level, marital status and average monthly income were significantly associated with physical body capacity perception among post kidney transplant patients. Persistent worries and fears about the illness and its long-term effects and fear of graft loss some of the time. The findings revealed that education level and marital status were significant factors influencing psychosocial wellbeing of post kidney transplant patients.

Conclusion and recommendation: Some post Kidney patients are still faced with many challenges which limit self-management. Thus, it is essential to encourage healthcare providers conduct regular nutrition counselling, encourage social support groups and lobby government to include post kidney transplant medication into NHIF or seek other financial alternatives sources such as seeking donations from non-governmental organisations and institutions such as Safaricom through support groups.

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This is the introductory chapter of the study and includes: background to the study, statement of the problem, justification of the study, research questions, objectives of the study, research hypothesis as well as the significance of the study.

1.2 Background to the Study

End stage renal disease (ESRD) is a very severe form of renal damage associated with excessive mortality and cardiovascular morbidity. The aim of treating renal disease is to minimize renal damage but, as kidney function is gradually lost, renal replacement therapy (RRT) in the form of hemodialysis (HD), peritoneal dialysis (PD)or kidney transplantation may be required. Kidney transplantation is the best possible treatment for many patients with ESRD, both for quality of life and cost effectiveness. Progressive dysfunction and eventual allograft loss with return to dialysis is associated with increased mortality and morbidity (Lamb, Lodhi & Meier-Kriesche, 2011).

Statistics from the Global Observatory on Donation and Transplantation (GODT)indicate that 95,807 kidney transplants (36% from living donors) were performed worldwide in 2018 representing a 6% increase from the 2017 numbers (ONT-WHO Global Observatory on Donation and Transplantation [GODT], 2020). The Americas, European and Western Pacific regions accounted for the bulk of the total global kidney transplants as they accounted for 38.1% [or 36,541], 29.2% [or 27,917] and 19.3% [or 18,505] respectively of the total global kidney transplants in 2018. These were followed by the Southeast Asia - 8,604 cases; Eastern Mediterranean - 3,207 cases and the African region with 705 cases. As of 2018, the African region accounted for only 0.74% of the total global kidney transplants, with 581 of the 705 total kidney transplants in the region being from living donors. In Kenya, a total of 120 kidney transplants (all of which were from living donors) were performed in 2018 representing a 2.6% increase from those done in 2017 (ONT-WHO Global Observatory on Donation and Transplantation [GODT], 2020).

Substantial disparities in access to transplantation across the world are evident which demonstrates the relationship between transplant rate and Human Development Index (HDI). There is a reduced transplant rate in low and middle income countries (LMICs), and a large spread of transplant rates amongst the richer nations (Low et al., 2015). The largest numbers of transplants are performed in the US, China, Brazil and India, while the greatest population access to transplantation is in Austria, US, Croatia, Norway, Portugal and Spain (Gordon et al., 2019). In developing countries, the rates are much lower (< 10 per million population) with some countries having unrecorded statistics (Jamieson et al., 2016). The kidney transplantation program in Kenyatta National Hospital (KNH) has grown tremendously since the year 2008 with about 140 kidney transplant recipients (KTRs) on follow up at the transplant clinic.

The prognosis after kidney transplantation is generally excellent, with 1-year graft survival rates ranging from 93% to 98% and 5-year survival rates from 83% to 92% (Tucker et al., 2019). Many factors influence the anticipated outcome. HLA-identical (HLA-ID) transplants from living related donors have the best overall graft survival rate, whereas transplants from complete-mismatch cadaveric donors have the worst (Lorenz et al., 2019). Graft rejection is an expected side effect of transplantation and between 10and 30% of people who receive a kidney transplant will experience some degree of rejection (Hessler et al., 2019).

Most rejections occur within six months after transplantation, but can occur at any time, even years later (Lonargáin et al., 2017). Acute cellular rejection and mixed cellular and humoral rejection account for the most common forms of graft rejection at 30-60% while acute humoral rejection accounts for about 10% of the rejections (Robinson et al., 2020). About 25% of kidney transplant recipients who experience graft failure will die within 2 years, and overall life expectancy is 4 years less for recipients who are non-compliant to immunosuppressive therapy (IST) (Lorenz et al., 2019). Kenya's kidney transplantation rate of <5 pmp is significantly low compared to the global average of about 20-25 pmp, while its average graft rejection rate, at 33%, is also higher than the global average rate of 10 - 25 percent (KDHS, 2019). In

general, both delayed graft function after transplantation and early rejection episodes adversely affect the long-term outcome of the transplant (Amerena & Wallace, 2019).

According to KDIGO (2019), there is emphasis on improving the management of renal transplant recipients to prevent complications and ensure proper graft functioning and long-term patient survival. Transplantation outcomes are largely determined by the capacity of transplant recipients to adhere to a complex and ongoing self-management regimen to minimize the risks for transplant loss and future comorbid conditions.

Post-transplant management generally includes regular intake of medications, monitoring of vital signs, undergoing diagnostic tests, following dietary and exercise protocols, abstinence from substance abuse, and regular follow up (Fowler, 2017). Given that the chronic kidney patients continue to live with a chronic condition even after the kidney transplantation, they need to take responsibility for their own care after transplantation. Therefore, self-management has been recognized worldwide as an important aspect of successful care for this cohort of patients (Holman & Lorig, 2014). However, patients' self-management challenges, which might explain adherence and other self-management decisions and behaviors, are less well understood (Akyolcu, 2009).

In view of this, the current study sought to explore the self-management challenges and support needs among post kidney transplant patients in the local context.

1.3 Statement of the Problem

Kidney transplantation is the most recommended treatment modality for many patients with ESRD, enabling patients on the verge of death to continue living and have a better quality of life. Kidney transplant patients need integrated coordinated care from pre-transplant to post-transplant phase. In addition, kidney transplant recipients need to be motivated to adhere to the health care recommendations in order to improve on the graft life span (Yang et al., 2020). However, to effectively implement strategies that enhance adherence, it is important to understand the

challenges and support needs to self-management among kidney transplant recipients (Gordon et al., 2019).

Evidence suggests that organ transplant teams experience difficulties operationalizing self-management support. By their medical subspecialty expertise, nurse practitioners have a major role in developing strategies designed to meet patients' individual support needs to reduce the impact of the disease and its complications (Hessler et al., 2019). Greater insight into transplant recipient's challenges and support needs in self-management may influence changes in the care and management practices for post-transplant patients leading to better long term outcomes and better quality of life (Trappenburg et al., 2013; Mackey et al., 2016).

Kenya has made several efforts to improve kidney transplantation in the country including the government's funding to establish and maintain a national kidney transplant program; development of a national registry allowing sharing of data with GODT; regular monitoring and auditing of agencies and transplant centers; development of a legal framework/legislation to regulate organ transplantation and supporting continued development of expertise on kidney transplantation among the country's renal medical team. This notwithstanding, the country's low kidney transplantation rate of <5 pmp compared to the global average of about 20-25 pmp. The country's average graft rejection rate, at 33%, is also higher than the global average rate of 10 - 25 percent (KDHS, 2019).

At KNH, evidence from existing renal records, indicates that the incidence of acute rejection after kidney transplantation has significantly decreased, from highs of40 - 50% in 2008 to < 10% in 2018, due to dramatic progress in immunosuppressive drug therapy. However, the long-term survival remains unchanged at below 30%. Improving this remains a major challenge (KNH Renal Unit Reports, 2019). Latest internal evaluations of post kidney transplant patients at KNH indicate that over 70% have medication adherence challenges, 50-60% experience nutrition adherence related challenges and all of them, at one point or another, experience physical and psychosocial related challenges (KNH Renal Unit, Post-Transplant Recipients Coping Review, 2019). This is evidence of probable existence of self-management challenges

and gaps in self-management support needs among post kidney transplant patients in Kenyatta National Hospital. This study, therefore, sought to explore the types of challenges and support needs in self-management among post kidney transplant patients attending the renal unit of Kenyatta National Hospital.

1.4 Justification of the Study

While one-year post-graft survival rates for both living and deceased donor transplants have improved impressively, from about 40% in 1970s to more than 95% in 2019 (Yang et al., 2020), such remarkable progress has not translated into long-term advantages (Lorenz et al., 2019). Improving long-term outcomes should therefore be accorded top priority in kidney transplant related research.

Self-management has particular value in that it represents an amalgamation of the goals of the patient, family, community, and the clinician with everyone working in partnership to best manage the individual's illness while facilitating comprehensive care. In this respect, self-management reaches beyond traditional chronic illness management. It incorporates the larger concept of prevention by emphasizing the notion that those who are chronically ill still have a need for preventive interventions to promote wellness and mitigate the further deterioration of health (Been-Dahmen et al., 2018). Thus, if one considers the nature of self-management in all its elements and practical characteristics, it is not only a logical approach to health and health care, but it is also an optimal way to address chronic conditions as a major issue in public health.

There is no doubt that globally, kidney transplant recipients are confronted with numerous and varied challenges and support needs in management of their health condition. Therefore, understanding the local self-management challenges and support needs experienced by post kidney transplant recipients is critical as it may help healthcare professionals educate the patients more about life post-transplantation. In addition, it may also help the healthcare professionals to devise strategies to better meet the self-management support needs and resolve the self-management difficulties, ultimately leading to better long-term graft success.

1.5 Research Questions

The study sought to answer the following four research questions;

1. What are the nutrition related self-management challenges and support needs among post kidney transplant patients at KNH?
2. What are the therapy related self-management challenges and support needs among post kidney transplant patients at KNH?
3. What are the physical activity related self-management challenges and support needs among post kidney transplant patients at KNH?
4. What are the psychosocial related self-management challenges and support needs among post kidney transplant patients at KNH?

1.6 Objectives of the Study

1.6.1 Broad Objective

To explore the self-management challenges and support needs among post kidney transplant patients at Kenyatta National Hospital.

1.6.2 Specific Objectives

The study was based on the following specific objectives;

1. To establish the nutrition related self-management challenges and support needs among post kidney transplant patients at KNH.
2. To identify the therapy related self-management challenges and support needs among post kidney transplant patients at KNH.
3. To establish the physical activity related self-management challenges and support needs among post kidney transplant patients at KNH.

4. To identify the psychosocial related self-management challenges and support needs among post kidney transplant patients at KNH.

1.7 Research Hypothesis

The study was to test the hypothesis that there is no association between patients' demographic characteristics and the nutrition, therapy, physical activity and psychosocial related self-management challenges and support needs in self-management among the post kidney transplant patients at KNH

1.8 Significance of the Study

The study results will enlighten the transplant care team on how to incorporate strategies that enhance self-management into their care programmes for the kidney transplant recipients. Interventions to maintain and improve patients' self-management behaviors will be continually emphasized and facilitated. Further, support to enhance patients' problem-solving skills and the partnership of patients with health professionals shall be promoted.

The findings from this study may inform or influence policy review by shedding light on the role of self-management in attaining desired care outcomes among post kidney transplant patients. This may in turn inform greater incorporation and integration of self-management into post kidney transplant health care policies.

The findings from this study may also inform practice in the care of post kidney transplant patients reducing reliance on patient-provider nexus of the care and shifting towards a more patient-centred care plan with self-management at its core.

The findings from this study may inform education with insights generated from this study acting as a basis for formulation of self-management tools and training guides to help nurses and other health care workers involved in the care of ESRD patients to better meet the various support needs of post kidney transplant recipients.

Last but not least, the findings from this study may inform research, as this study will add to existing literature on self-management in post kidney transplant patients, acting

as a reference point and a basis to other academicians and scholars for further research on the study subject.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature as guided by the study objectives. The chapter begins with an overview of self-management in kidney transplant recipients. The chapter also contains an empirical review on nutrition related, therapy related, physical activity related and psychosocial related challenges and support needs in self-management among post kidney transplant patients. The chapter then provides a highlight of the research gaps in the literature reviewed and then ends with a description of the theoretical framework and conceptual framework of the study.

2.2 Self-Management in Kidney Transplant Recipients

Improvements in health care, over the years, have resulted in greater numbers of people living with multiple chronic conditions for longer periods of time. With this change, chronic illness is now a major focus of health care world over (Mackey et al., 2016). At the same time, increased attention has been concentrated on approaches to manage chronic symptoms to maintain patient independence and quality of life over longer periods of time. Consequently, approaches to managing chronic illnesses are shifting from the traditional provider-patient relationship to a paradigm in which individuals with chronic conditions plays a key role in guiding their own care, in partnership with health care providers (Udlis, 2011).

For both clinical and economic reasons, the increasing number of persons living with chronic conditions represents a public health issue of growing importance (Bodenheimer et al., 2018). Self-management represents a promising strategy for treating chronic conditions - with its emphasis on moving beyond education to teaching individuals to actively identify challenges and solve problems associated with their illness (Grady & Gough, 2014). Self-management also shows potential as an effective paradigm across the prevention spectrum (primary, secondary, and tertiary) by establishing a pattern for health early in life and providing strategies for mitigating illness and managing it in later life (Creer, 2019). Indeed, there is growing

appreciation that, of the existing chronic care models, models that incorporate patient self-management element show the most improved outcomes (Hessler et al., 2019).

End stage renal disease being a chronic health condition implies that kidney transplant recipients, like patients of other chronic conditions, such as, heart disease and diabetes, experience certain shared common challenges associated with their condition's management. These include dealing with symptoms and disability; monitoring physical indicators; managing complex medication regimens; maintaining proper levels of nutrition, diet, and exercise; adjusting to the psychological and social demands, including difficult lifestyle adjustments; and engaging in effective interactions with health care providers. The identification and elaboration of common patient-centred strategies to deal with these challenges is the focus of self-management (Jamieson et al., 2016).

In the context of kidney transplantation, patient self-management refers to actions performed by the kidney transplant patients themselves in their daily life, in collaboration with the healthcare providers, to manage their illness and treatment and to avoid functional decline and health deterioration(Gordon et al., 2019).Required self-management measures include regular intake of medication, monitoring for adverse events, preventing infections, monitoring of vital signs, following dietary and physical activity/exercise protocols, managing nutrition, abstinence from substance abuse and regular follow ups with the medical care team (Coleman & Newton, 2015). These multiple self-management requirements are considered valuable for maintaining good health and minimizing the recurrence of CKD complications (Van de Velde et al., 2019).

Despite the growing body of evidence that chronic illness patient populations benefit from self-management support, most kidney transplantation patients are still subject to an acute care paradigm focusing on complex immunological issues and the treatment of acute and urgent post-transplantation problems (Holman & Lorig, 2014). Given that inadequate self-management practices among the kidney transplant patients has critical implications on health outcomes, focusing on the challenges and support needs in self-management among this cohort of patients is crucial as part of

efforts to improve outcomes in the kidney transplant population (Been-Dahmen et al., 2018).

2.3 Nutrition Related Challenges and Support Needs in Self-Management among Post Kidney Transplant Patients

Diet plays a big role following a kidney transplant, and though not as restrictive as for CKD hemodialysis patients, post kidney transplant patients are still required to observe certain dietary requirements. A healthy, balanced diet is generally recommended for the post kidney transplant patients to promote overall wellness and health, while the kind of immunosuppressant drugs being taken may also influence these patients' dietary requirements. A healthy balanced diet is one low in salt and high in fiber, and one that includes a variety of fresh fruits and vegetables, lean meats, reduced-fat dairy products, whole grains, and plenty of water. What is to be avoided and why will usually be explained by the healthcare team (Mlinšek, 2016; Kenawy et al., 2019).

In a systematic review study, Yang and colleagues assessed the difficulties and needs of organ transplant recipients during postoperative care at home. A hundred and fifty post kidney transplant patients were recruited for the study using consecutive sampling technique. The study tools were semi-structured questionnaires and study data was analyzed using both descriptive and inferential statistics. It was established that over 60% of the participants were not adhering to the recommended diet of low salt, high fiber and lean meats and which they attributed to poor self-regulation skills and behaviors. The study concluded that regular dietary counseling was needed to correct this position (Yang et al., 2020).

In a study carried out in Kuwait, the level of lifestyle adherence in kidney transplant recipients was evaluated. One-hundred and twenty kidney transplant patients were interviewed regarding their lifestyle behaviors after transplantation, including adherence to healthy meals and other essential aspects using a researcher-administered questionnaire. The data was analyzed using descriptive statistics. Results of the study showed that only 15% of the participants were compliant with a low-salt

diet, 8% with a low-fat diet and 11% with diet high in fiber. Lack of clarity as to how much of particular foods to take and inability to self-regulate diet wise were the main reasons for the poor adherence to recommended dietary regimen. The main need for the patients was therefore guidance on how much of each particular food items they should take. The study concluded that the post kidney transplant patients did face nutrition related challenges and needed support in this area (Kenawy et al., 2019).

In another study, an investigation of how kidney transplant patients coped with everyday life following the kidney transplantation was performed. In the study, the researchers sought to identify the adherence behavior of the post kidney transplant patients to the dietary and fluid recommendations following the transplant. The study recruited post kidney transplant patients attending two kidney transplant centers in Brazil. Study data was gathered using interview guides and analyzed descriptively. The study established that over half of the post kidney transplant recipients still consumed high fat meat and dairy products and drinks high in sugar such as sodas against issued dietary guidelines denoting self-management difficulties in the diet domain among these patients (Nielsen et al., 2019).

Hessler et al. (2019) evaluated self-management support for chronic disease in primary care. The study involved 121 post kidney transplant patients, selected from 3 post kidney transplant centers in Turkey. Study data was gathered using a validated questionnaire and was analyzed both descriptively and thematically. Results showed that most of the study participants had low to moderate nutrition adherence scores as they failed to fully comply with their prescribed diet regimen. Poor knowledge of the recommended diet and inadequate support from family significantly contributed to their low nutrition adherence levels. Consequently, the study recommended that regular training and information sharing regarding diet modification requirements should be provided to all post kidney transplant patients and their families as a support.

A study carried out in US analyzed the life and expectations of post-kidney transplant recipients using a qualitative approach. The study participants were selected using purposive sampling method and data was collected through a structured interview

schedule. According to the study findings, none of the post-kidney transplant recipients fully complied with the recommended diet regimen at all times. Majority of the study participants had challenges in following the prescribed diet which they attributed to the diet regimen's complexity and the inability to afford the recommended dietary prescription. Consequently, the study noted that strategies that foster adequate compliance to dietary recommendations among post kidney transplant population such as educating them on what to eat and what not to eat and offering dietary supplements should be devised (Tucker et al., 2019).

Similarly, in a qualitative study, an evaluation of self-management challenges and support needs among kidney transplant recipients was made. Forty-three post kidney transplant recipients were recruited and information regarding their adherence levels of recommended dietary regimens was collected using researcher-administered questionnaires and analyzed using descriptive statistics. Being male, low education background and poor economic status were associated with poor adherence to recommended dietary prescription. The study concluded that non-adherence to dietary recommendations remained an area of concern among the post kidney transplant population and action was needed (Been-Dahmen et al., 2018).

In a study conducted in Malawi, the researchers assessed patients' experiences of self-management and strategies for dealing with chronic conditions in a rural population. One of the self-management attributes evaluated in the study was the chronic illness patients' compliance with nutrition and dietary recommendations. The study established that close to 60% of the surveyed respondents were non-compliant to their recommended dietary prescription. Better dietary compliance scores were seen in women than in men, those with higher education background and income levels, those who had undergone training on diet matters, those who worked in close collaboration with their health care team and among those with high levels of social support. The study concluded that improving the socioeconomic status of chronic illness patients could help them better meet the prescribed dietary recommendations (Angwenyi et al., 2018).

2.4 Therapy Related Challenges and Support Needs in Self-Management among Post Kidney Transplant Patients

Rejection is the most common and important complication that may occur following a kidney transplant. Rejection is a normal response from one's body after any transplant surgery. Acute rejection usually occurs anytime during the first year after transplant and can usually be treated successfully. Chronic rejection usually occurs slowly over a long period of time and its treatment is often not successful (Oberlin et al., 2016). Consequently, post kidney transplant patients must take anti-rejection medicine, commonly referred to as immunosuppressant medications, exactly as prescribed so as to prevent rejection. The immunosuppressant medications therapy is usually a combination of maintenance and rejection agents that have to be taken every day in prescribed doses (Nevins et al., 2017). In addition to the immunosuppressant's, post kidney transplant patients may also need to take other medicines to treat infections, high blood pressure, diabetes, heart disease or other conditions that may arise which adds to the complexity of the therapy regimen for these patients (Dew et al., 2018).

Lorenz et al. (2019) explored treatment related challenges experienced by post kidney transplant patients in US. Qualitative interviews were conducted among 27 kidney transplant recipients from three Mayo Clinic transplant centers. A semi-structured interview guide tailored to the context of kidney transplantation was utilized the data was analyzed qualitatively. Results from the study revealed three main kinds of treatment burden after kidney transplantation including 1) work patients must do to care for their health (e.g., attending medical appointments, taking medications and preventing infections), 2) challenges/stressors that exacerbate felt burden (e.g., financial concerns, health system obstacles), and 3) impacts of the burden (e.g., role/social activity limitations). The study concluded that caring for kidney transplants exerted a huge treatment burden which was exacerbated by individual, interpersonal and health system-related factors.

In a study carried out in Kuwait, the aim was to assess the post kidney transplant patients' compliance to treatment medication. The study entailed interviewing 120 recruited kidney transplant patients regarding their adherence to their treatment

regimen in the post transplantation period. Results of the study showed that about sixty percent of the post kidney transplant patients were compliant with their medications. Risk factors associated with poor medication compliance were being a woman, adverse side effects of immunosuppressive therapy, poor symptom and pain management and having other co-morbidities which made the treatment regimen more complex. High levels of compliance with medications were associated with less transplant related complications. The study concluded that closer assessment was needed to identify the risk factors for medication non-compliance post-transplantation (Kenawy et al., 2019).

Across-sectional qualitative study, done in Netherlands, investigated the self-management challenges and support needs experienced by kidney transplant recipients. Focus group discussions and individual interviews were carried out with sampled kidney transplant recipients being treated in a local Dutch university hospital. Data was analyzed using the directed content analysis method. From the results of the study, dealing with the treatment regimen emerged as one of the leading self-management challenges cited by the participants. The life-long nature of the therapy, emergence of coexisting morbidities and the adverse side effects of immunosuppressive therapy significantly contributed to the therapy related challenges experienced. The challenges were compounded by inadequate skills in self-monitoring of rejection and infection signs. The results also revealed that to be able to deal with the therapy related challenges, participants wished to receive disease specific knowledge and instruction and consistent follow up by their health care team. The study concluded that nurses need adequate tools and training to be able to meet kidney transplant recipients' self-management support needs (Been-Dahmen et al., 2018).

In their study, Dewet al. in 2018 performed a review of recent evidence on prevalence and risk factors associated with non-adherence to the medical regimen following kidney transplantation. The study's findings revealed that there was large evidence of non-adherence to medication regimen and other clinical care requirements across multiple settings. Some of the noted risk factors for medication non-adherence among

the post kidney transplant recipients included medication complications, severe side effects of the treatment, unhealthy lifestyle habits such as substance abuse, ignorance, false sense of well-being, inadequate health education and lack of support from family and HCPs and low income status, among others. The study concluded that efforts were needed to assist transplant programs in using existing evidence to better identify patients who were non-adherent and to design and implement strategies to reduce or prevent the non-adherence (Dew et al., 2018).

In a review aimed at understanding medication non-adherence following kidney transplantation, it was reported that medication non-adherence remained a major impediment to achieving effective immunosuppression in post kidney transplant recipients. The review noted that the causes of non-adherence were multi-factorial, with the strongest risk factors including past non-adherence, being a young adult and severe side effects of the medication. Poor social support, poor perceived health and inadequate health education were other risk factors identified. This review highlighted the need to tailor interventions to each transplant recipient's unique needs, motivations, and barriers rather than offer a one size fits all approach. The study thus concluded that if the kidney transplant community's goal of "one transplant for life" was to be realized, solutions for medication non-adherence must be found and implemented (Nevins et al., 2017).

A study carried out in India explored non-adherence to treatment plan among 153 adult kidney transplant recipients in three health care facilities in Kolkata area. Subjects were followed-up for 1 year and those admitting to potential non-adherence were probed further. Patients were deemed to be non-adherent if they failed to take medicines on appointed time more than three times in any month during the observation period. A pretested questionnaire was used to explore potential determinants of non-adherence. From the findings, the extent of non-adherence with immunosuppressant regimens was about 31%. Non-adherence levels were higher among patients attending public health facilities compared to those attending private ones. Various demographic factors including young age and low education background; socioeconomic factors mainly low socioeconomic status and

psychosocial factors including depression, anxiety and social isolation were implicated as determinants for non-adherence. The study concluded that strategies to improve medication adherence in India were urgently required (Adhikari et al., 2017).

Oberlin, Parente and Pruett (2016) undertook a scoping review of strategies for improving medication adherence among kidney transplant recipients. The study utilized the Arksey and O'Malley's 5-stage framework methodology to identify established or novel interventions that could be applied for purposes of improving medication adherence among the kidney transplant recipients. The search strategies included social sciences and medical literature with additional guidance from six consultative interviews. The review established that no intervention stood out as superior or likely to be more effective than other interventions. However, based on the review, the study suggested the following 5 strategies for improvement of medication adherence, including building a foundation of trust; employing multiple interventions; stratifying the population; developing collaborative partnerships and embedding medication adherence into an individual's culture.

2.5 Physical Activity Related Challenges and Support Needs in Self-Management among Post Kidney Transplant Patients

Physical activity/exercise plays a big role in recovery post kidney transplantation. As such, post kidney transplant patients are required to engage in some form of physical activity at least 5 days per week. The recommended threshold being that the post kidney transplant recipients should aim for at least 30 minutes of exercise 5 days per week if approved by their doctor. In the immediate post-transplant period, the exercise intensity should be mild and the intensity is increased over time as the patients' progress with their recovery journey (Robinson et al., 2020). It is acknowledged that after kidney transplant, exercise helps the patients to control their weight, strengthen their heart, and improve their energy levels and to keep their bones healthy (Takahashi et al., 2018).

An empirical study carried out in US explored physical activity experiences in organ transplant recipients. The purpose of the study was to shed light on their experience

and to investigate the possible implications of physical activity in the context of what was a complex patient journey. Phenomenological analysis was used to examine interviews with 13 organ transplant recipients who had taken part in sporting opportunities post-transplantation. Findings of the study showed that over 90% of the organ transplant recipients had reduced physical activity levels compared to normal persons. Low energy levels, tiring quickly and fear of strenuous activities were the core determinants for these patients reduced activity. The study underlined existence of physical activity challenges among organ transplant recipients (Wiltshire et al., 2021).

In another study, Yang et al. (2020) performed a systematic review of literature with a view of exploring the difficulties and needs of kidney transplant patients during their home-based postoperative care. Based on the review, physical related challenges were the second most common difficulties experienced by the kidney transplant patients after psychological difficulties during their home-based postoperative care. Common physical related challenges noted were inability to perform normal physical functions such as lifting objects, going up stairs, lengthy walks and participating in demanding physical sports. This was attributed to low energy levels and fatigue. The study suggested that customized care may promote postoperative patients' self-management and quality of life at home.

Another study carried out in US evaluated physical function following kidney transplantation. The study explored data on the impacts of physical activity on pre- and post-kidney transplantation outcomes. The study established that many US kidney transplantation programs assessed physical function or related constructs when assessing kidney transplantation candidacy. The study observed that although carefully selected kidney transplantation candidates with low physical function could benefit from kidney transplantation with respect to survival and quality of life, low physical function decreased the likelihood of being listed for kidney transplantation and increased the risk of adverse post-kidney transplantation outcomes. The study suggested that exercise was a promising strategy to improve physical function among kidney transplantation candidates and recipients (Robinson et al., 2020).

In a review performed by Takahashi et al. (2018) exploring physical activity level in kidney transplant recipients, it was observed that physical activity levels, on the overall, were lower among kidney transplant recipients compared to the general population, and somewhat higher compared to the dialysis population. Kidney transplant recipients' comorbid condition, psychosocial and socioeconomic factors, and long-term immunosuppression use were found to negatively impact their physical activity level. It was further observed that physical inactivity in kidney transplant recipients was associated with reduced quality of life and increased mortality, and that exercise training interventions improved quality of life and exercise capacity (Takahashi et al., 2018).

Across-sectional study carried out in Spain sought to evaluate and describe the different components of physical performance and quality of life in a cohort of kidney-transplanted patients. Physical performance and quality of life were determined through the administration of several validated tests and questionnaires. According to the study, an inverse correlation was established between post kidney-transplant patients' physical performance and age, comorbidity and dialysis vintage. Overall, the self-perceived physical performance was significantly lower in the kidney transplanted patients with respect to the normal reference level. The study concluded that kidney-transplanted patients may present different degrees of impairment in physical performance and quality of life (Esposito et al., 2017).

Romano et al. (2012) undertook an observation of work capacity and quality of life aspects in kidney transplant patients. The study noted that CKD patients physical work capacity did not improve according to expectations post transplantation. Low energy levels and poor exercise regimes were identified as contributing to the below par work capacity of these patients post transplantation. The study noted that post-transplant treatments induced additional problems owing to the side effects of the medications, giving rise to the need for non-pharmacological therapies able to reverse the adverse effects of the pharmacological therapies. The researchers argued that physical exercise may represent an important contribution in the solution of this problem given evidence from many past studies which demonstrated that physical

training was able to improve graft function, work capacity and quality of life, and also to reduce cardiovascular risk.

Similarly, Goffin et al. in 2011 undertook a 5-year follow-up study aimed at evaluating physical activity levels of kidney transplant recipients after kidney transplantation. The results showed that immediate pre-transplant physical activity levels of the kidney transplant candidates were significantly lower than those of age-matched healthy subjects. The study then observed that after an immediate decrease in physical activity level following the transplant, mean physical activity levels increased and reached a plateau one year after the transplant at about 30% higher compared to the pre-transplant values. Inability to improve physical function post transplantation was associated with feelings of fatigue, not regularly exercising and poor support from the family (Goffin et al., 2011).

2.6 Psychosocial Challenges and Support Needs in Self-Management among Post Kidney Transplant Patients

Due to the clinical importance of a strict regimen of immunosuppressive medication for maintaining graft function and the difficulties experienced with adherence, most of the efforts in care support following transplant tend to focus on promoting medication adherence and self-monitoring (Gordon et al., 2019). However, post kidney transplant patients also struggle with the psychological and social demands of living with their condition (Schulz &Kroencke, 2015). Some of the psychosocial difficulties experienced by post kidney transplant patients include anxiety or depression characterised by persistent worries and fears largely over the disease's prognosis and its long term effects, fear of graft loss, worry about the health of the donor if living and adaptation to roles change (Yang et al., 2020). Consequently, post kidney transplant patients are required to work closely with their healthcare team and families so as their psychosocial needs and concerns can be effectively addressed (Jamieson et al., 2016).

A systematic review was carried out with a view of exploring the difficulties and needs of organ transplant recipients during postoperative care in their homes by Yang

et al. (2020).The review entailed a search conducted in prominent medical journals databases over the period 1997-2020. The review yielded 23 relevant articles that met the set inclusion criteria. The articles were then synthesized through narration. The results of the review revealed that the most common difficulties faced by the organ transplant recipients were psychological difficulties that included depression, mental distress and anxiety largely as a result of fears of graft loss and discomfort concerning medication side effects. The major social difficulties they experienced were feelings of social isolation and difficulties relating with others largely due to changes in their social roles. The results of this review demonstrated that the psychosocial domain of self-management required greater attention (Yang et al., 2020).

A qualitative analysis study was performed to explore the psychological experiences of kidney transplant patients. A sample of eight participants was interviewed about their kidney transplant experiences. The interview data were analyzed using grounded theory methodology. The central finding of the study was that the issues facing kidney transplant patients prior to and after the transplant could be summarized as living with paradox and conflict. The study established that the kidney transplant patients experienced a wide range of psychosocial challenges in the post-transplant period including depression, distress and anxiety, attributable mainly to the stress of maintaining medical regimens, worries about the future and fears of graft loss. The study thus suggested that kidney transplant recipients may need to juxtapose anger/sadness about losses with an adaptive attitude to making the most of a second chance at life, and negotiate a positive relationship with an 'alien' organ. The study called for improvements on awareness of and access to counselling and other psychosocial supports for the kidney transplantees (Amerena & Wallace, 2019).

In US, a study analyzed patient responses of476 kidney transplant recipients using qualitative research methods. The aim of the study was to understand the patients' experiences after the kidney transplantation. The study established that majority of the kidney transplant recipients did experience psychosocial challenges in the form of depression, mental distress and anxiety. This was as a result of concerns over duration of graft survival, fears about one day returning to dialysis or needing to undergo

another kidney transplant, concerns over emerging comorbidities and concerns over the high cost of the medication. The study therefore concluded that psychosocial challenges were prevalent among this cohort of patients depicting an area of care that needed more emphasis (Tucker et al., 2019).

A similar study investigated the self-management challenges and support needs of kidney transplant recipients with the appreciation that greater insight into the kidney transplant recipients' perspective could help to improve the adequacy and efficacy of nurse-led self-management support (Been-Dahmen et al., 2018). Data was gathered using focus group discussions and interviews and was analyzed using content analysis method. According to the study's findings, the psychosocial challenges experienced after transplantation included mood swings, emotional ups and downs, anxiety and mental distress owing to the fear of organ rejection, infection, and graft dysfunction. The patients also experienced social isolation and self-image problems largely due to their chronic physical condition. To be able to deal with the psychosocial related challenges, participants wished to share personal experiences with fellow patients, share and discuss not only medical but also emotional and social issues with nurses and wanted to be encouraged through positive feedback (Been-Dahmen et al., 2018).

In a similar way, Jamieson et al. (2016) undertook a study that aimed at describing kidney transplant recipients' motivations, challenges, and attitudes towards self-management. The major psychosocial related themes derived from the study were prevailing fear of consequences (inescapable rejection anxiety, aversion to dialysis, minimizing future morbidity, trivialization and denial, and defining acceptable risks);burdensome treatment and responsibilities (frustrating ambiguities, inadvertent forgetfulness, intrusive side effects, reversing ingrained behaviors, and financial hardship)and social accountability and motivation (demonstrating gratitude toward medical team, indebtedness to donor, and peer learning). The study concluded that multi-component interventions incorporating personalized care planning, education, psychosocial support, decision aids, and self-monitoring tools may foster self-management capacity and improve transplantation outcomes.

Schulz and Kroencke (2015) investigated the psychosocial challenges following organ transplantation. The psychosocial challenges experienced in the post-transplant period included depression, distress, anxiety and emotional strain. The causes of these psychological difficulties included the stress of maintaining medical regimens, worries about possible loss of graft leading to death, as well as concerns over medication side effects and associated comorbidities. Other causes of the psychosocial problems experienced were fear of death, inner conflicts, and concern over the well-being of the donor. The study concluded that care in the psychosocial domain in the form of social support from family, friends and health care workers, education and information was instrumental to the long term health and wellbeing of organ transplantation recipients.

2.7 Gaps in Literature Review

The above reviewed empirical studies point to a general consensus that post kidney transplant recipients/patients did experience a wide range of nutrition related, therapy related, physical activity related and psychosocial challenges and support needs in self-management. It is also evident from the empirical literature that self-management care among the post kidney transplant recipients/patients remained sub-optimal in most of the settings. Further, out of the 19 studies reviewed, 13 were from the developed countries in Europe and North America while 5 were from the developing countries in Asia and Middle East. Only one was from the sub-Saharan region. This shows that most of the reviewed empirical studies highlighted in the literature were conducted in other countries whose healthcare settings and systems differ with that of Kenya. It is therefore evident from the empirical literature review that there is paucity of empirical research on challenges and support needs in self-management among post kidney transplant patients in Kenya and hence the need for the current study. Consequently, this research study seeks to unveil results on the self-management challenges and support needs among post kidney transplant patients in Kenyatta National Hospital.

2.8 Theoretical Framework

This study was guided by the individual and family self-management theory, a mid-range descriptive theory developed by Dr. Polly Ryan and Dr. Kathleen Sawin in 2009. The individual and family self-management theory proposes that self-management is a complex dynamic phenomenon consisting of three dimensions: context, process and outcomes (Ryan & Sawin, 2009).

The context dimension comprises of the risk or protective factors and these include condition specific factors, physical and social environments, and individual and family factors. Condition specific factors are those physiological, structural, or functional characteristics of the condition, its treatment or prevention that impact the amount, type, and nature of behaviors needed to self-manage. Environmental factors are physical or social and include factors such as access to health care, transition from one health care provider or setting to another, transportation, neighborhood, work, culture or social capital. Individual and family factors are the characteristics of the individual and/or family that affect one's self-management ability such as learning ability, family structure and functioning and capacity to self-manage (Ryan & Sawin, 2009; Grey et al., 2015).

The process dimension has three components namely knowledge & beliefs, self-regulation and social facilitation. Knowledge and beliefs impact behavior specific self-efficacy, outcome expectancy, and goal congruence. Self-regulation is the process used to change health behavior. It includes activities such as goal setting, self-monitoring and reflective thinking, decision making, planning for and engaging in specific behaviors, self-evaluation and management of physical, emotional and cognitive responses associated with health behavior change. Social facilitation includes the concepts of social influence, social support, and negotiated collaboration between individuals and families and health care professionals. According to this theory, persons will be more likely to engage in the recommended health behaviors if they have information about and embrace health beliefs consistent with the recommended behavior, if they develop self-regulation abilities to change their health behaviors, and if they experience social facilitation that positively influences and

supports them to engage in preventative health behaviors (Ryan & Sawin, 2009; Hessler et al., 2019).

The outcome dimension denotes both proximal and distal outcomes. The proximal outcome is actual engagement in self-management behaviors specific to the condition such as engaging in treatment regimens, managing symptoms and use of recommended pharmacological therapies. Distal outcomes are related, in part, to successful achievement of proximal outcomes and they fall into three primary categories: health status; quality of life or perceived well-being and cost of health - both direct and indirect (Ryan & Sawin, 2009).

The three constructs/dimensions closely interact to enhance a person's self-management capacity. For instance, factors in the contextual dimension influence individual and family engagement in the process of self-management as well as directly impact the outcomes. Therefore, enhancing the individuals' and families' self-management context and processes results in more positive outcomes. The theory's major assumptions include that many factors influence behavior including personal preferences, culture, social norms, and family rules and boundaries; numerous contextual factors affect an individual's and family's ability and desire to engage in self-management and that person/family-centered interventions are most effective in fostering engagement in self-management behaviors and achievement of proximal and distal outcomes (Grady & Gough, 2014; Van de Velde et al., 2019).

The individual and family self-management theory is ideal for the current study for a number of reasons including:(1) it combines and expands prior work on self-management with its focus on individuals and families in the self-management concept; (2) the theory attends to the contextual factors known to affect self-management, the process of self-management, and proposes relationships among contextual and process dimensions. As such, the theory is robust and offers numerous new opportunities for expanding knowledge related to self-management; and (3) it has clearly delineated the components of the context and process domains of self-management and has clearly conceptualized the outcomes as proximal and distal, aspects missing in other theories.

Further, this theory provides the foundation and framework for expanding our understanding of self-management to individual as a member of a social unit. The theory expands the focus from health behavior change for chronic illness management to the potential to include health behavior change for health promotion. The theory, therefore, provides a foundation for development of interventions and measures to further enhance the effectiveness of self-management among chronic illness patients.

The individual and family self-management theory is as summarized in Figure 2.1 below;

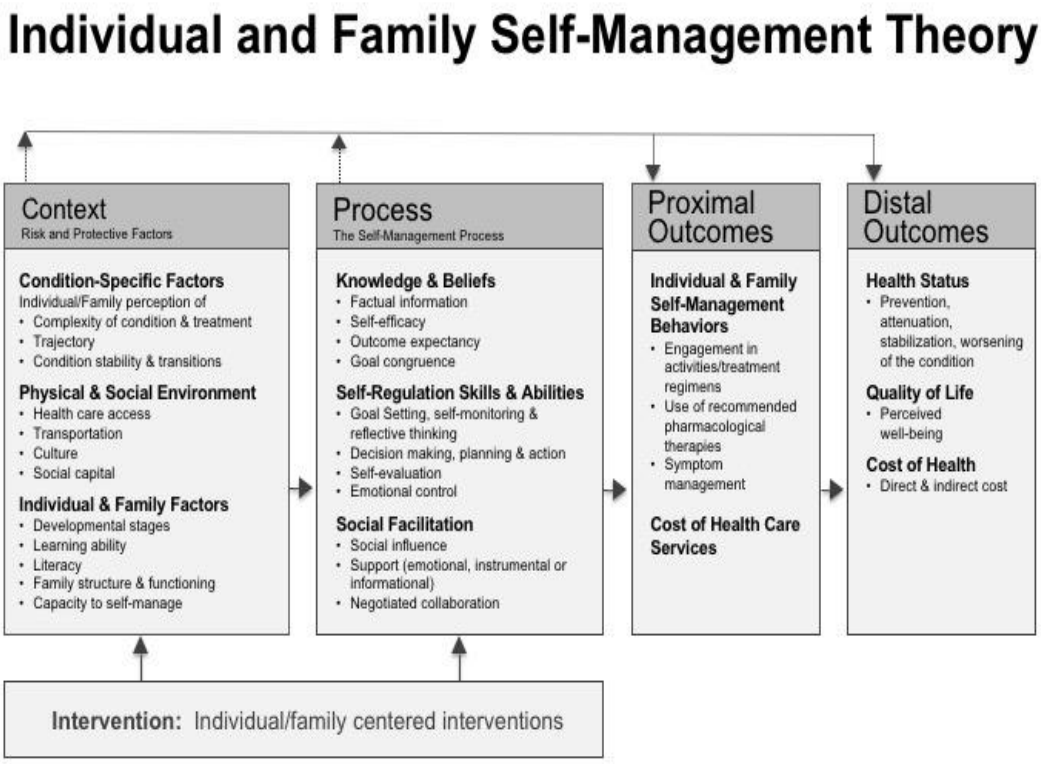

Figure 2.1 Theoretical framework

2.9 Conceptual Framework

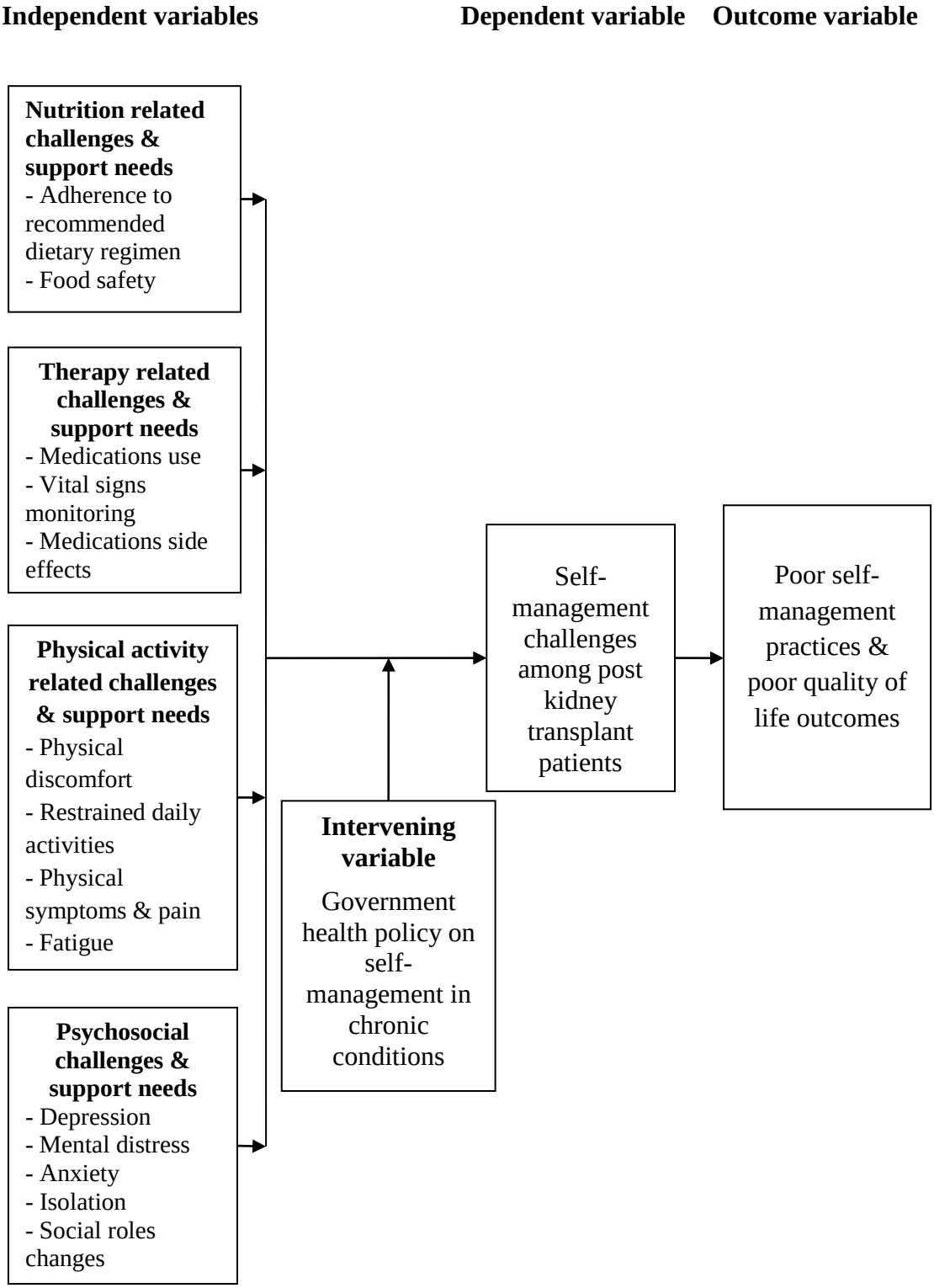

Figure 2.2 Conceptual framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a framework of the methodology that will be used in the study. It outlines the study design, study area, target population, sample size and sampling technique, inclusion and exclusion criteria, data collection instruments and procedures, pilot testing, validity and reliability of research instrument, data analysis and ethical considerations.

3.2 Study Design

A descriptive cross sectional study design was adopted to explore the self-management challenges and support needs among post kidney transplant patients in the renal unit - KNH. This research design presents facts concerning variables being investigated as they exist at the time of study as well as trends that are emerging. The descriptive method was preferred because it ensures complete and accurate description of a situation, ensuring that there is minimum bias in the collection of data (Kothari, 2004).

3.3 Study Area

The study was conducted in the Renal Unit of Kenyatta National Hospital. Kenyatta National Hospital (KNH) is the largest public hospital in Kenya and is located about four kilometers from the Nairobi city center, off Ngong road on Hospital road. The current bed capacity of the hospital is about 2,000. The hospital offers various in and out-patient health care services in its several specialized clinics. The specialized health-care services provided at KNH include radiotherapy, heart surgery, neurosurgery, oncology, diabetic, renal dialysis and kidney transplant operations, plastic and reconstructive surgery, orthopedic surgery and burns management among others. In addition to its primary mandate to provide specialized health-care services to patients on referral basis, the hospital also facilitates medical training and research and participates in national health-care planning.

The KNH Renal Unit is located on the first floor and has a bed capacity of 35. The Renal Unit comprises units for dialysis and a newly built kidney center for patients' undergoing kidney transplant. Most of the patients treated at the Unit are referrals from Level 5 Hospitals and Level 4 Hospitals as well as from private hospitals in and outside of Nairobi. Others are referred to the Unit from the general wards of the Kenyatta National Hospital, such as the medical/surgical wards, labor ward, diabetic clinic, Critical care unit and the Accident and Emergency Centre. The key services offered by the Unit are renal replacement therapy for CKD patients in the form of dialysis services or kidney transplant services. In addition, biopsies, insertions, and removal of various devices on renal patients are also done at the Unit (KNH Renal Unit, 2021).

3.4 Study Population

The population of the study were post kidney transplant recipients attending RRT follow-up clinics in Kenyatta National Hospital's Renal Unit. KNH's Renal Unit records indicated that currently140post kidney transplant recipients attend the hospital's Renal Unit for regular post transplantation reviews. This formed my study population.

3.5 Inclusion and Exclusion Criteria

The study included all adult out-patient post-kidney transplant patients who will have attended the post-transplant renal clinic at KNH for six months and above and who gave consent to participate in the study.

The study excluded post kidney transplant patients aged below 18 years (as most are likely to be cared for by their parents/guardians and hence their self-management aspect is subject to influence by others); those who have undergone the kidney transplant in less than six months ago and those who will decline to consent to take part in the study.

3.6 Sample Size and Sampling Technique

Census method was applied to select the entire study population as the study sample. This is in accordance with Kothari (2004) who postulated that a sample of 100% of the target population is used when the target population is small. Hence, the study sample size will comprise of 140 post kidney transplant recipients in KNH.

3.7 Data Collection Instruments

The study will use a researcher-administered questionnaire (Appendix 3) as its data collection instrument. The reason for choosing the questionnaire as the data collection instrument is primarily due to its practicability, applicability to the research problem and the size of the population. It is also cost effective (Denscombe, 2014). The questionnaire contained both close ended and open ended questions. The questionnaire was structured to capture demographic data in the first part. The other parts of the questionnaire contained questions based on the research objectives. The questions in the questionnaire sought to gather information relating to the nutrition related, therapy related, physical activity related and psychosocial challenges and support needs in self-management among the post kidney transplant recipients/patients.

The open ended questions of the study tool provided the study's qualitative data whose purpose was to complement the study's quantitative data through allowing the researcher to probe the study participants' responses in a more in-depth way while giving due emphasis to their experiences and views of the subject under study. This way, it helped enrich data gathered quantitatively.

3.8 Data Collection Procedures

Following ethical clearance by the KNH/UoN Ethics and Research Committee and approval by the KNH's Renal Unit management, the study questionnaire was administered to the study respondents by the principal researcher after providing an explanation to them on the purpose of the study and after obtaining their informed consent. The data collection exercise entailed the researcher and research assistant

asking the respondents the questions as contained in the study tool and noting down their responses.

In light of the prevailing Covid 19 pandemic in the country and to help limit the risk of Covid 19 transmission, the researcher strictly adhered to Ministry of Health's issued Covid 19 prevention guidelines during the data collection exercise which include; the researcher donning a face mask; ensuring that both the researcher and the participants adequately sanitize through hand washing with soap or using a sanitizer prior to and after the interviews; avoiding hand shaking with the participants during the interview process; adhering to recommended social distancing rule during the interviews and providing masks to the participant(s) for those who do not have.

During the data collection exercise, the researcher allowed the respondents to answer to the questions, as contained in the study tool, without interfering with their responses. Once the study participants respond to the research instrument, the researcher scrutinized them for completeness. The filled-in questionnaires were stored safely under lock and key in readiness for data entry and analysis. The data collection exercise took six weeks with 20-24 participants covered each week.

3.9 Pretesting of Tools

Pretesting of the study tool was carried out among post kidney transplant recipients at the Mater Hospital, Nairobi and not in a similar set up as KNH such as the Moi Teaching and Referral Hospital in Eldoret due to movement restrictions imposed by the Ministry of Health over prevention of Covid-19 transmission in the country. Fourteen (14) questionnaires representing 10% of the study sample was used in the pretesting. Mugenda and Mugenda (2003) asserted that 10% of the sample size is adequate for purposes of pre-testing the research tools. Pretesting was carried out to refine the research tool. Upon pretesting, the data collection instrument was adjusted where necessary and a final validated form of the study instrument was made.

3.10 Validity and reliability of the research instrument

Validity indicates the degree to which an instrument measures what it is supposed to measure (Kothari, 2010) or the degree to which results obtained from the analysis of the data actually represent the phenomena under study (Denscombe, 2014). The research instrument was availed to the supervising lecturers and peers who helped establish its content and construct validity to ensure that the items are adequately representative of the study subject.

Reliability is a measure of the degree to which a research instrument yields consistent results after repeated trials (Nsubuga, 2006). Using data from the pilot study, the reliability of the research instrument was estimated using the Cronbach's Alpha Coefficient. A Cronbach's Alpha Coefficient of at least 0.70 is accepted. In case a low coefficient level is observed, the researcher makes the needed changes to improve on the reliability of the research instrument.

3.11 Data Analysis

The quantitative data generated from the closed ended questions was analyzed using the Statistical Package for Social Sciences (SPSS, version 24). Descriptive statistics was used to analyze quantitative data using measures of central tendencies that included mean, median and mode as well as using percentages and frequencies.

Further, association between study variables, based on the quantitative data, was estimated using chi-square test statistics at a significance level of 5%. The study results were presented in tables, graphs and charts, as appropriate.

The qualitative data generated from the open-ended questions was analyzed through content analysis by developing themes in line with the study objectives and relating/discussing the findings with the relevant literature. The findings were presented in verbatim (that is, in narrative form) and which helped enrich the quantitative outcomes of the study.

3.12 Dissemination of Study Findings

The study results were disseminated through forwarding a copy of the final research project report to the University of Nairobi's School of Nursing Sciences, publication in a peer reviewed journal and presentation in organized seminars, workshops and conferences.

3.13 Ethical Considerations

The authority to conduct the study was sought from the KNH/UoN Ethics and Research Committee. Permission to collect data was sought from relevant authorities at Kenyatta National Hospital. Respondents' consent was sought individually before their participation in the study. Confidentiality was maintained for all information obtained from the study respondents. In addition, anonymity was observed by coding the questionnaires. No names or any other form of personal identification was written on the questionnaires and all information given was used strictly for research purposes only. Any emerging issues were to be cited anonymously. Participation in the study was voluntary and the respondents were free to withdraw from the study at any time without victimization. No inducements or rewards were given to participants to join the study. There were no associated risks to the study respondents from their participation in this study. In light of the prevailing Covid 19 pandemic in the country, the researcher strictly adhered to Ministry of Health's issued Covid 19 prevention guidelines during the data collection exercise to limit risk of Covid 19 transmission. All filled questionnaires were kept safely under lock and key in readiness for data analysis and presentation.

3.14 Study Limitations

The study was based on results gathered from a single hospital in the country. Thus the findings may not be generalizable to all other hospitals in the country due to differences in sizes, geographical location and institution set up. To counter this limitation, the researcher recommends that similar studies be conducted in other hospitals in the country to allow for comparison and generalization of the study findings.

The study utilized a questionnaire as one of its data collection instrument and therefore instances of under- or over-reporting were likely. To counter this limitation, the researcher requested the study respondents to respond to the research tool honestly and assured them that the information given will be handled confidentially and was to be used for the purpose of the study only.

Some cases of incomplete or missing data in the research tool were encountered. To counter this, data cleaning was carried out before the final analysis to ensure completeness of the information availed through questionnaires.

CHAPTER FOUR: RESULTS

4.1.Introduction

This chapter presents the results from the analysis done based on the data collected using the study questionnaire. The study sought to explore the self -management challenges and support needs among post kidney transplant at Kenyatta National Hospital. The objectives that were evaluated included nutritional related self-management challenges and support needs, therapy related self-management challenges and support needs, physical activity related self-management and support needs as well as psychosocial related self-management challenges and support needs. A sample size of 140 respondents were sought. a total of 135 filled and completed questionnaires were returned for analysis representing a 96% response rate. Fincham (2008) stated that a response rate of ≥80% is appropriate for cross sectional studies. Hence the response rate obtained in this study was appropriate.

4.2.Socio-demographic characteristics of post kidney transplant patients at Kenyatta National Hospital

Table 4.1:Socio-demographic characteristics of post kidney transplant patients at Kenyatta National Hospital

Demographic characteristics	Frequency	Percent
Gender		
Male	74	54.8
Female	61	45.2
Education level		
No formal education	2	1.5
Primary	8	5.9
Secondary	75	55.6
Tertiary	50	37.0
Source of livelihood		
Unemployed	34	40.0
Formally employed	42	31.1
Casual labour	7	5.2
In business	52	38.5
Student	32	23.7
Marital status		
Single	33	24.4
Married	79	58.5
Separated	6	4.4
Divorced	3	2.2
Widowed	14	10.4
Payment of Treatment and upkeep		
Self	60	44.4
Insurance	18	13.3
Family	57	42.2
Monthly income		
≤Ksh.20,000	74	54.8
Ksh.20,001 - 50,000	53	39.3
Ksh.50,001 - 100,000	8	5.9
Residence		
Outside Nairobi	82	60.7
Within Nairobi	53	39.3
Alcohol use		
Yes	6	4.4
No	129	95.6

Regarding gender, 54.8% (n =74) of the respondents were male. Concerning level of education showed that, 55.6% (n=75) of the respondents had secondary level education while in investigating occupation, 38.5% (n=52) were in business. Regarding marital status, 58.5% (n=79) of the respondents were married. The study also established that the respondents mainly paid for their own treatment and upkeep, 44.4% (n =60). In investigating monthly income, 54.8%(74) of the respondents had average monthly income of ≤Ksh. 20,000 as shown in Table 4.1.

4.3.Nutritional related challenges and support needs among post kidney transplant patients at Kenyatta National Hospital

The study sought to establish nutritional related challenges experienced by the post kidney transplant patients and the support they needed.

4.3.1. Importance of nutrition in the care

The findings revealed that 93.3%(126) of the respondents considered nutrition in their care as being very essential as shown in Figure 3. The common recommended diet among the respondents included low salt, eat more fruits, no processed foods or carbonated drinks and no red meat.

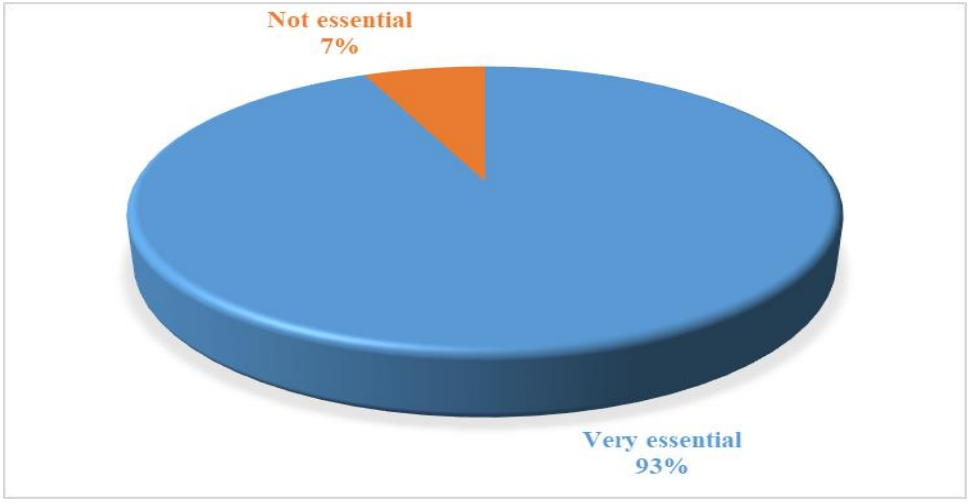

Figure 4.1: Importance of nutrition in the care

4.3.2. Difficulties in following dietary regimen

In investigating difficulties in following the recommended dietary regimen, the results showed that few of the respondents, 11.1%(n =15) had difficulty in following the dietary regimen as shown in Figure 4.2

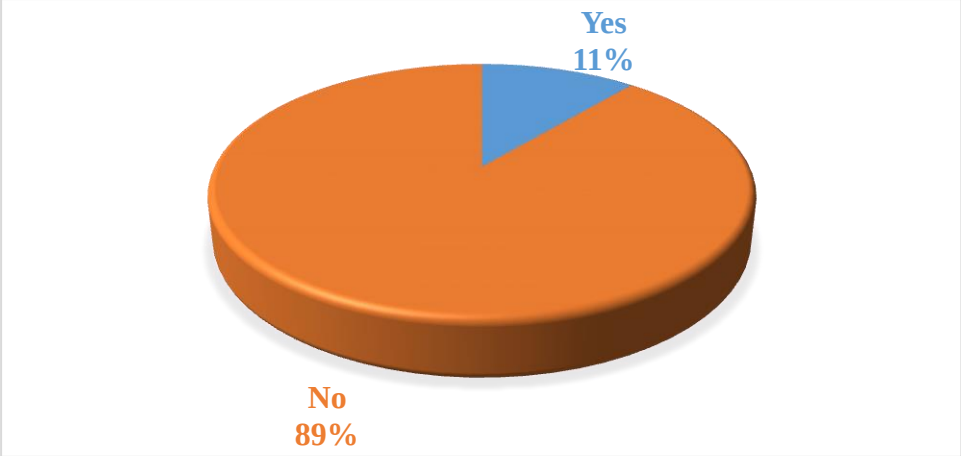

Figure 4.2: Difficulties in following treatment regimen

The study established that some of the reasons for experiencing difficulty in following dietary recommendations were financial difficulties, inability of family to cope with the changed diet and restriction to eat only home cooked meals. The support needs measures suggested by the participants included provision of nutritious subsidies by the government. They also recommended that the government should give financial support to post kidney patients to reduce the burden on patients and allow continued adherence to recommended diet.

4.3.3. Association between patient demographic characteristics and nutrition related challenges

The association between patients' demographic characteristics and nutrition related challenges was conducted using Fischer's exact test as illustrated in Table 4.2.

Table 4.2: Fischer's exact test showing association between patient demographic characteristics and nutrition related challenges

	Experience difficulties		
Demographic factors	**Yes**	**No**	**P-value**
Gender			
Male	9(60)	65(54.2)	0.442
Female	6(40)	55(45.8)	
Education level			
No formal education	0	2(1.7)	
Primary	1(6.7)	7(5.8)	0.77
Secondary	10(66.7)	65(54.2)	
Tertiary	4(26.7)	46(38.3)	
Marital status			
Single	2(13.3)	31(25.8)	
Married	13(86.7)	66(55)	
Separated	0	6(5)	0.198
Divorced	0	3(2.5)	
Widowed	0	14(11.7)	
Sources of livelihood			
Unemployed	0	2(1.7)	
Formally employed	7(46.7)	35(29.2)	0.447
Casual labour	1(6.7)	6(5)	
In business	6(40)	46(38.3)	
Student	1(6.7)	31(25.8)	
Payment of treatment and upkeep			
Self	6(40)	54(45)	
Insurance	3(20)	15(12.5)	0.72
Family	6(40)	51(42.5)	
Average monthly			
Ksh.20,000	11(73.3)	63(52.5)	
Ksh.20,001 - 50,000	4(26.7)	49(40.8)	0.254
Ksh.50,001 - 100,000	0	8(6.7)	
Residence			
Outside Nairobi	11(73.3)	71(59.2)	0.221
Within Nairobi	4(26.7)	49(40.8)	
Alcohol use			
Yes	1(6.7)	5(4.2)	0.854
No	14(93.3)	114(95)	

The p-value was assessed at 0.05 level of significance where $p<0.05$ was considered significant. Thus, the study established that, there was no significant association between demographic characteristics and experiencing difficulties in following the recommended diet since $p>0.05$.

4.4.The therapy related challenges and support needs among post kidney transplant patients at Kenyatta National Hospital.

The participants were asked to respond to questions related to their medication intake as illustrated in Table 4.3

Table 4.3: Therapy related challenges and support needs among post kidney transplant at Kenyatta National Hospital

Therapy related factors	**Frequency**	**Percent**
Take medication as prescribed		
Yes	121	89.6
No	14	10.4
Missed medication doses		
Yes	15	10.5
No	120	89.5

The study determined that, majority of the respondents, 89.6%(n =121) take medication as prescribed while 10.5% (n =15) of the respondents reported missing medication doses at least three times in the last one moth as shown in Table 4.3.

4.4.1. Factors contributing to medication non-adherence among post kidney transplant patients at Kenyatta National Hospital.

The respondents were requested to indicate the factors contributing to their medication adherence as shown in Table 4.4.

Table 4.4: Factors contributing to medication non-adherence among post kidney transplant patients at Kenyatta National Hospital.

Factors	**n (%)**
Sometimes I feel tired of taking medicines	10(7.4)
My medicines are complex	10(7.4)
I experience side effects of the medications	41(30.4)
My health is deteriorating	2(1.5)
Sometimes I forget to take my medication	9(6.7)
I have nobody to support me socially	3(2.2)
Low knowledge about the disease	1(0.7)
I don't have enough knowledge about my medications	2(1.5)
The medications don't benefit me much	3(2.2)
My medications are unaffordable to me as I have low income	32(23.7)
My work schedules conflict with my medication schedule	6(4.4)
I have competing family needs in the face of limited financial resources	39(28.9)
Sometimes, I am unable to access the medicines	5(3.7)
Sometimes, I just feel tired of taking medicines	2(1.5)
Poor quality of care offered in the health facilities	0
I take alcohol	6(4.4)
I feel I have recovered	2(1.5)
I have other diseases	4(3)

The study found that, side effects were the most prevalent factor contributing to medical non-adherence, 30.4%(n=41), competing family needs, 28.9%(n=39) and unaffordability of drugs, 23.7%(n=32) were other major contributing factors contributing to medication non-adherence.

4.4.2. Association between patient demographic characteristics and therapy related challenges

The association between patient demographic characteristics and therapy related challenges was conducted as illustrated in Table 4.5. p-value was considered significant at $p<0.05$.

Table 4.5: Association between patient demographic characteristics and therapy related challenges among post kidney patients at Kenyatta National Hospital

	Missed medication doses		
Demographic factors	**Yes**	**No**	**P-value**
Gender			
Male	10(71.4)	63(52.9)	0.151
Female	4(28.6)	56(47.1)	
Education level			
No formal education	0	2(1.7)	
Primary	2(14.3)	6(5)	0.032
Secondary	11(78.6)	63(52.9)	
Tertiary	1(7.1)	48(40.3)	
Marital status			
Single	2(14.3)	31(26.1)	
Married	10(71.4)	68(57.1)	
Separated	0	6(5)	0.683
Divorced	0	2(1.7)	
Widowed	2(14.3)	12(10.1)	
Sources of livelihood			
Unemployed	0	2(1.7)	
Formally employed	2(14.3)	39(32.8	
Casual labour	3(21.4)	3(2.5)	0.02
In business	6(42.9)	46(38.7)	
Student	3(21.4)	29(24.4)	
Payment of treatment and upkeep			
Self	4(28.6)	56(47.1)	
Insurance	1(7.1)	16(13.4)	0.205
Family	9(64.3	47(39.5)	
Average monthly			
Ksh.20,000	6(42.9)	67(56.3)	
Ksh.20,001 - 50,000	8(57.1)	44(37)	0.265
Ksh.50,001 - 100,000	0	8(6.7)	
Residence			
Outside Nairobi	10(71.4)	71(59.7)	0.291
Within Nairobi	4(28.6)	48(40.3)	
Alcohol use			
Yes	3(21.4)	3(2.5)	0.005
No	11(78.6)	115(96.6)	

A Fischer's exact test for association revealed that, education level (p =0.032), source of livelihood (p = 0.02) and alcohol use were significant associated with therapy related challenges.

4.4.3. Factors contributing to medication uptake challenges

The respondents were asked to identify reasons contributing to their challenges in medication adherence. The findings revealed that, adverse side effects, high cost of medications, unavailability of drugs and forgetfulness were the major reasons for medication non-adherence among respondents.

4.4.4. Support needs to improve medication adherence

The participants were asked to identify key support needs that could be integrated into their performance level to improve the level of adherence. The study established that, NHIF should consider covering medication expenses of post kidney transplant patients, the government should subsidize the cost of medication, consider patient specific medications to avoid adverse side effects and reaction among patients.

4.5.Physical activity related challenges and support needs among post-transplant patients at Kenyatta National Hospital

4.5.1. Health limit in the following activities

Respondents were asked to identify daily or routine activities that have been limited as a result of kidney transplant as shown in Table 4.6.

Table 4.6: Health limit in the following activities

Daily activities that are limited by participants health	Yes n (%)
Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	28(20.7)
Moderate activities, such as moving a table, cleaning utensils or washing clothes	11(8.1)
Lifting or carrying groceries	13(9.6)
Climbing several flights of stairs	10(7.4)
Climbing one flight of stairs	7(5.2)
Bending, kneeling, or stooping	14(10.4)
Walking more than one kilometer	6(4.4)
Walking within your household's compound	8(5.9)
Walking to the nearest market/shop	6(4.4)
Bathing or dressing yourself	8(5.9)

The study established that, vigorous activities such as running, lifting heavy objects and participating in strenuous sports, 20.7%(n=28), bending, kneeling or stooping 10.4%(14), lifting or carrying groceries, 9.6%(n=13) and moderate activities such as moving table, cleaning utensils or washing clothes 8.1%(n=11) were the common activities that have been limited among respondents as a result of their health. The activities that were least affected included walking to nearest market/shop, 4.4%(n =6) and bathing or dressing by self, 5.9%(n =8).

4.5.2. Problems with work and regular daily activities

The respondents were also asked to identify whether they had problems with work and regular daily activities as illustrated in Table 4.7.

Table 4.7: Problems with work and regular daily activities

Problems	**Yes n (%)**
Cut down the amount of time you spent on work or other activities	32(23.7)
Accomplished less than you would like	32(23.7)
Were limited in the kind of work or other activities	35(25.9)
Had difficulty performing the work or other activities (for example, it took extra effort)	38(28.1)

The findings revealed that in the past four weeks, 28.1% (n=38) of the respondents experienced difficulty performing the work or other activities, it took extra effort to perform regular or daily activities, 25.9% (n=35) of the respondents were limited in the kind of work or other activities they were able to perform as shown in Table 4.8.

4.5.3. Physical, emotional problems interference with normal activities

The respondents were asked about the extent of their physical, emotional problems that interfere with their normal activities as shown in Figure 4.3. The responses were on a likert scale where Not at all =1, Slightly = 2, Moderately =3, Quite a bit=4 and extremely =5.

The results showed that, majority of the respondents, 65.2%(88) of the respondents did not have any negative influence of physical, emotional problems on their normal activities.

4.5.4. Perceived their physical activity

The respondents were asked to rate how they perceived their physical capability as shown in Figure 4.4 .

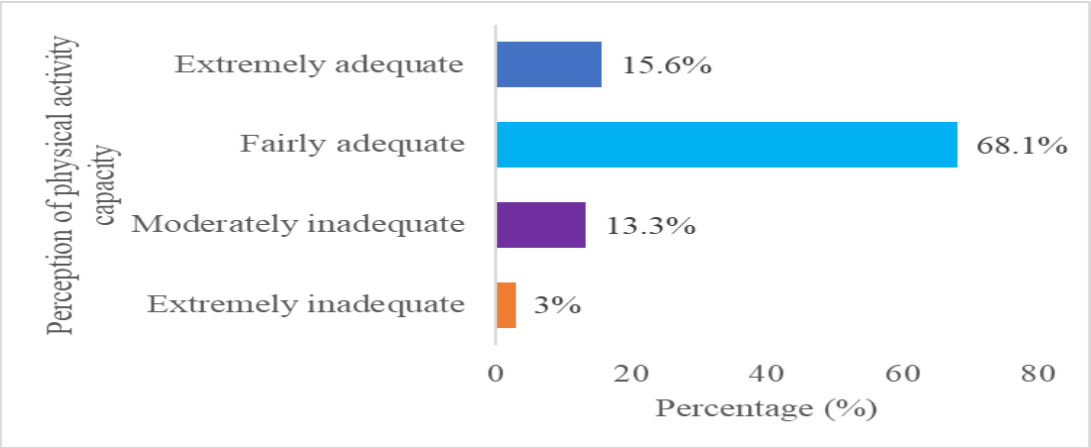

Figure 4.4: The respondents perceived their physical activity level or capacity

Majority, 68.1%(92) of the respondents perceived their physical activity level or capacity as being fairly adequate as shown in Table 9.

4.5.5. Association between patient demographic characteristics and therapy related challenges.

The study sought to investigate the association between patient demographic characteristics and therapy related challenges as shown in Table 4.7 $P<0.05$.

Table4.7. :Association between patient demographic characteristics and therapy related challenges

	Perceived physical body capacity		
Demographic factors	**Inadequate**	**Adequate**	**P-value**
Gender			
Male	11(45.8)	63(56.8)	0.227
Female	13(54.2)	48(43.2)	
Education level			
No formal education	2(8.3)	0	
Primary	3(12.5)	5(4.5)	0.006
Secondary	13(54.2)	62(55.9)	

Tertiary	6(25)	44(39.6)	
Marital status			
Single	5(20.8)	28(25.2)	
Married	12(50)	67(60.4)	
Separated	0	6(5.4)	0.015
Divorced	0	3(2.7)	
Widowed	7(29.2)	7(6.3)	
Source of livelihood			
Unemployed	0	2(1.8)	
Formally employed	9(37.5)	33(29.7)	0.232
Casual labour	1(4.2)	6(5.4)	
In business	5(20.8)	47(42.3)	
Student	9(37.5)	23(20.7)	
Payment of treatment and upkeep			
Self	10(41.7)	50(45)	0.488
Insurance	5(20.8)	13(11.7)	
Family			
Average monthly income			
Ksh.20,000	17(70.8)	57(51.4)	
Ksh.20,001 - 50,000	4(16.7)	49(44.1)	0.026
Ksh.50,001 - 100,000	3(12.5)	5(4.5)	
Residence			
Outside Nairobi	15(62.5)	67(60.4)	0.519
Within Nairobi	9(37.5)	44(39.6)	
Alcohol use			
Yes	0	6(5.4)	0.45
No	24(100)	104(93.7)	

A Fischer's test for association was conducted where the study found that, education level (p =0.006), marital status (p=0.015) and average monthly income (p = 0.026) were significantly associated with physical body capacity perception among post kidney transplant patients at Kenyatta National Hospital as shown in Table 10.

4.6.The psychosocial related challenges and support needs among post kidney transplant patients at Kenyatta National Hospital

Psychosocial related challenges and support needs among respondents were assessed based on a Likert scale ranging from 1 to 5 where 1 represent not at all while 5 indicate all of the time. The findings as shown in Table 4.8 revealed that respondents cited the common psychological related challenges included worries and fears about

the illness and its longer effects (M = 2.11±1.439) and fear of graft loss, (M = 2.23±1.43).

Table 4.8: Psychosocial challenges and support needs

Psychosocial issues	Mean	Std. Deviation
Persistent worries and fears about the illness and its long-term effects	2.11	1.439
Feeling mentally distressed and/or anxious over the illness	1.91	1.345
Fear of graft loss	2.23	1.430
Fear of dying	1.50	1.042
Fear of being re-hospitalized	1.82	1.244
Persistent sadness	1.15	0.381
Excessive moodiness/irritability	1.11	0.438
Concerns about self-image	1.11	0.438
Excessive aggressiveness towards others	1.09	0.452
Feelings of low self-esteem	1.11	0.354
Feeling of hopelessness and/or helplessness	1.14	0.504
Difficulties interacting socially	1.19	0.590
Unable to sleep properly	1.28	0.742
Loss of interest in things/activities one previously enjoyed doing	1.30	0.736
Inability to follow treatments consistently	1.32	0.811
Feeling of exhaustion/tiredness/fatigue	1.46	0.877
Feelings of social isolation	1.21	0.536
Feeling worn out/overwhelmed	1.24	0.627
Less optimism about recovery	1.22	0.668
Poor feeding	1.26	0.725
Feelings of being not adequately supported	1.27	0.778

4.6.1. Factors influencing psychosocial related challenges among post kidney transplant patients

The study also sought to determine socio-demographic factors that predict psychosocial challenges among respondents as shown in Table 4.9 .

Table 4.9: A linear regression analysis showing factors influencing psychosocial related challenges among post kidney transplant patients

			95.0% Confidence Interval for B		
	Beta	t	Lower Bound	Upper Bound	P-value
Gender	-0.024	-0.263	-3.405	2.606	0.793

Age	-0.023	-0.200	-0.141	0.115	0.842
Education level	-0.247	-2.497	-5.664	-0.655	0.014
Livelihood	-0.072	-0.713	-1.862	0.875	0.477
Marital status	-0.196	-1.749	-3.025	0.187	0.008
Payment service	-0.046	-0.429	-2.270	1.462	0.669
Income	0.004	0.039	-2.452	2.552	0.969
Residence	-0.089	-1.012	-4.421	1.429	0.313
Alcohol use	0.103	1.164	-0.360	1.387	0.247

A linear regression analysis was conducted to determine patient demographic characteristics that influence psychosocial wellbeing of respondents. The results found that, education level and marital status were significant factors influencing psychosocial wellbeing of post kidney transplant patients as shown in Table.

4.6.2. Sources of worry and concern about patient health condition

The respondents were also asked to identify sources of worry and concern about their health condition. The results showed that high cost of medication, fear of unknown about the future, recurrence of graft failure, long term side effects and financial constraints were identified as major sources of worry and concern.

4.6.3. Potential solutions to support patients both socially and psychologically

The participants were asked to give their recommendations regarding who their social and psychological wellbeing could be improved. The findings revealed that, formation of social groups to champion for the kidney transplant patient needs was the common support need identified by respondents. Other support need concepts included

championing NHIF to cover for post kidney transplant medication, ensure constant nutritional counselling, ensure drug availability and at affordable cost.

CHAPTER FIVE: DISCUSSION

5.1.Introduction

This chapter depicts a discussion of the study findings in relation to past studies which have assessed self-management challenges and support needs among post kidney transplant. The section has been categorized into sections, demographic characteristics, nutritional, therapy, physical and psychosocial challenges and support needs.

5.2.Demographic characteristics of post kidney transplant patients

The study investigated self-management challenges and support needs among post kidney transplant at Kenyatta National hospital. The demographic characteristics revealed that, more than half of the respondents, 55% were male. These findings correspond to Adhikari et al (2017) in a study conducted in India which revealed that majority of patients who underwent kidney transplant were male accounting for 71% of the total sample size in the study. Similarly, Angwenyi et al. (2018) in a study done in Malawi and Been-Dahmen et al. (2018) in a study done in Netherlands also revealed that most of the patients who underwent kidney transplant were male. This could be as a result of the high prevalence of CKD and ESRD in male patients as compared to female.

The findings from the present study also revealed that, most of the respondents had secondary level education. In Kenya most of the citizens have secondary level education which is depicted in the sample size investigated in this study (Census, 2019). These findings are also in line with Yang et al. (2020) in a study conducted in

Taiwan which revealed that majority of patient who underwent kidney transplant had secondary level education.

Almost half of the respondents in the present study were paying for their treatment and upkeep through support from family. The insurance has also been essential in facilitating the transplant processes. Similarly, more than half, 55% of the respondent had an average monthly income of less or equal to Ksh. 20,000. These findings show that majority of the respondents are low income earners which make it difficult to achieve the required level of self-management. These findings are in line with Adhikari et al , (2017) in a study conducted in India which found that majority of the respondents were low income earners. However, these findings are inconsistent with a study conducted in United States by Kosaka et al. (2013) which found that majority of the kidney transplant patients were middle income earners. The study also found that most of the patients had insurance covers which were taking care of their treatment. These difference in this case can be attributed to the difference in the governance structure and healthcare systems in place, United states is a developed country with higher focus on quality healthcare and their healthcare system is incomparable to ours in Kenya context. Similarly, the health system in Kenya is weak compared to the system in the United States which is well organized and have processes and structures which are specific targeting patient health and improving health outcomes.

5.3.Nutritional challenges and support needs

The findings from this study revealed that 93% of the patients viewed nutrition in care as essential in improving their health outcomes. The common recommended diet

among the respondents included low potassium and sodium diet, no processed foods or carbonated drinks and no red meat. Kidney transplant patients are under dietary restrictions which are aimed at improving their quality of health (Kenawy et al., 2019). These findings are in line with previous studies which have identified that a healthy balanced diet for a kidney transplant patient is one with low in salt and no intake of carbonated drinks (Mlinšek, 2016; Kenawy et al., 2019). The findings showed that 11.1% of the patients were having challenges in following the prescribed dietary regimen. These findings have showed that there is need for a higher-level commitment among respondents in present study to comply with nutritional therapy for improved outcomes. These findings however contrast those from Yang et al. (2020) which found that over 60% of the respondents were not adhering to the recommended diet. Kenway et al. (2019) in a study conducted in Kuwait, it was revealed that lack of clear dietary guidelines and financial strain among patients were the main factors contributing to poor adherence to dietary restrictions. The level of noncompliance with dietary restriction was higher in other studies such as a study conducted in Brazil which revealed that more than half of the respondents were still consuming high fat meat and dairy products as well as carbonated drinks (Nielsen et al., 2019). Failure to follow the defined nutritional guidelines is a significant challenge to the efforts to lead a positive and a high-quality life. Kidney transplant is expected to improve patient health status and thus this goes in handy with following the stated dietary regimen.

5.4.Therapy related challenges and support needs

The current study also investigated therapy related challenges and support needs of post-transplant kidney patients. The findings revealed that majority of the respondents, 89.6% take medication as prescribed while 10.5% reported missing at least three doses in the last one month. The common challenges leading to missed doses included high cost of medications, forgetfulness, lack of support from caregivers and development of adverse side effects. These findings are similar to a study conducted in United states by Lorenzo et al (2019) who identified that financial concerns, impact of the disease and attending to medical appointments were the many challenges among post kidney transplants patients. The findings from the present study were better compared to a study conducted in Kuwait which revealed that 60% of post kidney transplants patients were compliant with their medications. However, the risk factors that were associated with poor compliance included adverse side effects and presence of comorbidities (Kenawy et al., 2019).

The findings from the present study also found that employment as a business person, and alcohol use were significantly associated with compliance to therapy. Respondents who were employed in business were more likely to miss their medication. These findings are comparable to Angwenyi et al. (2018) in a study conducted in Malawi which found that there was association between compliance to therapy and source of income among kidney transplant patients. Alcohol uses was associated with higher level of noncompliance to therapy. Kidney transplant patients are discouraged from using alcoholic products because it lowers the strength of their

body functionality which in turn wears down the transplanted kidney which is more likely to malfunction and could lead to kidney failure (Hu et al., 2021).

The findings from our study revealed that, respondents have been limited physically in their efforts to carry out routine activities. Activities that have been restricted among some of the patients included vigorous activities such as running, lifting heavy objects and participating in strenuous sports, 20.7%, bending, kneeling or stooping 10.4%, lifting or carrying groceries, 9.6% and moderate activities such as moving table, cleaning utensils or washing clothes 8.1% were the common activities that have been limited among respondents as a result of their health. Majority of the patients who undergo kidney transplant are affected significantly especially their physical ability considering that they are unable to accomplish most routine tasks on their own. In a study conducted in the United States by Wiltshire et al. (2021), it was revealed that over 90% of the organ transplant recipients had reduced physical activity levels compared to normal persons. Low energy levels, fatigue, and a dread of demanding activities were the main reasons for these individuals' decreased activity. The study revealed that organ transplant recipients face physical activity problems.

5.5.Physical activity related challenges and support needs

Majority of the respondents in the present study, 68% rated their ability to perform physical activities as being fairly adequate. This means that they are able to accomplish significant number of days. Self-perception present a significant factor in improving individual wellbeing and ability to improve quality of life. Physical wellbeing presents a more elaborate basis where individual needs are assessed. Yang

et al. (2020) revealed that physical activities were the most common difficulties among post kidney transplant patients.

Common physical related challenges noted were inability to perform normal physical functions such as lifting objects, going up stairs, lengthy walks and participating in demanding physical sports. This was attributed to low energy levels and fatigue (Demian et al., 2016). The study suggested that customized care may promote postoperative patients' self-management and quality of life at home. The findings also revealed that, education level, marital status and average monthly income were significantly associated with self-perceived physical capacity among the respondents. These findings are comparable to Bellizzi et al. (2014) who found that monthly income and marital status were key factors influencing physical wellbeing of post kidney patients. Respondents who were single were highly limited in terms of what they could accomplish and did not have support from caregivers hence making their life difficult.

5.6.Psychosocial challenges and support needs

Psychosocial factors that influence the wellbeing of post kidney transplant patients were also investigated. The findings from our study revealed that persistent worries and fears about their kidney disease (CKD and ESRD) and its longer effects and fear of graft loss were the most prevalent worries that the respondents had. Uncertainty about the disease progression even after transplant remained a major challenge among patients. These findings are echoed by previous studies which have identified this concern as the major psychosocial difficulty among kidney transplant patients (Schulz & Kroencke, 2015; Yang et al., 2020). Fear of graft loss is also a major difficulty

among the patients hence creating a difficult level of wellbeing and quality of life among patients. Similarly, Amerena and Wallace (2019) found that in the post-transplant era, kidney transplant patients faced a variety of psychosocial issues, including sadness, distress, and anxiety, which were mostly caused by the stress of adhering to medication regimens, anxieties about the future, and fears of graft loss.

The findings from this study also revealed that, education level and marital status were significant predictors of psychosocial wellbeing among post kidney patients. Patients with lower education level had higher psychosocial difficulties. Those who were single reported high psychosocial difficulties. These findings are comparable to a study conducted in Tehran by Azar et al. (2019) which found that age, lower level of education and being single were associated to high psychological and social difficulties. However, in our present study age was not associated with psychosocial wellbeing. Korus et al. (2017) found that self-management involves diverse approaches which require strong psychological and social wellbeing hence worries reduce the ability to successfully implement self-management.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1.Conclusion

The finding from the study have showed that almost all of the patients viewed nutrition in care as essential in improving their health outcomes. The common recommended diet among the respondents included low potassium and sodium diet, no processed foods or carbonated drinks and no red meat. Less than a quarter of the patients were having challenges in following the prescribed dietary regimen. The commonly identified reasons for these challenges were financial challenges and lack of support from family in coping with dietary change. The support needs included regular dietary counselling.

The findings revealed that majority of the respondents take medication as prescribed while only few reported missing at least three doses in the last one month. The common challenges leading to missed doses included high cost of medications, forgetfulness, lack of support from caregivers and development of adverse side effects. The support needs identified included including NHIF in purchasing treatment drugs and ensure drug affordability.

Slightly more than half of the respondents did not have any negative influence of physical, emotional problems on their normal activities, more than half of the respondents perceived their physical activity level or capacity as being fairly adequate. Education level, marital status and average monthly income were significantly associated with physical body capacity perception among post kidney transplant patients.

The findings revealed that respondents cited persistent worries and fears about the illness and its longer effects and fear of graft loss some of the time. The findings revealed that education level and marital status were significant factors influencing psychosocial wellbeing of post kidney transplant patients.

6.2.Recommendations

To encourage healthcare providers to identify the few patients even after counselling still experiencing nutritional challenges in order to address their needs individually.

To identify other sources of financing medication such as being engaged in projects that earn them some income, form social groups that can lobby for financial aid from non-governmental organizations or institutions such as Safaricom Foundation. Negotiate with NHIF to support the financial burden on respondents.

To encourage patients, undertake physical exercises and perform light duties to strengthen their physical ability and improve quality of life. This could be achieved by forming social groups for these category of patients.

Counselling families to support this group of patients pre and post-transplant to improve their health outcomes.

Areas for further Research

To conduct a quantitative research study investigating patient and institutional factors associated with nutritional, therapy, physical activity and psychosocial challenges

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APPENDICES

Appendix 1: Participants' Information Document

Title of Study: Exploring the Self-Management Challenges and Support Needs among Post Kidney Transplant Patients in the Renal Unit - Kenyatta National Hospital

Principal Investigator\and institutional affiliation: Jane N. Marangu, University of Nairobi

Supervisors: Dr. Eunice Omondi & Ms. Hannah Inyama, University of Nairobi

Introduction

My name is Jane N. Marangu a student at the University of Nairobi pursuing a Master of Science Degree in renal Nursing. I am undertaking a thesis study on 'exploring the self-management challenges and support needs among post kidney transplant patients in the Renal Unit - Kenyatta National Hospital'.

Purpose of the study

The aim of the study is to explore the challenges and support needs in self-management among post kidney transplant patients at Kenyatta National Hospital. I am requesting for your participation in this study by giving me your views and opinions regarding the study subject. If you choose to participate, the researcher will ask you a series of questions that seek to gather information relating to the nutrition related, therapy related, physical activity related and psychosocial challenges and support needs you experience in self-management in view of your chronic condition. Our discussion will take about 15 minutes.

Confidentiality

All the information provided will be treated in utmost confidentiality. In addition, all the information given herein will only be used for research purposes. Your name or

anything else that may identify you will not appear anywhere in the study as the study will use statistics.

Voluntary participation

Your participation in this study is voluntary. There will be no penalties for any decline and you can withdraw at any stage of data collection with no penalties. However, I will greatly appreciate your participation because your views are very important for the success of this study.

Benefit

This research work is for academic purposes only and if you agree to participate, the information that you will provide will be of great importance to various stakeholders in their effort to improve the long term outcomes of post kidney transplantation through enhanced patient self-management, whose first crucial step is gaining a clear understanding of the challenges and support needs in self management among the post kidney transplant patients. However, there will be no monetary gains or any other form of payment for participating.

Risks

There will be no any harm to you or your family as a result of your participation in this study. However, in light of the prevailing Covid 19 pandemic in the country, the researcher will strictly adhere to Ministry of Health's issued Covid 19 prevention guidelines during the data collection exercise to limit risk of Covid 19 transmission.

Contacts

For any queries regarding this study, kindly contact;

Principal researcher: Jane N. Marangu, Cell: 0721 859 423

OR

Secretary, Ethics and Research Committee of KNH/UON, Telephone: 020-2726300 Ext 44355

[*Please ensure that you have read the following, or that the following has been read to you, and that you fully understand what is involved in participating in this study and that your role as respondent has been fully explained to you*.]

Appendix 2: Consent Form

Respondent's Declaration

I have been fully informed about the nature of the study, I know the benefits, and understand that there are no risks involved. I hereby give my consent to participate in this study.

Signature of participant ……. Date …….

Researcher's Declaration

I have fully disclosed all the relevant information concerning this study to the study respondent.

Signature of researcher ……. Date ……

Appendix 3: Questionnaire

Title of the study: Exploring the Self-Management Challenges and Support Needs among Post Kidney Transplant Patients in the Renal Unit - Kenyatta National Hospital

Date: ……. **Code:** ……..

Instructions:

a) Do not write your name(s) on the questionnaire.

b) Tick ALL appropriate responses in the spaces provided in each question.

c) Respond to ALL questions. DO NOT leave any questions unanswered

Section A: Demographic information of the respondents

1. Gender of the respondent: Male ( ) Female ( )

2. What is your age in years? ……

3. What is your education level?

No formal education ( ) Primary education ( )

Secondary education ( ) Tertiary education ( )

4. What do you do for livelihood?

Unemployed ( ) Formally employed ( )

Casual labour ( ) In business ( )

Any other (specify) …….

5. What is your marital status?

Single ( ) Married ( ) Separated ( )

Divorced ( ) Widowed ( )

6. Who pays for your treatment and upkeep? …….

7. What is the approximate monthly income of your family? …….

8. Where do you live?

Outside Nairobi ( ) Within Nairobi ( )

9. Do you smoke? Yes ( ) No ( )

10. Do you take alcohol? Yes ( ) No ( )

Section B: Nutrition related challenges and support needs

8. Is nutrition essential in your care following the kidney transplant you received?

Yes ( ) No ( )

9. In brief and simply, describe the diet recommended to you following the transplant?

……
……
……

10. Do you experience difficulties following your recommended nutritional/dietary regimen as you self-manage your health condition?

Yes [ ] No [ ]

11. If yes to qn. 10 above, kindly cite the dietary compliance challenges that you face?

.....
.....
.....

12. What other needs do you have with respect to your recommended diet?

.....

.....

.....

13. In your view, what can be done to support you to effectively observe the prescribed post-transplant diet?

……

……..……

……

Section C: Therapy related challenges and support needs

14. Do you take your medications always as prescribed? Yes ( ) No ( )

15. Have you missed any of your medication doses, at least three times, in the last one month?

Yes ( ) No ( )

16. The following list highlights some of the potential barriers to effective adherence to one's treatment regimen. Kindly tick the ones that apply to you.

List of potential factors contributing to medication non-adherence	**[Tick the one that applies to you]**
Sometimes I feel tired of taking medicines	
My medicines are complex	
I experience side effects of the medications	
My health is deteriorating	
Sometimes I forget to take my medication	
I have nobody to support me socially	
Low knowledge about the disease	
I don't have enough knowledge about my medications	

The medications don't benefit me much	
My medications are unaffordable to me as I have low income	
My work schedules conflict with my medication schedule	
I have competing family needs in the face of limited financial resources	
Sometimes, I am unable to access the medicines	
Sometimes, I just feel tired of taking medicines	
Poor quality of care offered in the health facilities	
I take alcohol	
I feel I have recovered	
I have other diseases	

17. What other things contribute to you not taking your medications?

……
……
……

19. In your view, what can be done to support you to effectively take your medicines?

……
……..……
……

Section D: Physical activity related challenges and support needs

20. The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

	Yes, limited a lot	Yes, limited moderately	No, not limited at all
Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports			

	Yes, limited a lot	Yes, limited moderately	No, not limited at all
Moderate activities, such as moving a table, cleaning utensils or washing clothes			
Lifting or carrying groceries			
Climbing several flights of stairs			
Climbing one flight of stairs			
Bending, kneeling, or stooping			
Walking more than one kilometer			
Walking within your household's compound			
Walking to the nearest market/shop			
Bathing or dressing yourself			

21. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	Yes	No
Cut down the amount of time you spent on work or other activities		
Accomplished less than you would like		
Were limited in the kind of work or other activities		
Had difficulty performing the work or other activities (for example, it took extra effort)		

22. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

Not at all ( ) Slightly ( ) Moderately ( )

Quite a bit ( ) Extremely ( )

23. How do you generally perceive your physical activity level/capacity relative to your normal daily activities?

Extremely inadequate ( ) Moderately inadequate ( )

Fairly adequate ( ) Extremely adequate ( )

Any other, elaborate

……

……..……

SectionE: Psychosocial challenges and support needs

24. Please respond to each item by marking one box per row, regarding how you have been feeling since the transplant?

Use a scale of 1-5 where 1 – at no time; 2 – some of the time; 3 – about half of the time; 4 – most of the time and 5 – all of the time.

	1	2	3	4	5
persistent worries and fears about the illness and its long-term effects					
feeling mentally distressed and/or anxious over the illness					
fear of graft loss					
fear of dying					
fear of being hospitalized					
persistent sadness					
excessive moodiness/irritability					
concerns about self-image					
excessive aggressiveness towards others					
feelings of low self-esteem					
feeling of hopelessness and/or helplessness					

difficulties interacting socially					
unable to sleep properly					
loss of interest in things/activities one previously enjoyed doing					
inability to follow treatments consistently					
Feeling of exhaustion/tiredness/fatigue					
feelings of social isolation					
feeling worn out/overwhelmed					
less optimism about recovery					
poor feeding					
feelings of being not adequately supported					

25. What are the sources of your worry and concern about your health condition?

……
……
…….

26. In your view, what can be done to support you both socially and psychologically?

……
……
…….

Thank you for your participation

Appendix 4: Letter to KNH-UoN Ethical and Research Committee

Jane N. Marangu,
Reg. No. H56/34900/2019,
Department of Nursing Sciences,
College of Health Sciences,
University of Nairobi.

The Secretary,
KNH/UoN - Ethics and Research Committee,
P.O. Box 20723-00202,
Nairobi.

Dear Sir/Madam,

RE: <u>Approval To Conduct A Research Study</u>

My name is Jane N. Marangua student at the University of Nairobi, School of Nursing Sciences undertaking a Masters of Science Degree in Nepro-Urology Nursing. I am hereby requesting for your approval to carry out a research study on "exploring the self-management challenges and support needs among post kidney transplant patients in the Renal Unit - Kenyatta National Hospital", as a requirement in partial fulfillment for the award of the said degree.

Thank you in advance.

Yours faithfully,

Jane N. Marangu.

Appendix 5: Letter to the Head of Department - Renal Unit of KNH

Jane N. Marangu,
Reg. No. H56/34900/2019,
Department of Nursing Sciences,
College of Health Sciences,
University of Nairobi.

The Head of Department,
Renal Unit- KNH,
Nairobi.

Dear Sir/Madam,

RE: <u>Authority To Carry Out A Research Study at KNH</u>

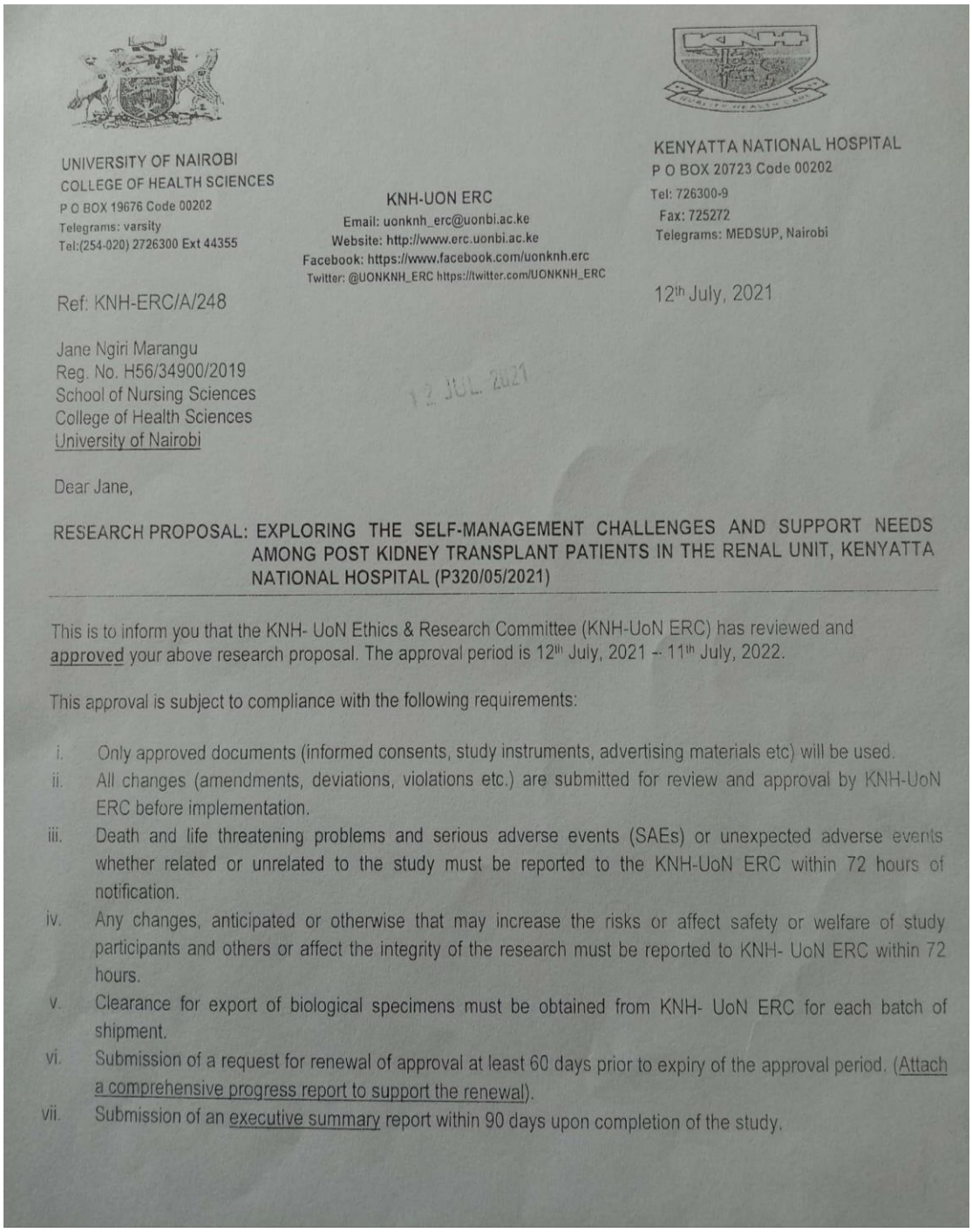
My name is Jane N. Marangu a student at the University of Nairobi, School of Nursing Sciences undertaking a Masters of Science Degree in renal Nursing. I am undertaking a research study on "exploring the self-management challenges and support needs among post kidney transplant patients in the Renal Unit - Kenyatta National Hospital", as a requirement in partial fulfillment for the award of the said degree.

I am therefore hereby requesting for your authorization to conduct data collection within the Renal Unit of KNH among post kidney transplant patients.

Yours faithfully,

Jane N. Marangu.

Appendix 6: KNH/UON ERC approval letter



UNIVERSITY OF NAIROBI
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P O BOX 19676 Code 00202
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Tel:(254-020) 2726300 Ext 44355

KNH-UON ERC
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Website: http://www.erc.uonbi.ac.ke
Facebook: https://www.facebook.com/uonknh.erc
Twitter: @UONKNH_ERC https://twitter.com/UONKNH_ERC

KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

Ref: KNH-ERC/A/248

12th July, 2021

Jane Ngiri Marangu
Reg. No. H56/34900/2019
School of Nursing Sciences
College of Health Sciences
University of Nairobi

12 JUL 2021

Dear Jane,

RESEARCH PROPOSAL: EXPLORING THE SELF-MANAGEMENT CHALLENGES AND SUPPORT NEEDS AMONG POST KIDNEY TRANSPLANT PATIENTS IN THE RENAL UNIT, KENYATTA NATIONAL HOSPITAL (P320/05/2021)

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH-UoN ERC) has reviewed and approved your above research proposal. The approval period is 12th July, 2021 – 11th July, 2022.

This approval is subject to compliance with the following requirements:

i. Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
ii. All changes (amendments, deviations, violations etc.) are submitted for review and approval by KNH-UoN ERC before implementation.
iii. Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
iv. Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
v. Clearance for export of biological specimens must be obtained from KNH- UoN ERC for each batch of shipment.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (Attach a comprehensive progress report to support the renewal).
vii. Submission of an executive summary report within 90 days upon completion of the study.

This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

For more details consult the KNH- UoN ERC website http://www.erc.uonbi.ac.ke

Yours sincerely,

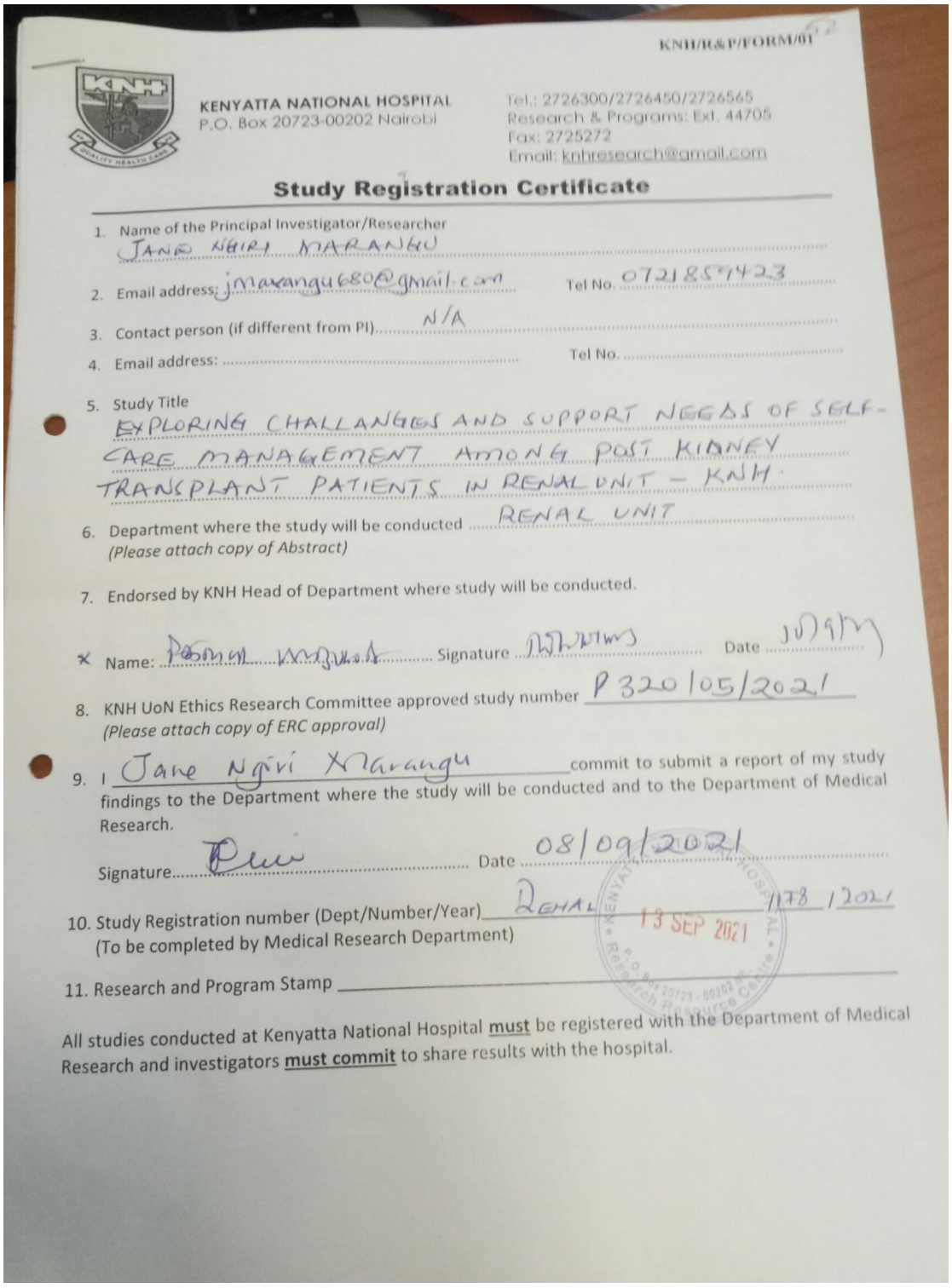
PROF. M.L CHINDIA
SECRETARY, KNH- UoN ERC

c.c. The Principal, College of Health Sciences, UoN
The Senior Director, CS, KNH
The Chair, KNH- UoN ERC
The Director, School of Nursing Sciences, UoN
Supervisors: Dr. Eunice Omondi, School of Nursing Sciences, UoN
Ms. Hannah Inyama, School of Nursing Sciences, UoN

Appendix 7: Work Plan

	2021								
Activity	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**
Development of the concept									
Proposal writing and presentation									
Submission of proposal to Ethics Board									
Pretesting the instrument									
Data collection and analysis									
Report writing and corrections									
Presentation of the project									
Project results dissemination									

Appendix 8: Certificate of Registration



KNH/R&P/FORM/01

KENYATTA NATIONAL HOSPITAL
P.O. Box 20723-00202 Nairobi

Tel.: 2726300/2726450/2726565
Research & Programs: Ext. 44705
Fax: 2725272
Email: knhresearch@gmail.com

Study Registration Certificate

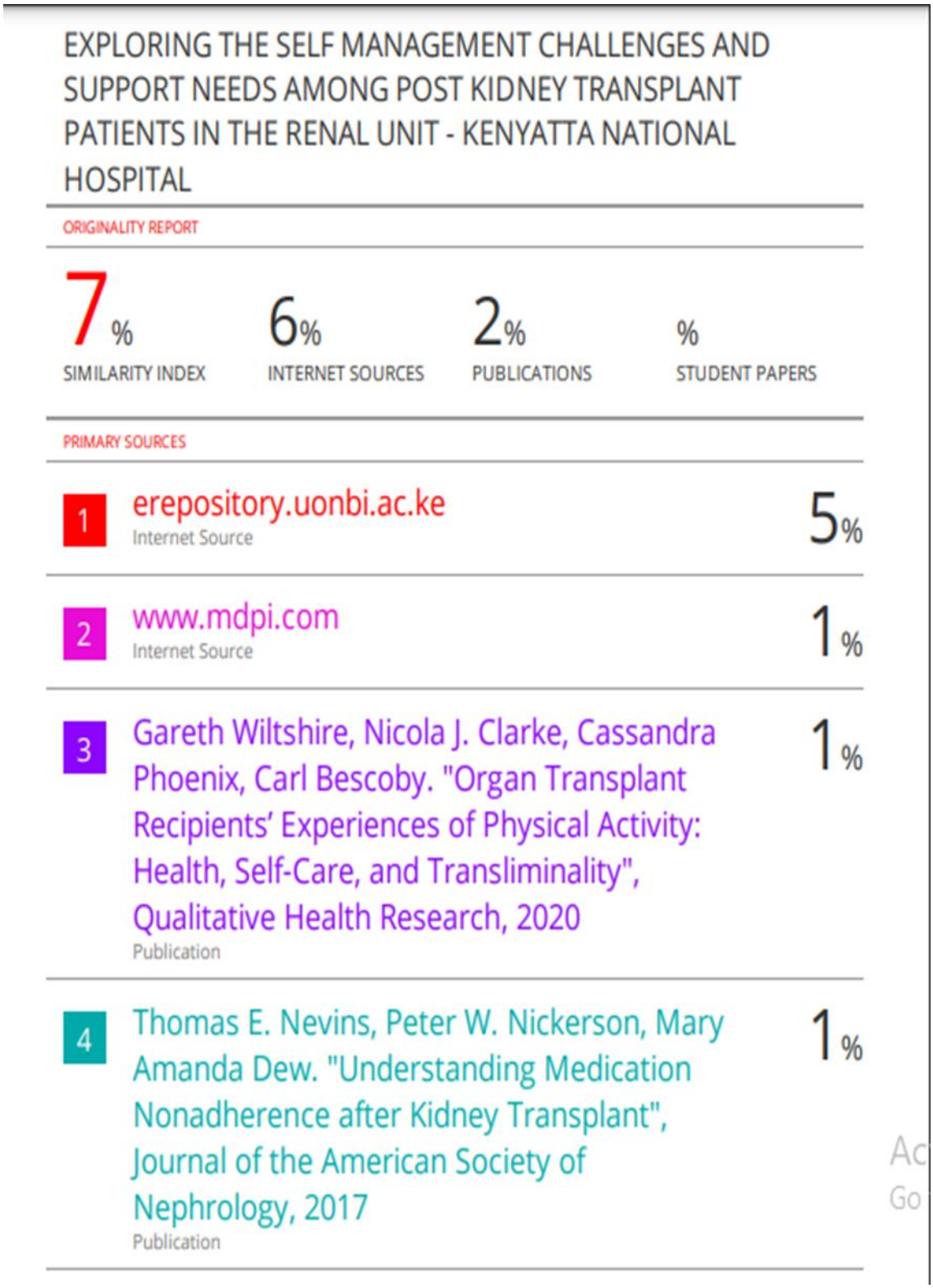
1. Name of the Principal Investigator/Researcher
   JANE NGIRI NARANGU
2. Email address: jmarangu680@gmail.com Tel No. 0721857423
3. Contact person (if different from PI) N/A
4. Email address: ..... Tel No. .....
5. Study Title
   EXPLORING CHALLANGES AND SUPPORT NEEDS OF SELF-CARE MANAGEMENT AMONG POST KIDNEY TRANSPLANT PATIENTS IN RENAL UNIT – KNH.
6. Department where the study will be conducted RENAL UNIT
   (Please attach copy of Abstract)
7. Endorsed by KNH Head of Department where study will be conducted.
   Name: ..... Signature ..... Date .....
8. KNH UoN Ethics Research Committee approved study number P320/05/2021
   (Please attach copy of ERC approval)
9. I Jane Ngiri Narangu commit to submit a report of my study findings to the Department where the study will be conducted and to the Department of Medical Research.
   Signature ..... Date 08/09/2021
10. Study Registration number (Dept/Number/Year) RENAL /178/2021
    (To be completed by Medical Research Department)
    13 SEP 2021
11. Research and Program Stamp

All studies conducted at Kenyatta National Hospital **must** be registered with the Department of Medical Research and investigators **must commit** to share results with the hospital.

Appendix 9: Budget

Item	**Quantity**	**Unit Cost**	**Total Cost**
Assorted stationeries			Ksh. 5,400
Photocopy & printing costs			
Fair copies printing	3 copies, 100 pgs	@Ksh.(5per page x 100)3	Ksh. 1,500
Final copy printing	2 copies, 100 pgs	@ Ksh.(5 per page x100)2	Ksh. 1,000
Final copies photocopy	4 copies, 100 pgs	@Ksh.(5 per page x100)4	Ksh.2,000
Binding	6 copies	@ ksh. (1,000 per copy)6	Ksh. 6,000
Project Writing			
Data analysis statistician	1		Ksh.30,000
Proposal processing fee			2,000
Email services, browsing, internet			5,000
Fair copies printing	2 copies, 100 pgs	@ Ksh.(5 per page x100)2	Ksh. 1,000
Final copy printing	4 copies, 100 pgs	@Ksh.(5 per page x100)4	Ksh.2000
Binding	3 copies	@ Ksh. (1000 per copy)3	Ksh. 3,000
Research Assistants	Pilot - 1 Main - 2	Ksh. 5,000 @ Ksh. 10,000	Ksh. 25,000
Transport cost	1 person for 21 days	@ Ksh 500 x 21 days	Ksh. 10,500
Meals	@200 per day	@200 x 21 days	Ksh. 4,200
Project results dissemination			
Publication in a peer reviewed journal		@Ksh. 40,000	Ksh. 40,000
		Sub-total	**Ksh. 131,600**
Contingencies	10%		13,160
		Grand Total	**Ksh. 144,760**

Appendix 10: Similarity Index of the study



EXPLORING THE SELF MANAGEMENT CHALLENGES AND SUPPORT NEEDS AMONG POST KIDNEY TRANSPLANT PATIENTS IN THE RENAL UNIT - KENYATTA NATIONAL HOSPITAL

ORIGINALITY REPORT

7%	6%	2%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	erepository.uonbi.ac.ke Internet Source	5%
2	www.mdpi.com Internet Source	1%
3	Gareth Wiltshire, Nicola J. Clarke, Cassandra Phoenix, Carl Bescoby. "Organ Transplant Recipients' Experiences of Physical Activity: Health, Self-Care, and Transliminality", Qualitative Health Research, 2020 Publication	1%
4	Thomas E. Nevins, Peter W. Nickerson, Mary Amanda Dew. "Understanding Medication Nonadherence after Kidney Transplant", Journal of the American Society of Nephrology, 2017 Publication	1%

Appendix 11: Map of the area of study

Adapted from Google maps