BARRIERS AND PERCEPTION ON KIDNEY TRANSPLANTATION AS A MODALITY OF RENAL REPLACEMENT THERAPY AMONG END STAGE KIDNEY FAILURE PATIENTS AND THEIR RELATIVES IN DAR ES SALAAM TANZANIA.

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MSc (Nursing Nephrology) Dissertation
Muhimbili University of Health and Allied Sciences
October, 2024

Muhimbili University of Health and Allied Sciences

Department of Clinical Nursing

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By

Tarsila Emmanuel

A Dissertation Submitted in (Partial) Fulfillment of the Requirement for the Degree of Master of Science (Nursing Nephrology) of

Muhimbili University of Health and Allied Sciences
October, 2024

CERTIFICATION

The undersigned certify that they have read and hereby recommends for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled: **''Barriers and perception on kidney transplantation as a modality of renal replacement therapy among end stage kidney failure patients and their relatives in Dar es Salaam Tanzania'',** in (partial) fulfillment of the requirements for the degree of Master of Science (Nursing Nephrology) of Muhimbili University of Health and Allied Sciences.

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Date

DECLARATION AND COPYRIGHT

I, **Tarsila Emmanuel**, declare that this **dissertation** is my original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature…… **Date**……

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ACKNOWLEDGEMENT

I sincerely give thanks to Almighty God for his protection and direction during the whole study period, it would not have been possible without him.

My deep thanks go to my supervisor, Prof. Francis Fredrick Furia, whose unwavering efforts have greatly enhanced the quality of this dissertation work. I owe Mr. Pius Martin Temba great gratitude for his guidance and instruction about each aspect of this study. I appreciate Madam Sabitina Mnzava's advice and assistance with the sample process and data gathering.

I also extend my gratitude to MNH, Aga Khan and CCBRT Executive Directors and the Hemodialysis unit staff of three centers for their positive collaborations and readiness to contribute during my data collection. I also convey special appreciations to Sr. Pilly Kidunda who handled all confidentiality issues by providing a quiet room for the interviews.

Lastly but not least; I extend my appreciations to my husband Dr. William Mgisha and family for their moral and material support in achieving this required work in my training.

DEDICATION

I dedicate this dissertation work to my beloved mother and my Family; my special Husband Dr. William Mgisha, our three sons, Godbless, Nathan, Ferdinand and our daughter Sharon-Rose without them such an achievement would not have been possible.

ABSTRACT

Background: End-stage kidney failure (ESKF) poses a significant health burden worldwide, with kidney transplantation recognized as the optimal modality of renal replacement therapy (RRT). Despite its potential to enhance patient survival and quality of life compared to hemodialysis, kidney transplantation remains underutilized in many developing countries, including Tanzania. Exploring barriers and perception among end-stage kidney failure patients and their relatives regarding kidney transplantation is essential for improving health outcomes.

Materials and Methods: The study employed a descriptive exploratory qualitative design to explore barriers and perception to kidney transplantation as a modality of renal replacement therapy among patients undergoing hemodialysis therapy and their relatives in Dar es Salaam, Tanzania. A purposive sampling technique used to recruit study participants. Thirty-six (36) were involved in the study using a semi structured interview guide, interviews were digitally audio-recorded, transcribed verbatim, coded and thematically analyzed.

Results: In the study three themes emerged, Perception on kidney transplant, perceived barriers, and strategies to overcome the barriers to kidney transplantation (KT) guided by the socio-ecological model (SEM). The study revealed individual, interpersonal, institutional, and policy related factors that hinder kidney transplants. Discrepancies in perceptions between public and government hospitals also emerged as a notable barrier. Additionally, participants suggested different strategies to overcome the barriers identified. The need for awareness and information about kidney transplants emerged, followed by need for government support on funds and insurance for kidney transplantation.

Conclusion: Awareness of kidney transplantation among ESKF patients and their relatives in Dar es Salaam is often limited and influenced by misconceptions, lack of knowledge, and concerns about the procedure. Kidney transplant significantly offers benefits like improved quality of life, longer survival rates, and reduced long-term healthcare costs for ESKD patients in Tanzania. Key barriers include financial constraints, poor healthcare access, cultural beliefs, and lack of information. Overcoming these challenges requires strategies and efforts that can increase acceptance and uptake of kidney transplantation improving outcomes for ESKF patients in Tanzania.

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LIST OF ABRIVIATIONS AND ACRONYMS

BMH	Benjamin Mkapa Hospital
CAKUT	Congenital Anomalies Of The Kidney And Urinary Tract
CCBRT	Comprehensive Community Based Rehabilitation Tanzania
CKD	Chronic Kidney Disease
CKM	Conservative Kidney Management
DM	Diabetes Melitus
ESKF	End Stage Kidney Failure
FBOs	Faith Based Organizations
FGD	Focused Group Discussion
HD	Hemodialysis
HIV	Human Immune Deficiency Virus
IDIs	In Depth Interview
KT	Kidney Transplantation
LMICs	Lower Middle Income Countries
MNH	Muhimbili National Hospital
MUHAS	Muhimbili University Of Health And Allied Sciences
NCDs	Non Communicable Diseases.

PD	Peritoneal Dialysis
RRT	Renal Replacement Therapy
SEM	Socioecological Model
SSA	Sub Saharan Africa

DEFINITION OF TERMS

Chronic kidney disease: Is defined as kidney damage or glomerular filtration rate (GFR)<60mL/min/1.73m(2) for 3 months or more, irrespective of cause. Kidney damage in many kidney disease can be ascertained by the presence of albuminuria. (Boima *et al.*, 2021)

End-stage kidney failure: Is the advanced/last stage of kidney disease which is characterized by GFR<15ml/min 1.73m treated by either dialysis, kidney transplant or conservative kidney management. (Schold *et al.*, 2011)

Relative: A first degree relative a family member who shares about half of the genetic information with specific individuals in their family, it includes parents, siblings and offspring.

Hemodialysis (HD): This is the medical procedure to remove fluid and waste products from the blood and correct electrolyte imbalances. This is accomplished using a machine and a dialyzer.(Wong *et al.*, 2020)

Kidney transplant (KT): Is a surgical procedure done to end stage kidney disease patient where a new donor health kidney is placed to recipient to replace a diseased one.(Peter and Stuart, 2016)

Renal replacement therapy (RRT)- is a general term comprising a wide range of different treatment modalities for patients with renal failure and end-stage kidney disease, RRT includes various forms of dialysis (hemodialysis, hemodiafiltration, and peritoneal dialysis), hemofiltration, and renal transplantation.(Peter and Stuart, 2016)

Barrier: Any factor that hinders or obstructs the acceptance, access, or success of kidney transplantation as a treatment option for patients with end-stage kidney failure.(Gan *et al.*, 2019)

Perception: Refers to the way an individual, understand, interpret, and form attitudes towards a context. (Sieverdes *et al.*, 2015)

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Chronic kidney disease (CKD) is a major public health problem and a key determinant of poor health outcomes in low- and middle-income countries (LMICs).(Id *et al.*, 2018) The global burden of CKD is rapidly increasing and is projected to become the 5th most common cause of years of life lost worldwide by 2040, with the burden of CKD increasing faster in low- and middle-income countries (LMICs) (Ke *et al.*, 2022). Globally, the number of potential candidates for renal replacement therapy (RRT) is growing rapidly, but long-term dialysis and expenses are prohibitive for most emerging economies, which becomes a major challenge and barrier. The burden of CKD is studied predominantly in high-income countries, with few studies in LMICs. The burden of CKD in Sub-Saharan Africa (SSA) is reported to be higher than the average global burden, and the prevalence of CKD in the region is lower as compared to the global (Id *et al.*, 2018; Kovesdy, 2022). Currently, in Tanzania, the prevalence of CKD is 2.3% in rural and 13.0% in urban areas. (Peck *et al.*, 2016) It is believed that the high burden of CKD in LMIC could be attributed to the greater number of people suffering from diabetes and hypertension.(Gan *et al.*, 2019)

Uncontrolled diabetes and hypertension are documented as the main causes of chronic kidney disease worldwide.(Kovesdy, 2022) Other causes include cardiovascular disease, glomerulonephritis disease, adult polycystic kidney disease, obstructive uropathy, chronic pyelonephritis, tubulointerstitial disease, infections, congenital anomalies of the kidney and urinary tract (CAKUT), and toxic nephropathy. (Journal and Society, 2013; I *et al.*, 2015) chronic kidney disease (CKD) progresses through five stages, where the fifth stage is called end-stage kidney failure (ESKF) and requires alternative replacement therapy to maintain the life of an individual.

Treatment options for ESKF include dialysis therapy in the form of hemodialysis (HD) or peritoneal dialysis (PD), kidney transplantation (KT), and conservative kidney management (CKM). A kidney transplant is the best treatment option for a better quality of

life. Studies show that people with kidney transplants live longer than those on dialysis. (Dhar, Fleishut and Yao, 2012)

Kidney transplantation offers a better role for the native kidney. Therefore, it improves patients' survival by eliminating complications associated with ESKF such as anemia, hypertension, bone disorders, GI bleeding, and cardiovascular disease. (Al, 2018) Furthermore, patients won't be required to follow strict dietary recommendations and attend regular hemodialysis. Therefore, Worldwide, the number of potential candidates for renal replacement therapy (RRT) is growing rapidly, but long-term dialysis, expensive for developed countries, is prohibitive for most emerging economies. (Garcia, 2012) The majority of patients commencing dialysis in low-income countries die or stop treatment within the first three months of dialysis because of cost. (Garcia, 2012) Transplantation, especially when preemptive of dialysis, provides a mechanism to both expand access and reduce costs for successful treatment of ESKF. (Mojapelo and Maboe, 2021)

Kidney transplantation services were initiated in Tanzania in 1980 initially, ESKF patients and their donors had to travel overseas for the procedures. They were sent to several hospitals in India, where they were insured by the government. (Furia *et al.*, 2019)In November 2017, Tanzania had its first transplantation services carried out successfully at Muhimbili National Hospital (MNH) and later expanded to include the Benjamin Mkapa Hospital (BMH) in Dodoma. (Furia *et al.*, 2019) Despite the five-year development of transplantation services, uptake of these services has remained suboptimal due to various barriers as financial constraints and limited insurance coverage are significant barriers to kidney transplantation (KT) in Tanzania. Many patients and their families struggle to afford the high costs associated with the procedure, including pre-transplant evaluations, surgery, and post-transplant care. Additionally, insurance coverage for kidney transplant expertise and long-term immunosuppressive medications is often inadequate, leaving patients without sufficient financial support. Various studies have investigated the barriers to kidney transplantation services around the world. Yet in our country, there are limited studies that have been done.

1.2 Problem Statement

End-stage kidney failure (ESKF) is a global health concern necessitating life-sustaining hemodialysis treatment. Kidney transplantation is widely acknowledged as the most effective option for end-stage kidney failure (ESKF), offering improved quality of life and increased life expectancy. Globally, the number of potential candidates for renal replacement therapy (RRT) is growing rapidly, but long-term dialysis and expenses are prohibitive for most emerging economies, which becomes a major challenge and barrier. Kidney transplantation, especially when preemptive of dialysis, provides a mechanism to both access and reduce costs for successful treatment of ESKF.(Mojapelo and Maboe, 2021).

Among all renal replacement therapy techniques, kidney transplantation is the treatment modality with the most significant survival benefits globally. However, a number of barriers restrict the use of KT, such as patient eligibility, donor unavailability, cultural prejudice against organs from deceased donors, expertise in kidney transplant surgery, and the costs associated with immunosuppressive medicines and KT operations.(Jiménez and Jiménez, 2022) Regionally, strong organ demand has always been associated with illicit kidney marketing and organ traffic. Despite the growing need for kidney transplantation as a life-saving intervention for end-stage kidney disease patients, Tanzania's healthcare system has struggled to provide transplants to all eligible patients. Logistical challenges such as the shortage of skilled transplant professionals, limited infrastructure, and an overburdened healthcare system have impeded the country's ability to scale up transplant services. Although data exists on the availability and accessibility of kidney transplant care, there remain gaps in addressing the logistical, financial, and health system barriers that prevent equitable access to these services.".(Loua *et al.*, 2020)

Despite the improvement and availability of renal transplant services in Tanzania over the past seven years, there are no clear barriers that are known to explain why most end-stage kidney failure patients eligible for transplant have not been able to acquire such a modality of therapy, which is proven to improve quality of life. Therefore, this study aims to explore barriers, perception and propose potential strategies to overcome barriers to kidney transplantation as a modality of renal replacement therapy among ESKF patients and their relatives in Dar es Salaam, Tanzania.

1.3 Conceptual Framework

Description of the conceptual framework

The conceptual framework originated in the fields of public health and social sciences. It is used to understand the complex interplay between individuals and their social and physical environments. The model highlights the multiple levels of influence on health and behavior, ranging from individual factors to broader societal and environmental factors. Urie Bronfenbrenner, a developmental psychologist, is credited with laying the foundation for ecological systems theory. His work emphasized the importance of studying human development within the context of various systems and levels**.**

In this context, the socio-ecological model (SEM) was used. SEM was adopted from public health studies, which were developed by Urie Bronfenbrenner (a developmental psychologist). He is credited with laying the foundation for ecological systems theory, which was developed to further understand the dynamic interrelationships among various personal and environmental factors. The social-ecological model is a multi-faceted public health model grounded in the understanding that to achieve sustainable changes in behavior, prevention efforts must focus on the individuals within the population of focus at the different levels of influence surrounding them. The theory is that the individual does not exist in a vacuum and that his or her behavior both influences and is influenced by the surrounding environment. In this study, the socio-ecological model guides the exploration of barriers and perceived solutions toward kidney transplantation among ESKF patients attending hemodialysis therapy and their relatives.(CDC, 2021)

Socio-ecological models (SEM) were developed for further understanding the dynamic inter relationships among various personal and environmental factors. The social-ecological model is a multi-faceted public health model grounded in the understanding that to achieve sustainable changes in behavior, prevention efforts must focus on the individuals within the population of focus at the different levels of influence surrounding them. The theory is that the individual does not exist in a vacuum and that his or her behavior both influences and is influenced by the surrounding environment. In this study, the socio-ecological model guides the exploration of barriers and perceived solutions

toward kidney transplantation among ESKF patients attending hemodialysis therapy and their relatives.(CDC, 2021)

The model was chosen because it has been useful in public health research and health promotion**.** This framework argues that individual behavior is influenced by multi-layered factors. The individual contains the strongest and closer to the center circle, influences that encompass awareness, attitude, behavior, values, skills, and education level. Interpersonal relationships can shape an individual's beliefs, attitudes, and behaviors through social support, peer influence, and communication. Family members perception and attitude encompasses interpersonal factors, where these factors play a greater role in financial support to patient, peer groups influence, family member refuse to be donor**.**

Personal factors (e.g., attitudes, beliefs) may be shared and reinforced within interpersonal relationships. Organizational factors can influence both personal and interpersonal dynamics through policies, practices, and the overall organizational culture. The organizational/institutional level includes policies and guidelines, prolonged waiting time for donor workups, education and training skills enhanced by the institution leaders, infrastructure, and limited health care resources.(Golden and Earp, 2012)

There is a mutual relationship between personal, interpersonal, and organizational related factors. Personal factors are influenced by interpersonal relationships and the organizational context**.** Interpersonal relationships within organizations and institutions contribute to socialization processes. Organizations shape norms and expectations that can influence personal attitudes and behaviors. Organizational factors, such as policies and practices, can directly impact both interpersonal relationships and personal factors. The inner circle, closer to the center, represents the strongest immediate interactions, and the outer circle represents less interaction with individuals**.**

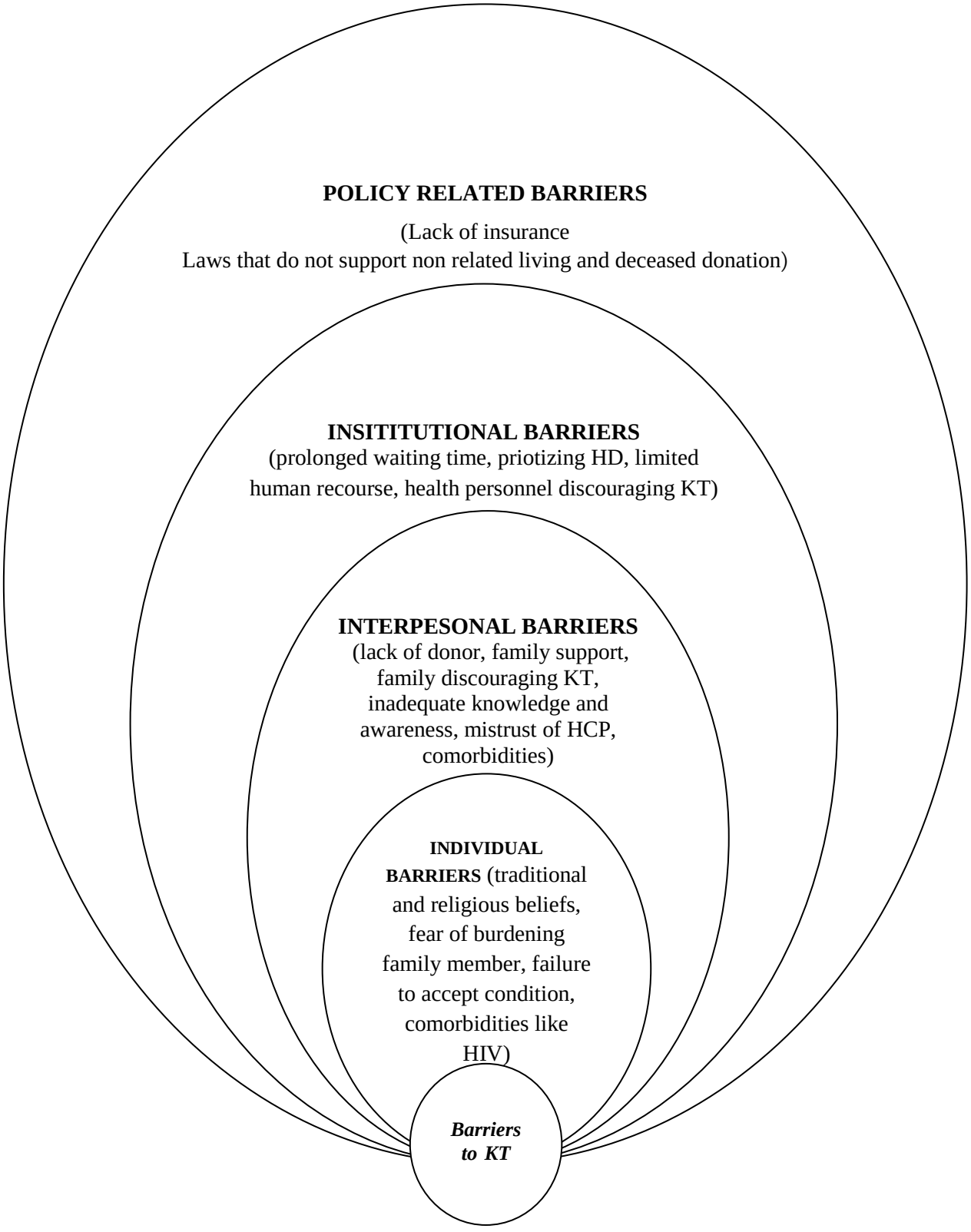


Figure 1: Modified Socioecological Model showing barriers to KT

1.4 Rationale

This study explored the barriers and perceptions regarding kidney transplant services among ESKF patients, who require renal replacement therapy to survive. Although hemodialysis is the most common treatment, kidney transplantation offers a better quality of life and longer life expectancy. However, many patients have not been adequately informed about kidney transplant options. By identifying gaps in awareness and understanding, this study provided valuable baseline information on the factors affecting awareness of kidney transplantation among hemodialysis patients. The findings offer important insights for healthcare institutions and policymakers, enabling them to develop targeted interventions to improve patient education and access to kidney transplantation. These efforts aim to enhance health outcomes, reduce healthcare costs, and improve the quality of life for ESKF patients in Dar es Salaam, Tanzania.

1.5 Research Question

What are the barriers and perception on kidney transplantation as a modality of renal replacement therapy among patients and their relatives in Dar es Salaam Tanzania?

Specific Research Questions

1. What are the perceived benefits of kidney transplantation as a modality of renal replacement therapy for the ESKF patients and their relatives in Dar es Salaam, Tanzania?
2. What are the barriers to kidney transplantation as a modality of renal replacement therapy among ESKF patients and their relatives in Dar es salaam Tanzania?
3. What are the strategies to overcome barriers to kidney transplantation as a modality of renal replacement therapy ESKF patients and their relatives in Dar es salaam Tanzania?

1.6 Objectives

1.6.1 Broad Objectives

To explore barriers and perception on kidney transplantation as a modality of renal replacement therapy among end stage kidney failure patients and their relatives in Dar es salaam Tanzania.

1.6.2 Specific objectives

1. To describe perceived benefits of kidney transplantation as a modality of renal replacement therapy among end-stage kidney disease patients and their relatives in Dar es Salaam, Tanzania.
2. To explore barriers towards kidney transplantation as a modality of renal replacement therapy among ESKF patients and their relatives in Dar es salaam Tanzania.
3. To describe strategies to overcome barriers to kidney transplantation as a modality of renal replacement therapy among ESKF patients and their relatives in Dar es salaam Tanzania**.**

CHAPTER TWO

2.0 LITERATURE REVIEW

Overview

Kidney transplantation (KT) is the treatment option for end-stage kidney failure (ESKF), is considered to be the best treatment option as it offers the best long-term survival, improved quality of life, long term sustainability and reduced healthcare costs compared to hemodialysis and frequent hospitalization. This study highlights objectives that explore barriers and perception on kidney transplantation as a modality of renal replacement therapy among ESKF patients undergoing hemodialysis therapy and their relatives in Dar es salaam Tanzania.

2.1 Perceived benefits of kidney transplantation as a modality of renal replacement therapy among ESKF patients and their relatives

Kidney transplantation stands as a crucial therapeutic option for individuals grappling with end-stage kidney failure (ESKF). Examining the perception of kidney transplantation as a modality of renal replacement therapy among end-stage kidney disease patients undergoing hemodialysis therapy is imperative for tailoring interventions and enhancing transplant acceptance rates, particularly in the specific context of Dar es Salaam, Tanzania.

Literatures have probed into the willingness and perception of caregiver or relatives of end-stage kidney failure patients to transplantation and positive outlook on the procedure and viewing it as a life-saving opportunity. Relatives' positive attitudes and perceptions are often linked to perceptions of improved quality of life and reduced reliance on hemodialysis. Relatives Some patients express their concerns related to the surgical procedure, such as the such as the fear of living with one kidney. Studies show that most relatives have a variety of justifications for and against their desire to give or donate a kidney. (Bunori *et al.*, 2022)

Among the noteworthy justifications for willingness were the understanding that life is a precious and unique gift, empathy for a dialysis patient, and a sense of connection with the ESKF patient. On the other hand, people who refused to donate a kidney cited a variety of

reasons, including a lack of faith in the healthcare system and a fear of dying or losing one's body. Unfavorable family influences, concern over the potential for surgery to be unsuccessful, unfavorable religious influences, and fear of losing one's job as a result of lengthy hospital stays after surgery all contribute to a negative perception of kidney transplant. (Bunori *et al.*, 2022) Contrary to this perception to kidney transplant differs in females and males, females tend to be compassionate and empathetic than males and hence are willing to donate the kidney to their loved ones. (Lofandjola *et al.*, 2017)

Another concern comes on the issue of relative's faith and beliefs. The majority of organs come from living donors, particularly in underdeveloped nations, and there are more opportunities for kidney donation in large, interconnected families. However, there are other obstacles, including social problems, information gaps, religious convictions, and the accessibility of healthcare. Certain ethnic groups find it difficult to preserve the integrity of their bodily parts after death due to religious obstacles. (Iqbal *et al.*, 2018)

Significant Muslim communities around the world have differing perspectives. The bulk of the research demonstrates that Muslim populations did not hold to any such religious prohibition against kidney donation. Higher levels of education and improved economic standing raise public awareness of kidney donation and improve perception about kidney transplants, however knowledge on kidney transplant can influence the positive perception of the relative to advice the patient on willingness to accept kidney transplant.(Chironda and Bhengu, 2018)

Studies support that family member perceptions and negative attitudes has an impact on kidney transplants that ESKF patient cannot receive the kidney from a donor outside of their family members. But medically speaking, a donor and recipient have to be compatible, not necessarily blood related.(Mojapelo and Maboe, 2021) Family dynamics frequently influence decision-making. Studies that investigate the viewpoints of family members provide useful insights into the larger context that influences patients' beliefs. Studies have investigated the notion that family members are considered as essential stakeholders in decision-making. Relatives' opinions vary, ranging from passionate support for transplantation to hesitations and fears about probable problems. Notably, family

sentiments can have a substantial impact on patients' decisions to receive transplants. (Iqbal *et al.*, 2018)

Despite this, the majority of family members or relatives are optimistic about kidney transplantation. This optimistic attitude is frequently associated with beliefs of improved patient well-being and the possibility of resuming regular family life after transplantation. Concerns about financial repercussions and the strain of caregiving post-transplant may also contribute to a negative attitude. (Vamos *et al.*, 2009)

2.2 Barriers to kidney transplantation

Kidney transplantation presents various barriers and challenges that might affect both the donor and the recipient/patient. The literature has identified and classified these barriers as individual, interpersonal, and institutional/organizational barriers.

Individual barriers

Individual obstacles are complex concerns that can prevent ESKF patients from receiving kidney transplants. Lack of education and awareness, color or ethnicity, age, insurance status, and poverty all have a negative impact on access to kidney transplants. However, patients' attitude and mentality are individual hurdles that can contribute to poor understanding and difficulty recognizing their illness. (Al, 2018)

Awareness of kidney transplantation is critical for both transplant recipients and donors. The public needs to understand and be aware of why kidney transplants are important and necessary. This includes understanding chronic kidney disease, its progression to end-stage kidney failure (ESKF), and how it can affect a person's health and quality of life.

Both the recipient and donor should recognize that kidney transplantation is the best treatment option for ESKF patients. According to the literature, many ESKF patients do not receive the necessary information about kidney transplantation (KT) as a therapy option. Healthcare providers, on the other hand, are responsible for caring for these patients and informing them about their condition. Healthcare practitioners should create individualized teaching plans based on how well patients comprehend transplants, as understanding varies depending on an individual's history and educational level. (Ma and

Hu, no date) Individuals with lower levels of education benefit from straightforward language when providing education, and this approach will facilitate comprehension. Contrary to this, individuals with high knowledge scores can play a valuable role by sharing their personal experiences and lifestyle habits, thereby disseminating knowledge to enhance awareness and understanding of kidney transplantation. (Ma and Hu, no date) Following this approach, patients can more effectively grasp and acquire the essential knowledge that is crucial toward kidney transplant awareness.

Knowledge and knowledge of kidney transplants are critical components for patients with end-stage renal failure and their donors. According to studies, having information and awareness of the illness is related with knowing what should be done in a timely manner, and the majority of patients have knowledge and are open to the idea of a kidney transplant as the best treatment option. However, a key issue for the majority of these patients is the cost of the operation, which they cannot pay. Patients with a longer history of kidney impairment have a greater comprehension of their ailment and potential treatment choices, as indicated by their increased knowledge of kidney transplantation. (Takure *et al.*, 2016)

ESKF patients benefit greatly from efforts to increase their understanding and awareness about kidney transplantation. We may be able to overcome barriers to kidney transplantation by raising awareness among this demographic. This holds the possibility of saving lives by increasing the number of donors and enhancing the overall quality of life for ESKF patients. (Takure *et al.*, 2016) It is more important to consider KT over other renal replacement therapies (RRT). Other studies have shown that knowledge and attitude influence accepting a kidney transplant. Being aware and knowledgeable about the procedure creates a good attitude towards accepting a kidney transplant. However, there are some reasons for considering or not considering kidney transplantation, and these are termed as barriers. (Mzee *et al.*, 2020)

Patients with ESKF who are unfamiliar with kidney transplants may be less willing to receive kidneys from others, even if they are related. However, the vast majority believe that kidney donation entails giving away a kidney while the donor is still living. Patients should be aware that a donor can live with only one kidney as long as he or she is thoroughly assessed and qualified to give.(Mojapelo and Maboe, 2021) Individual barriers

on doubting and mistrusting the physicians, the need for more time to think and learn about the procedure, religious concerns, and the issue of having somebody's organ in their body these barriers are highly considered. (Boima *et al.*, 2021) Furthermore, pain and fear of surgery complications are another important reason for not accepting kidney transplants among these patients. Financial constraints are another individual barrier that is considered to interrupt the procedure. (Boima *et al.*, 2021)

Among other individual factors that are identified as potential barriers are the donor's wish unknown to the next of kin, patient attitude and mentality, inconvenience to the donor, and refusal to donate. All these contribute to individual barriers that interplay as personal, cultural, and environmental factors. Key barriers are linked to the public's attitude and perception towards renal transplant and the unaccommodating practices in the healthcare system for renal transplant. This is supported by the study. (Al, 2018)

Interpersonal barriers

To access kidney transplants for end-stage kidney failure, patients need family and peer support. Literature shows that family dynamics and being reluctant in the decision-making process make it harder for the patient to pursue a kidney transplant. Patients fear burdening their family members and their friends as they are young to donate and live with one kidney, as well as the potential risks of donating. (Wong *et al.*, 2020) However, another concern can arise on the issue of comorbidity: family members who are hypertensive and diabetic are thought to be excluded from being donors. (Wong *et al.*, 2020)

Organizational/Institutional related barriers

The availability of kidney transplant services is influenced and supported by institutions through well-organized policies and guidelines. For instance, limited health care resources, prolonged waiting times for donor workups, poor transplant literacy or education promotion for ESKF patients, and putting more priority on dialysis for ESKF patients. All these contribute to organizational barriers.(Gan *et al.*, 2019) On the contrary, studies support that kidney transplant system is still fully depending on live donors thus siblings second-degree relatives (cousin and nephews).

Kidney transplantation is the best alternative or treatment for ESKF patients since it is associated with a higher quality of life, longer lifespan, long-term sustainability, and lower healthcare costs as compared to hemodialysis and frequent hospitalization. Thus, identifying barriers to kidney transplantation is critical to improving transplant outcomes for these individuals.

2.3 Strategies to overcome barriers to kidney transplantation

Kidney transplantation is widely acknowledged as the best therapeutic option for patients with end-stage kidney failure (ESKF), but it has various challenges that must be addressed, as well as potential solutions. Addressing these challenges and implementing solutions for kidney transplantation needs a comprehensive and collaborative strategy including a wide range of stakeholders, including patients, health care professionals, structural policy, and the community.

Perceived solutions to the barriers associated with kidney transplants involve addressing solutions according to the barriers explored. Literature supports the idea that addressing individual barriers involves implementing transplant education initiatives aimed at informing, educating, and empowering all ESKF patients and eligible first-degree relatives. (Rizzolo and Cervantes, 2021) Advocating for end-stage kidney failure (ESKF) patients to be covered by medical government funds, given that transplants are highly costly. (Rizzolo and Cervantes, 2021) Furthermore, media education interventions and in-person culture education sessions are proven to be effective in enhancing attitudes and knowledge regarding kidney donation for both donors and recipients.

On the other hand, guidelines should be made readily available to both healthcare providers and patients; this will promote well-informed patients as well as health care providers easy disseminating of education to these patients. (Merweland and Busschbach, 2013) ESKF patients who are worried about kidney transplants should receive guidance from experienced and trained professionals because this is proposed to be effective in addressing the psychosocial aspect of patients who are worried about kidney transplant procedures. (Merweland and Busschbach, 2013) Creating a social platform for peer-to-peer interactions and allowing ESKF patients to share their experiences with others in a similar

situation is another solution. Standardized transplant prices across all centers, rather than having varying prices that could be unaffordable for some ESKF patients, is a solution that is economical. (Merweland and Busschbach, 2013)

Interpersonal barriers are resolved by providing education and making family members aware of kidney transplants, which are very important to their loved ones. This will make them change their mind about donating to the ESKD patient. Financial support is another solution to deal with family-related barriers. (Gan *et al.*, 2019) Perhaps government or institutional barriers can be resolved by improving waiting times for donor workups, increasing health care resources, providing continuous education on KT to health care providers, and prioritizing kidney transplant over hemodialysis. Maximizing the solutions and stakeholder's advocacy on kidney transplant is very important. (Gan *et al.*, 2019)

CHAPTER THREE

3.0 MATERIALS AND METHODOLOGY

3.1 Study design

The study employed a descriptive exploratory qualitative design (‘2 . Exploratory research design’, no date; Hunter, 2019) to explore barriers and perception on kidney transplantation as a modality of renal replacement therapy. It used an In-depth interview (IDIs) and focus group discussions (FGDs) with patients and their relatives from three dialysis centers in Dar es Salaam Tanzania.

3.2 Study setting

The study was conducted at three different dialysis centers in Dar es Salaam, Tanzania: Muhimbili National Hospital, CCBRT Hospital, and Aga Khan Hospital. Choosing these three study settings was important and helpful for exploring rich information about the specific objective. Aga Khan Hospital had private and corporate insurance. Patients attending this hospital had high socioeconomic status, and they were highly considered and received quality care compared to other facilities. CCBRT Hospital accommodated both private and insured patients; hence, patients attending this hospital were of medium social and economic status. Patients attending Muhimbili National Hospital were both private and insured, as well cost sharing. Muhimbili National Hospital accommodated both low- and medium-income patients. This diversity in patient demographics highlighted the differences in the data collected from the three settings, as detailed in the results.

Comprehensive Community-Based Rehabilitation Tanzania (CCBRT) is a locally registered non-governmental organization (NGO) providing specialized healthcare services operating in Dar es Salaam and Moshi, Tanzania. In Dar es Salaam, it is located at Kimweri Road, Plot number 1409/1 Msasani. Since its inception as a provider of community-based rehabilitation, CCBRT has become the largest provider of disability and rehabilitative services in the country. It also offers services for chronic kidney disease (CKD) patients, specifically renal replacement therapy (RRT) in the form of hemodialysis, in collaboration with the African Healthcare Network (AHN). The dialysis unit has a total of eight machine in which among of

these machines two of them are for infectious. The unit has dedicated staff to care for CKD patients.

The Aga Khan Hospital is a private hospital established in 1964, located at Upanga West Street, Ocean Road, Dar es Salaam. Is a multispecialty hospital offering quality health. The Aga Khan Hospital is a multi-specialty hospital with 170 total beds and an academic health facility. It is one of only nine Joint Commission International (JCI)-accredited hospitals in Africa. It offers safe, evidence-based healthcare in the fields of primary care, emergency medicine, maternal and child care, intensive care, nephrology and dialysis, surgery, neurosciences, radiology, interventional cardiology, and oncology. The Aga Khan dialysis unit has twelve hemodialysis machines and one hemodialysis machine in the intensive care unit (ICU), making a total of thirteen HD machines. The unit has dedicated staff for caring for chronic kidney disease patients.

Muhimbili National Hospital is a tertiary referral and teaching hospital. It is located at United Nations Road No. 9, Charambe Street, west Upanga, in the Ilala Municipal Dar es Salam region. It receives patients from all over the country and from neighboring countries. It has a total bed capacity of 2000 beds and offers both inpatient and outpatient health care services. MNH is Tanzania's largest hemodialysis unit, with 53 hemodialysis machines that receive 150 patients for dialysis per day. The first successful transplant was done at Muhimbili National Hospital in November 2017. Before the initiation of transplantation services in Tanzania, patients had to travel overseas for kidney transplants. A total of 28 patients have undergone transplantation since November 2017, out of which 24 were performed at MNH and 4 at BMH. Currently, the national transplant program only includes living-related donor kidney transplants. (16) The MNH dialysis unit has six nephrology nurses and seven nephrologist doctors. thirty registered nurses, seven attendants, three social workers, one pharmacist, and three nutritionists. The unit offers short-course placement on dialysis for nurses and doctors from different hospitals in Tanzania.

3.3 Study population

In this study, participants were patients with end stage kidney disease undergoing hemodialysis therapy for more than six months and their relatives in three dialysis centers,

Muhimbili National Hospital, CCBRT and Aga Khan Hospital. The study involved adults aged Eighteen and above.

3.4 Sample size

The sample size of study was not predetermined, it was guided by the principle of saturation.(Beck, 2004) However the study recruited a total of thirty-six (36) participants who were selected from three different study settings: Muhimbili National Hospital, ten participants were recruited (five patients, five relatives): six from CCBRT Hospital (three patients, three relatives) and four from Aga Khan Hospital (two patients, two relatives). making a total of twenty (20) participants for IDIs. Four FGDs were formulated in three centers, of which three (3) were from MNH and one (1) from CCBRT hospital. Each focused group discussion had six participants (3-patient and 3-relative). Eight participants were involved in both IDI and FGD and sixteen (16) other participants were recruited to make a total of thirty-six (36) participants.

Table 1: Summary of study sample size

Sn	**Study setting**	**IDIs**		**FGDs**	
		ESKF Patients	Relatives	Patients	Relatives
1	MNH	5	5	5	5
2	CCBRT Hospital	3	3	3	3
3	Agha Khan Hospital	2	2	-	-
Total		**10**	**10**	**08**	**08**

3.5 Selection criteria: inclusion and exclusion criteria

Patients attending hemodialysis therapy for more than six month, first/second degree relatives who agreed to participate the study were involved in the study. Uremic encephalopathy, critically ill patient and relatives who did not consent participation were excluded from participating.

3.6 Sampling technique

Participants were selected by using a purposive sampling technique. IDIs, participants were recruited in collaboration with the unit in charge, where the participant was individually approached during the waiting period and set for an appointment for the interview on the next day of dialysis schedule. The interviews were conducted and lasted for 30 to 40 minutes in a quiet room prepared, which was among the rooms used for renal clinics, to maintain the privacy and comfort of the participants.

After the interview, the patient was escorted to where his or her relative was. The patient was then escorted to continue with hemodialysis. Then I came back to set an appointment with a relative for an interview on the next day of the dialysis schedule; this was done after every patient interview. To ensure diverse perspectives, the study included participants with varying education levels, genders, and ages for representation.

Furthermore, to saturate the information obtained from IDIs, four focused group discussions (FGDs) were involved. In FGD, participants were recruited by approaching one by one individually, where an appointment was set and agreed upon on the day of discussion. The participants who have already participated in the IDI were informed and requested to participate in the focused group discussion on the scheduled day of discussion. The moderator (principal investigator) in collaboration with the unit Incharge (observer) conducted the discussion. At Muhimbili National Hospital, three focused group discussions were conducted, while one focused group discussion was held at CCBRT Hospital, making four FGDs. Each focused group discussion had six participants (three patients and three relatives).

3.7 Data collection method

In depth interview and Focused group discussion were used to collect data. One of the renal clinic rooms was used during the interview to minimize interruptions and privacy; swahili language was used through ought the interview as it is spoken by the majority of the participants. The data gathered were documented in a notebook and audio recorders after obtaining informed consent from participants.

3.8 Data collection tool

An in-depth interview and focused group discussion guide with open ended question was used to collect data based on specific objectives and research questions of the study in collaboration with the supervisors the interview guides were modified then translated into Swahili language as it is spoken by majority of participants for easy and maximizing richness of collected data. The tool developed was then tested to one ESKF patient and one relative to make sure that questions were well understood then modification of the tool was done in collaboration with supervisors. The tested interview was also included in data analysis.

3.9 Data analysis

Thematic deductive and inductive analysis was used inspired by (Clarke and Braun, 2006) which followed six steps. (Clarke and Braun, 2013) Data analysis began during data collection process; the first interview was transcribed and discussed with supervisors to identify whether there was a gap in the interview conducted. After each data collection, the interview was transcribed and initial codes were generated. The process continued, and all codes generated again were then discussed with supervisors and allowed to proceed with the next step. The initial codes generated from all interviews were then organized by Excel and grouped into similar codes to form subthemes, then themes. In collaboration with supervisors, refining and renaming of the themes were done, and report writing began.

Table 2: Analyzed data

Initial codes	***Subtheme***
Kidney transplantation improves quality of life *Kidney transplantation is the only definitive treatment for ESKF patients.* *Ability to have children after kidney transplantation* *After kidney transplantation one can resume to normal activities* *Kidney transplantation reduced hospitalization.* *With kidney transplantation hemodialysis is unnecessary.*	Benefits of kidney transplantation

3.10 Data management

Confidentiality of the collected data and participants' information was observed. This was achieved by the use of identification numbers from P01 to P10 (patient), R01 to R10 (relative) and FGD01-FGD04. All data obtained were managed by recording sources, including field notes, transcripts, and digital audio recorders, and were stored in the computer secured with password only the researcher had access to the information.

3.11 Ethical clearance

Ethical clearance was obtained from the MUHAS ethical committee. Permission to conduct the study at MNH, CCBRT, and Agha Khan Hospital was requested from the Executive Directors. Information and clarification about the study were provided in the consent form and explained to participants. Participants' confidentiality was maintained throughout data collection by using identity numbers instead of real names. Patients and relatives who did not consent to participate were assured of receiving the same quality of care.

3.12 Trustworthiness of the study

Credibility of the current study was reflected on identification of suitable and rich information participants, seeking informed consent and full engagement in data collection using an interview guide also bracketing was applied. Dependability observed by reviewing of each step of data collection and analysis, proper documentation, and modification of the interview guide in collaboration with the supervisors, all participants were asked same probing questions. However, transferability based on thorough explanation of the context, study participants, data collection methods, analysis, and study findings as well as rich and rigorous quotations. Conformability Provided the rationale for the methodologies used, recorded the interviews, and results were supported by codes and quotes explored.

CHAPTER FOUR

4.0 RESULTS

4.1 Characteristics study participants

This study involved a total of thirty-six (36) participants in IDIs and FGDs. Their age ranged from 24 to 67 years. Twenty (20) in-depth interviews (IDIs) were conducted, ten (10) participants were from MNH, six (6) from CCBRT, and four (4) from Aga Khan Hospital. Ten (10) participants were male, while ten (10) were female. One participant has been on hemodialysis for nine (09) months, six patients have been on hemodialysis 1-4 years and three patients on hemodialysis for 5-7 years. Three (3) participants had standard seven level of education, ten had secondary level of education and seven-degree level of education. The majority of relative were second degree relatives. A total of four FGDs were conducted which comprised six participants per FGD (3 patients and 3 relatives). Fourteen (14) males and ten (10) females were involved in FGDs. Three group discussions conducted at Muhimbili National Hospital and one at CCBRT Hospital.

Table 3: Social demographic characteristics of the patients

Participant Id No	**Age (yrs)**	**Sex**	**Educational status**	**Frequency of HD/week**	**Duration on HD (yrs)**
P01	59	Male	Degree	Twice	**3**
P02	58	Male	Secondary	twice	**1**
P03	45	Female	Std seven	Twice	**7**
P04	24	Male	Secondary	Twice	**5**
P05	62	Female	Secondary	Three times	**2**
P06	31	Female	Secondary	Three times	**9 months**
P07	52	Male	Degree	Three times	**3**
P08	32	Male	Std seven	Twice	**2**
P09	40	Male	Degree	Three times	**6**
P10	37	Male	Degree	Three times	**1.5**

Table 4: Social demographic characteristics of relatives

Participant Id No	Age (yrs)	Sex	Educational status	Relationship to the patient
R01	28	Female	Secondary	Daughter
R02	40	Male	Secondary	Son in law
R03	43	Female	Secondary	Daughter in law
R04	42	Female	Secondary	Wife
R05	51	Female	Secondary	Wife
R06	33	Female	Secondary	Daughter
R07	28	Female	Degree	Daughter in law
R08	67	female	Std seven	Wife
R09	46	Male	Degree	Brother
R10	37	Male	Degree	Son

4.2 Summary of findings

The results are described into three themes. The first theme is participants' perception on kidney transplantation as a modality of renal replacement therapy with two subthemes. The second theme is barriers to kidney transplantation as a modality of renal replacement therapy among ESKF patients with four subthemes, the third theme is strategies to overcome the barriers to kidney transplantation among these patients.

Table 2 below summarizes subthemes and themes identified.

Table 5: Summary of study findings

SUBTHEMES	***THEMES***
Benefits of kidney transplant Risks/cost associated with Kidney transplant	**Perceived benefits of kidney transplantation**
Individual barriers Interpersonal barriers Organizational/institutional related barriers Policy related barriers	**Perceived barriers towards Kidney Transplantation**
Need for awareness on kidney transplantation Need for institutional support to pursue kidney transplantation. Need for government support to kidney transplantation	**Strategies to overcome barriers to Kidney Transplantation**

4.3 Perceived benefits of kidney transplantation

Benefits of kidney transplantation

Kidney transplantation is widely acknowledged as the optimal treatment for significantly improving the quality of life for patients with kidney failure. Participants in the study emphasized that, following a transplant, patients generally experience a longer lifespan and can engage more fully in social and economic activities with minimal interruptions. This contrasts sharply with the hemodialysis treatment, which often requires frequent and time-consuming sessions, thereby restricting patients' ability to maintain a normal, active lifestyle. As a result, kidney transplantation not only offers medical benefits but also enhances overall life satisfaction and societal participation.

*A kidney transplant is the best treatment modality as it offers good quality of life, no more dialysis schedules, and decreased hospitalization, and I will get some time to do other activities rather than spend time taking care of my sibling. (**IDI**, **R06)***

*When I pursue kidney transplantation, I will be able to have a child **(IDI, P03)***

Risks/costs of kidney transplantation.

Patients and their relatives were both anxious and concerned about the risks and cost of kidney transplantation. They feared the complications of kidney transplant that could occur after the procedure, the complications included surgical-related complications and pos transplantation complications such as rejection. They also expressed their concern about the cost implications, as the procedure itself, medications, and investigations are too expensive. Relatives were afraid to donate due to fear of the procedure and living with one kidney. On top of that, they mentioned prolonged use of medication to sustain the donated kidney for the rest of their lives is too difficult in terms of costs. For example, one participant reported that immunosuppression medication cost, pre transplant investigations cost.

I want to donate my kidney to my loved one (my brother), but the problem is the procedure cost and the medication cost after the kidney transplant. We cannot afford all of those, and I have heard that when you don't use medication, the kidney may be rejected, and then my sibling will go back to dialysis. Not only that, but he must attend clinic frequently. ***(FGD01, male, relative)***

I am afraid of going into the operating room and the procedure itself. Who knows what will happen? I might die during the operation. ***(IDI, R08)***

4.4 Perceived Barriers towards kidney transplantation

This theme describes barriers perceived by the participants in pursuing kidney transplantation. The barriers are organized into four subthemes: individual, interpersonal, institutional, and government barriers.

Individual barriers

Participants in IDIs complained that lack of knowledge and information on kidney transplantation was a significant barrier. They emphasized on how lack of information and awareness contributes to reliance on hemodialysis rather than considering a kidney transplant. Participants shared various myths and beliefs, including a preference for being healed through prayers rather than opting for kidney transplantation. During the IDIs, participants expressed fear of burdening their family members, particularly the younger

ones, with the responsibility of kidney donation. They felt uncomfortable imposing such a burden on their relatives. In a focused group discussion (FGD), one participant demonstrated a strong denial or resistance to acknowledging his illness, to the extent that he would rather die than survive with the disease. Living with the disease appears to be a difficult and exhausting experience for many.

*There is no education provided on kidney transplantation I don't know what is supposed to be done before the procedure since no person is allocated to provide information about kidney transplantation unless one seeks transplantation services***. *(IDI, P03)***

I believed that God created two kidneys, so why donate or give away the organ to someone? Even patients use to say they can't live with someone's kidney. ***(IDI, R02****)*

My child is too young to donate; I can't even burden him by donating his kidney to me. By the way, I'm older than him; I'd rather die of this disease and leave him to survive. They have suffered a lot with me, so I can't keep giving them the responsibility of donating their kidneys to me ***(IDI, P10)***

Sometimes I feel like no body and I could die rather than being exhausted like this, I feel I don't have the right to live, I feel helpless toward my family and the community. ***(FGD02,*** *male, patient)*

Interpersonal barriers

Comorbidities and fear among family members was regarded as an interpersonal barrier to kidney donation posing lack of donor. Specifically, a family member with conditions such as hypertension, diabetes, or HIV cannot serve as a donor. Participants in in-depth interviews (IDIs) considered the lack of suitable donors to be the most significant obstacle to kidney transplantation. Finding a willing and qualified living donor is extremely difficult. Some relatives expressed concerns about the potential health consequences and fear of procedure during kidney transplant. Additionally, a lack of family support emerged as a potential obstacle; participants reported that their families were often reluctant to provide financial support and to donate a kidney. Some family members might initially

offer support but tend to withdraw as the medical condition progresses, leaving the patient without essential support in the long term.

*I would prefer to pursue a kidney transplant, but my relatives are not willing to give me the kidney**.** They regard me as a source of income when I introduce the issue of kidney transplantation **(IDI, P01)***

*If I donate my kidney, how will I survive, and my family depends on me? I can't donate. By the way, I have heard that after donating, my lifestyle changes. **(IDI, R06)***

*My sibling was willing to donate a kidney for me, but she is hypertensive. I heard that someone else could not donate if she has other diseases. **(FGD03,** female, patient)*

Organizational/institutional related barriers

Findings show that prolonged waiting time for donor workups was viewed as the organizational barrier. Another IDI in a private hospital urged that information about kidney transplantation be limited. The majority of healthcare providers in private hospitals choose hemodialysis over kidney transplant, so probably imparting knowledge to clients about Kidney transplant would drop hemodialysis services.

*I came with my sister for initial investigations, but the process was prolonged until she decided to quit for work-ups. I tried to convince her, but he did not want to as she had other business to do. **(IDI, P04)***

*"Since I started hemodialysis two years ago at this hospital, I have never heard anyone inform me about kidney transplantation; they probably think once we get a transplant, then hemodialysis services could slow. **(IDI, P10)***

Policy related barriers

Kidney transplantation is very expensive, and insurance coverage is limited. In FGDs, participants claimed that their insurance couldn't cover the pricey Kidney transplant procedure. They criticized on the policies of kidney transplantation, that only living and related donors are acceptable, which makes it more difficult for patients to obtain a donor who is related. They shared this:

“I really want to have a kidney transplant, but the policy and regulations are too complicated; they could enable non-related donors to donate because related donors are too hesitant to agree." ***(IDI, P02)***

“I believe our government can do something, allow deceased donors because living related donors are too difficult to obtain." ***(IDI, R03)***

4.5 Strategies to overcome barriers to kidney transplantation

Participants emphasized the importance of being well-informed about kidney transplantation. They also expressed a need for psychological support for individuals who feared the procedure. During the focus group discussions, participants stressed the importance of being empowered with information about their treatment options, including transplantation, and being involved in shared decision-making processes. They advocated for supporting patient advocacy groups to amplify patient voices and address their barriers. Additionally, participants suggested that kidney transplantation should be prioritized over hemodialysis as the preferred treatment for kidney disease.

“I think it’s better hospitals management to priotize kidney transplant than hemodialysis”. ***(IDI, P10)***

“We, as end stage kidney disease patients on maintenance hemodialysis, need information and be aware of kidney transplantation. I suggest to the hospital that it allocate healthcare and provide information on KT. Family members and the community should be informed” ***(FGD04,*** *female, patient)*

Participants also suggested family involvement and community awareness as important steps forward. They emphasized the need for a dedicated health professional to promote and raise awareness about kidney transplants both in the community and at the family level. One participant in an in-depth interview (IDI) highlighted that family support is crucial; therefore, family members must be well-informed that kidney transplantation is the preferred treatment for end-stage kidney failure (ESKF) patients. Additionally, relatives should understand that there are no significant complications associated with donating a

kidney. Participants also recommended the early prevention of noncommunicable diseases, which could prevent relatives from becoming donors.

I wish to get full support from my family, and I wish for them to be well informed of kidney transplantation. ***(IDI, P07)***

I wish the hospital to allocate responsible health personnel to provide all required information on kidney transplant ***(IDI, R04)***

There were suggestions to the government on allocating special funds for kidney disease patients. Participants insisted that kidney disease and its progression, as well as its treatment modalities, be discussed at the national level, like other diseases like HIV and tuberculosis. Likewise, the findings from IDI participants insisted on the possibility of reviewing government policy and regulations on kidney transplantation, making it easily accessible for this lifesaving treatment modality.

I wish kidney disease patients to be treated for free and the problem to be discussed at national level. ***(FGD01,*** *male, relative)*

" I suggest the government to form laws and regulation that allow non related or deceased kidney donors rather than related and living donors, as they are too difficult to attain.". ***(IDI, P02)***

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This research has thematically synthesized evidence of key barriers and solutions perceived by participants. It is guided by the socio-ecological model to identify a range of independent and interacting factors that influence Kidney Transplantation in Tanzania. It is important to note that no studies have explored the interaction of the key elements of the socio-ecological model on kidney transplantation in our setting. It also highlighted strategies for barriers identified according to the interactions on the socio ecological model.

5.2 Perceived benefits of kidney transplantation

Kidney transplantation stands as a crucial therapeutic option for individuals grappling with end-stage kidney failure (ESKF). In this study participants perception elaborates the benefits of kidney transplant and Risks/cost linked with Kidney transplant. Most participants of this study agreed that kidney transplantation is the only and definitive treatment modality available for ESKF patients. This finding is similar to the study done by Vamos et al and Kaur et al (Vamos *et al.*, 2009; Kaur *et al.*, 2019).

The present study also found out the uncertainty surrounding transplantation can evoke a range of emotions, including hope, anxiety, and fear among patients and their families. The prospect of receiving a life-saving organ brings hope for improved health and quality of life, but it is accompanied by the anxiety of waiting for a suitable donor and the fear of potential complications or rejection post-transplant. Kidney transplantation is accompanied with cost and risks, patients and their relatives were both anxious and concerned about the risks and cost of kidney transplant procedure, pre investigations and post-transplant medications cost. In the current study participants feared the complications related to kidney transplant, the complications included surgical-related complications and post transplantation complications such as acute and long-term rejection. This is similar to the study done across the world (Vamos *et al.*, 2009; Kaur *et al.*, 2019).

Participants in the current study pointed out and acknowledged advancements in medical technology and immunosuppressive therapies to have significantly improved transplant success rates, outcomes remain variable and subject to individual variability. All these makes kidney transplant as the best and definitive treatment for ESKF patients. Similar findings were presented by Keddis as well as Mzee et al (Keddis, Finnie and Kim, 2019; Mzee *et al.*, 2020).

5.3 Perceived Barriers towards kidney transplantation

In this study patients experienced individual, interpersonal, organizational/institutional and governmental barriers. Individual barriers highlighted were traditional and religious beliefs, Fear of burdening family member as they are young to donate, inadequate knowledge and awareness, Failure to accept disease condition and presence of other comorbidities like HIV, hepatitis, cancer. Many cultures and religions have beliefs that through prayers one can heal kidney disease. Some viewed kidney donation as a violation of religious or cultural norms. Not only that individual reported to hesitate on asking their family member to donate for them due to concerns about burdening their family members with the decision-making process or potential guilt. This correlates with other studies (Vasileiou *et al.*, 2018; Wong *et al.*, 2020)

Participants in the current study explained that they lacked accurate information about kidney transplants, including how the process works, who can donate, and the impact it can have on saving lives. Most patients with end-stage kidney failure (ESKF) described struggling to accept their medical condition or prognosis, making them less inclined to consider kidney transplantation. The presence of other comorbidities emerged as another individual barrier, as these conditions may render individual's ineligible for kidney transplantation. Additionally, mistrust of medical personnel was identified as a barrier. Similar results have been reported in several other studies across the world. (Takure *et al.*, 2016; Al, 2018; Iqbal *et al.*, 2018; Mzee *et al.*, 2020; Boima *et al.*, 2021; Rizzolo and Cervantes, 2021)

Among interpersonal barriers highlighted were lack of donor lack of family support, lack of knowledge and awareness, family members discouraging transplantation, lack of trust on medical personnel, comorbidities among family members. These findings are similar to the study done by Wong et al (Wong *et al.*, 2020). Surprisingly prolonged waiting time for donor workups and inadequate training on KT this was accompanied by shortage of human resource who could provide such education to patients and their relatives all these emerged as organizational barriers. However, priotizing hemodialysis than kidney transplantation is another barrier. Similar findings were reported by Gan et al on qualitative exploration of barriers and solution to KT.(Gan *et al.*, 2019)

In keeping with other studies across Africa (Gan *et al.*, 2019; Boima *et al.*, 2021; Rizzolo and Cervantes, 2021) the government plays a great role in creating and paving a way for kidney transplantation. In this study participants insisted on how the government can cause them not to trail this life saving procedure. This occurs through hindering them from accessing KT due to lack of insurance coverage. Absence of laws and policy that support non related living donation and discouraging deceased donation contribute to the barriers to kidney transplantation.

5.4 Strategies to overcome barriers to kidney transplantation

This study identified barriers along with strategies to overcome them as reported by participants. Participants suggested various strategies which were thought to be favorable to them. The highlighted strategies were Patient awareness on kidney transplantation (KT) which should encompass family involvement and community outreach efforts. From a focused group discussion, it was reported that it's crucial to empower end-stage kidney failure (ESKF) patients with comprehensive knowledge about KT as a viable treatment option, emphasizing its benefits over hemodialysis.

Furthermore, participants mentioned a pressing need for regulatory improvements, including considering deceased donor transplantation, revising government policies to facilitate KT, and allocating special funds for kidney disease patients. National wide discussions on kidney-related issues should be encouraged to foster broader awareness and advocacy for effective kidney care policies. This similar entity was reported in the

study(Wong *et al.*, 2020). In divergent to other studies which highlighted only barriers with no strategies and solution to identified barriers (Al, 2018; Gan *et al.*, 2019; Scholes-Robertson *et al.*, 2020; Rizzolo and Cervantes, 2021) the current study explored barriers to kidney transplantation and strategies.

5.5 Strength and Limitation

The current study provided a thorough exploration of barriers and perception on kidney transplantation, along with strategies to overcome the barriers guided by the socio-ecological mode (SEM). By proposing actionable recommendations, the study offers practical strategies to address identified barriers, providing suggestions for healthcare providers to improve access to kidney transplantation and enhance patient outcomes.

The limitation of this study is participant availability and busy schedules of the study participants as appointments were made before the interview, flexibility of the researcher depending on the participants time table. The study recruited participants exclusively from three dialysis centers in Dar es Salaam, which may not provide a comprehensive overview of the barriers to kidney transplantation among all end-stage kidney failure (ESKF) patients. The results may not fully represent the perspectives of patients from fifteen other dialysis centers in Dar es Salaam, potentially limiting the generalizability of the findings to a broader population of ESKF patients in the area.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

General awareness of kidney transplantation among end-stage kidney failure (ESKF) patients and their relatives in Dar es Salaam is often hindered by misconceptions, financial challenges, and limited healthcare access. Cultural beliefs and insufficient information from providers also play a role. Strategies such as increasing community awareness, improving healthcare infrastructure, offering financial support, and promoting organ donation are essential. These efforts can enhance the acceptance of kidney transplantation, which offers significant benefits like improved quality of life, longer survival rates, and reduced long-term healthcare costs for ESKD patients in Tanzania.

6.2 Recommendations

1. Hospitals should develop comprehensive educational programs to enhance awareness, targeting both patients and their families, of kidney transplantation as a definitive treatment option, its benefits and risks compared to alternative therapies for end stage kidney disease.
2. Healthcare providers should raise awareness at the community level about kidney disease, promote kidney donation, and provide support for patients navigating the transplant process.
3. Conduct comprehensive needs assessments to identify specific barriers, including financial, cultural obstacles to kidney transplantation.
4. Collaboration between healthcare institutions and government agencies is necessary to reduce these barriers by expanding insurance coverage for transplantation, addressing cultural concerns through community engagement, and providing psychosocial support for both patients and their families.
5. Develop a multi-level intervention strategy that includes financial aid programs, community engagement initiatives, and improved healthcare infrastructure.
6. Partnerships with International Society Nephrology could facilitate the provision of resources and training to local healthcare providers.

7. A future study should be conducted to include clinicians in order to gain insights into the clinical criteria and decision-making processes regarding patient eligibility for kidney transplantation. This will provide a more comprehensive understanding of the barriers and strategies in renal replacement therapy.

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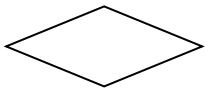
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APPENDICES

Appendix I: A semi-structured interview guide (English version)

Interview No. 

Part 1: Demographic Information

Age: _____

Gender: _____

Marital status: _____

Education Level: _____

How long have you been receiving hemodialysis treatment? _____

Route/Access used during HD treatment _____

Frequency of hemodialysis per week_____

Part 2: Perception to kidney transplantation as a modality of renal replacement therapy.

Issues to consider

- ✓ Knowledge
- ✓ Awareness
- ✓ Attitude

Probes

a) Understanding on treatment modalities of the ESKF patients
b) Understanding KT and its Indication
c) Benefits of kidney transplant
d) Perception of kidney transplant
e) Attitude and beliefs towards kidney transplant,
f) Process needed for transplant,
g) Effects of living with one kidney
h) Self-care after kidney transplant

Qn 2. **Barriers to kidney transplant as a modality of renal replacement therapy**

- ✓ Individual barriers
- ✓ Interpersonal
- ✓ Religious and cultural barriers
- ✓ Health personnel barriers
- ✓ Institutional barriers

Probes

a) Lack of donor
b) Lack of financial support for KT,
c) Religious and cultural beliefs
d) Lack of proper information on KT,
e) Prolonged waiting time for donor workups,
f) How are these barriers affecting you psychologically,
g) Inadequate family support on KT

Qn 4. **Strategies to overcome barriers to Kidney Transplant among ESKF patients and their relatives.**

What should be done at

- ✓ National level
- ✓ Institutional level
- ✓ Community level
- ✓ Family level
- ✓ Individual level

Probes

a) Elaborate specific strategies at each level
b) Continuous education on KT
c) Government support
d) Community awareness on KT
e) Good family support
f) Individual knowledge and attitude on KT

Patient and relative Focused Group Discussion Guide: Strategies solution to Kidney Transplant among ESKF patients and their relatives.

Discussion guide

Strategies to overcome barriers

In your opinion, can you please elaborate what could be done to improve awareness, attitude and knowledge about kidney transplantation among ESKF patients receiving hemodialysis?

1. Discussion on any specific information resources or educational programs that believed to be helpful.

2. Discussion on steps that could be taken to address the barriers or challenges mentioned

3. What do you think the institution should do to improve kidney transplant

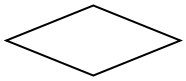
4. Any suggestions for improving access to kidney transplantation services or support for patients with ESKF

Closing:

Is there anything else you would like to share about your perception of kidney transplantation, the barriers you perceive, or potential solutions?

Thank you for participating in this study. Your input is crucial in exploring barriers, and perceived solutions related to kidney transplantation among individuals with ESKF undergoing hemodialysis treatment.

Appendix II: Mwongozo wa majadiliano

Nambari ya mshiriki 

Taarifa binafsi

Umri: _____

Jinsia: _____

Hali ya ndoa: _____

Kiwango cha Elimu: _____

Muda gani umekuwa ukipokea matibabu ya hemodialysis? _____

Njia gani unatumia pindi unapofanya dialysis? _____

Unafanya dialysis mara ngapi kwa wiki? _____

1. Mtazamo kuhusu upandikizaji wa figo

Dodoso

a) Maarifa juu ya njia mbalimbali za matibabu ya figo
b) Uelewa wa upandikizaji wa figo
c) Faida za upandikizaji wa figo
d) Mtazamo juu ya uapndikizaji wa figo
e) Mwenendo na Imani kuhusu upandikizaji wa figo
f) Hatua za awali kabla ya kupandikiza figo
g) Madhara ya kuishi na figo moja
h) Namna ya kujilinda baada ya kupandikiza figo

Swali 2: Mambo/changamoto zinazoweza kusababisha upandikizaji wa figo kutofanikiwa?

Dodoso

a) Upungufu au ukosefu wa anayenitolea figo
b) Ukosefu wa msaada wa kifedha
c) Imani za kidini na kitamaduni
d) Ukosefu wa taarifa sahihi kuhusu upandikizaji wa figo
e) Muda mrefu wa kusubiri kwa uchunguzi
f) Vizuizi hivi vinakuingilia kisaikolojia vipi?
g) Ukosefu wa msaada wa kutosha kutoka kwa familia kuhusu upandikizaji wa figo

Swali 3: **Nini kifanyike ili kufanikisha upandikizaji wa figo katika ngazi hizi?**

- ✓ Kitaifa
- ✓ Upande wa hopsitali
- ✓ Kijamii
- ✓ Kifamilia
- ✓ Binafsi

Dodoso

a) Mikakati maalum katika kila ngazi
b) Elimu endelevu kuhusu upandikizaji wa figo
c) Msaada wa serikali
d) Uhamasishaji wa jamii kuhusu upandikizaji wa figo
e) Msaada mzuri wa familia
f) Maarifa na mwenendo binafsi kuhusu upandikizjai wa figo

Mwongozo wa Majadiliano kwa Kikundi cha Wagonjwa na ndugu (Focused Group Discussion)

1.Kuboresha Uhamasishaji, Nia, na Maarifa:

Kwa maoni yako, ni nini kinaweza kufanyika kuboresha uhamasishaji, nia, na maarifa kuhusu upandikizaji wa figo kati ya wagonjwa wa figo wanaopokea hemodialysis?

Programu za elimu zinazoaminika kuwa na manufaa

2. Kushughulikia mambo au Changamoto:

Hebu tujadili hatua zipi zinaweza kuchukuliwa kushughulikia mamboau changamoto zilizotajwa kuhusu upandikizaji wa figo?

-Elezea mambo maalum na kutoa suluhisho la vitendo

3.Maboresho ya Taasisi kwa upandikizaji wa figo

Taasisi inapaswa kufanya nini ili kuboresha upandikizaji wa figo?

Taja sera, rasilimali, au mifumo ya msaada inayoweza kuboreshwa

4.Kuboresha upatikanaji wa huduma za upandikizaji wa figo

Taja mapendekezo yoyote ya kuboresha upatikanaji wa huduma za upandikizaji wa figo au kutoa msaada zaidi kwa wagonjwa wa figo.

Hitimisho: Je, kuna jambo lingine unalotaka kushiriki kuhusu maoni yako juu ya upandikizaji wa figo, vikwazo unavyoviona, au suluhisho linalowezekana? Asante kwa kushiriki katika utafiti huu. Mchango wenu ni muhimu sana katika kuchunguza vikwazo na suluhisho vinavyohusiana na upandikizaji wa figo kati ya watu walio na ESKF wanaopokea huduma ya hemodialysis.

Appendix III: Informed Consent Form

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES (MUHAS)

DIRECTORATE OF RESEARCH AND PUBLICATION

ID No……

Consent to participate in the study

Greetings!! My name is Tarsila Emmanuel, I am a postgraduate student pursuing Master of science in Nephrology Nursing at MUHAS. Investigating barriers to kidney transplantation as a modality of renal replacement therapy among ESKD patients in Dar es salaam Tanzania.

Purpose of the study: To explore barriers to kidney transplantation as a modality of renal replacement therapy among patients undergoing hemodialysis therapy and their relatives in Dar es Salaam, Tanzania**.**

Confidentiality

All information collected through interview guide and discussion will be kept for confidentiality and nobody will get to access them except for the principal investigator. You are required to write number instead your real name.

Risks

I do not expect that any harm will happen to you because of joining this study. You are free to refuse to answer any question with which you are uncomfortable. I do not anticipate any negative consequences as a result of your participation in this study

What Participation Involves

Taking part in this study is completely your choice. If you choose not to participate in the study or if you decide to stop participating in the study you will continue to receive all services that you would normally get from this hospital. You can stop participating in this

study at any time, even if you have already given your consent. Refusal to participate or withdrawal from the study will not involve penalty or loss of any benefits to which you are otherwise entitled. If you agree to take part in this study, you will be considered a participant. You will be needed to respond to a series of questions as per interview guide.

Benefits

Your involvement in this study is important because the information you provide will allow to collect data that will help organization and other stakeholders figure out the best method on kidney transplant services improvement. It is thought that no harm will happen upon your participation in this study.

Cost

No payment will be requested from you as a fee to participate in the study

Who to Contact

If you ever have questions about this study, you should contact the study Principal Investigator Tarsila Emmanuel, Muhimbili University of Health and Allied Sciences,

P.O Box 65001, Dar es Salaam. Mob 0657966338 or 0756894533. If you ever have questions about your rights as a participant, you may call the Chairman of the Senate Research and Publications Committee P.O.BOX 65001, Dar es Salaam. Tel: 215 0302 - 6.

Signature: …….

Do you agree??

Participant agrees ……

Participant does NOT agree ……....

I _____ have read the contents in this form. My questions have been answered. I agree to participate in this study.

Signature of participant _____

Signature of the Investigator _____

Date of signed consent _____ _____

Appendix IV: Fomu ya ridhaa ya ushiriki kwenye tafiti

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

KURUGENZI YA UTAFITI NA UCHAPISHAJI

Namba ya Utambulisho……

Habari yako! Naitwa Tarsil Emmanuel,ni mwanafunzi wa uzamili wa chuo Kikuu cha Afya na Sayansi Shirikishi,MUHAS nabobea katika fani ya ubobezi 2wa uuguzi wa magonjwa ya figo, ninafanya tafiti juu ya uelewa na sababu zinzopelekea kukosekana kwa huduma za upandikizaji wa figo kwa wagonjwa wenye hatua ya mwisho ya ugonjwa sugu wa figo.

Lengo la utafiti: Kubainisha uelewa na vizuizi vya upandikizaji wa figo pelekea mgonjwa kushindwa kupata huduma ya upandikizaji figo awapo MNH.

Nini kinahitajika katika ushiriki wa utafiti huu

Endapo utakubali kushiriki kwenye utafiti huu,utaulizwa maswali yatoanayo na dondoo maalumu kuhusu taarifa zako za jumla,za kitabibu na kufanyiwa tathmini ya afya.

Usiri

Taarifa zote zitakazokusanywa kwa mahojiano zitahifadhiwa na mtafiti mwenyewe na hakuna atayejua taarifa hizo isipokuwa mtafiti mwenyewe.

Athari ya kushiriki

Hatutegemei athari yoyote ya ushiriki wako kwenye utafiti huu.

Hiari ya ushiriki

Ushiriki wako katika utafiti huu ni wa hiari. Endapo utaamua kutoshiriki katika utafiti huu,utaendelea kupata huduma za matibabu kama ilivyo ada na kwamba unaweza acha kushiriki muda wowote hata kama umesharidhia kwa kusaini kibali cha utafiti.Kutoshiriki

kwenye utafiti huu hakutapelekea kupata adhabu yoyote au kutopata haki yako ya kimatibabu.

Faida za Ushiriki

Endapo utaridhia kushiriki kwenye utafiti huu,utanufaisha jamii na ushiriki wako utsaidia kuelekeza uongozi wa hosptiali na serikali katika kuboresha huduma za upandikizaji wa figo kwani uelewa wako juu ya huduma hii na jinsi utakavyo elezea vizuizi vya huduma hii italeta manufaa makubwa na hivyo wagonjwa wa figo kunufaika na upandikizaji.

Gharama

Hakuna gharama zozote unazotakiwa kulipa ili kushiriki utafiti huu.

Mawasiliano

Endapo utakuana maswali zaidi juu ya utafiti huu unaweza wasiliana na Mtafiti Tarsila Emmanuel, MUHAS, P.O Box 65001 Dsm.Mob 0657966338 au 0756894533. Kama una maswali juu ya haki ya ushiriki wako kwenye utafiti huu unaweza wasiliana na Mwenyekiti wa Kamati za Tafiti na Machapisho,MUHAS P.O.BOX 65001 Dsm, .Namba ya simu 2150302-6.

Sahihi…….

Je unakubali kushiriki?

Mshiriki amekubali……. Mshiriki hajakubali……

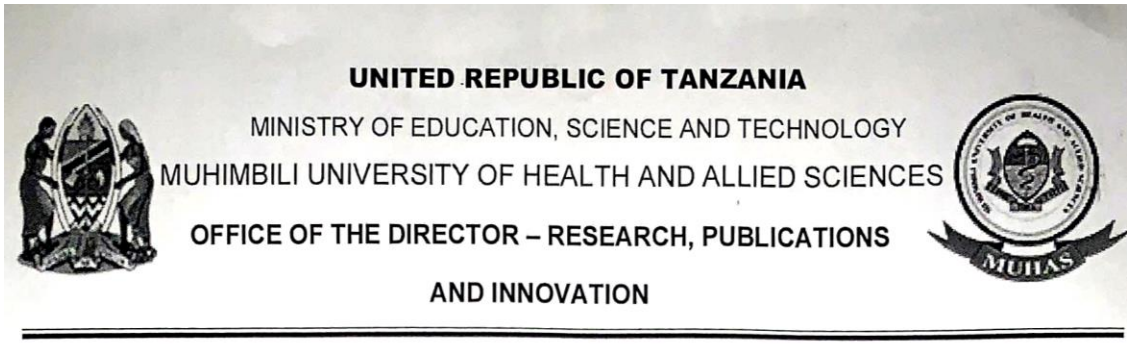
Mimi……nimesoma fomu hii na maswali yangu yamejibiwa.Nakubali kushiriki kwenye utafiti huu.

Sahihi ya Mshiriki……

Sahihi ya Mtafiti……..

Tarehe…….

Appendix V: Approval for ethical clearance



UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR – RESEARCH, PUBLICATIONS AND INNOVATION

Ref. No.DA.282/298/01.C/2050 Date: 19/02/2024

MUHAS-REC-02-2024-2050
TARSILA EMMANUEL
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: BARRIERS TO KIDNEY TRANSPLANTATION AS A MODALITY OF RENAL REPLACEMENT THERAPY AMONG END STAGE KIDNEY FAILURE PATIENTS IN DAR ES SALAAM TANZANIA.

Reference is made to the above heading,

I am pleased to inform you that the Chairman has on behalf of the University Senate, approved ethical clearance of the above-mentioned study, on recommendations of the Senate Research and Publications Committee meeting accordance with MUHAS research policy and Tanzania regulations governing human and animal subjects research.

APPROVAL DATE: 19/02/2024
EXPIRATION DATE OF APPROVAL: 19/02/2025

STUDY DESCRIPTION:
Purpose:

The purpose of this study is to explore barriers to kidney transplantation as a modality of renal replacement therapy among patients undergoing hemodialysis therapy in Dar es salaam Tanzania.

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided: https://irb.muhas.ac.tz/storage/Certificates/Certificate%20-%2015243.pdf and in the MUHAS archives.

The PI is required to:

1. Submit bi-annual progress reports and final report upon completion of the study.
2. Report to the IRB any unanticipated problem involving risks to subjects or others including adverse events where applicable.
3. Apply for renewal of approval of ethical clearance one (1) month prior its expiration if the study is not completed at the end of this ethical approval. You may not continue with any research activity beyond the expiration date without the approval of the IRB. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.
4. Obtain IRB amendment (s) approval for any changes to any aspect of this study before they can be implemented.
5. Data security is ultimately the responsibility of the investigator.
6. Apply for and obtain data transfer agreement (DTA) from NIMR if data will be transferred to a foreign country.
7. Apply for and obtain material transfer agreement (MTA) from NIMR, if research materials (samples) will be shipped to a foreign country,
8. Any researcher, who contravenes or fail to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine as per NIMR Act No. 23 of 1979, PART III section 10 (2)
9. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
10. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website https://drp.muhas.ac.tz/.

Dr. Nahya Salim Masoud,

Chairperson, MUHAS Research and Ethics Committee

Muhimbili University of Health and Allied Sciences
DIRECTOR
Research, Publications & Innovations
Box 65001

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR – RESEARCH, PUBLICATIONS AND INNOVATION

Ref. No.DA.282/298/06/C/767

Date: 10/06/2024

MUHAS-REC-02-2024-2050
TARSILA EMMANUEL
SCHOOL OF NURSING
MUHAS

RE: APPROVAL FOR AMENDMENT

Reference is made to your letter dated June 09, 2024 concerning the above heading.

I am pleased to inform you that the Chairman has on behalf of the Senate, approved your request for protocol amendments of your study titled **"Barriers to kidney transplantation as a modality of renal replacement therapy among end stage kidney failure patients in Dar es salaam Tanzania."** as requested.

The amendments include:
The changing of study setting from Hindu Mandal Hospital to CCBRT Hospital due to some inconveniences occurred following submission of permission letter for data collection at Hindu Mandal Hospital.

Other terms and conditions remain the same as per letter of approval of ethical clearance.

Muhimbili University of Health and Allied Sciences
DIRECTOR
Research, Publications & Innovations
Box 65001

Dr. Nahya Salim Masoud,
Chairperson, MUHAS Research and Ethics Committee

Appendix VI: Introduction Letter

UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR – POSTGRADUATE STUDIES

In reply quote;
Ref. No. HD/MUH/T.463/2022

27th February 2024

The Executive Director,
Muhimbili National Hospital,
P.O. Box 65000,
DAR ES SALAAM

Re: INTRODUCTION LETTER

We would like to inform you that the bearer of this letter is Tarsila Emmanuel with Reg. No. HD/MUH/T.463/2022 is a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MSc Nephrology Nursing.

As part of her studies, she will be doing an elective research titled: **"BARRIERS TO KIDNEY TRANSPLANTATION AS A MODALITY OF RENAL REPLACEMENT THERAPY AMONG END STAGE KIDNEY FAILURE PATIENTS IN DAR ES SALAAM, TANZANIA".** She is being supervised by Prof. Francis Furia and Mr. Pius Martin Temba from MUHAS and Sabitina Mrisho Mzava from MNH.

The research has been approved by the Chairman of University Senate.

Kindly provide her with the necessary assistance to facilitate the conduct of her research.

We thank you for your cooperation.

Ms. Victoria Mwanilwa
For: DIRECTOR, POSTGRADUATE STUDIES
c.c. Tarsila Emmanuel

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam; Tel. G/Line: +255-22-2150302/6; Ext. 1015; Direct Line:+255-22-2151378;Telefax:+255-22-2150465;E-mail:dpgs@muhas.ac.tz;Web:https://www.muhas.ac.tz

Appendix VII: Permissions to collect data at MNH, CCBRT & Aga Khan

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF HEALTH

MUHIMBILI NATIONAL HOSPITAL

In reply please quote:

Ref. No.: MNH/CRTCU/Perm/2024/115 Date: 29th February, 2024

Block Manager,
NPC – I
Muhimbili National Hospital

RE: PERMISSION TO COLLECT DATA AT MNH

Name of Student	**Tarsila Emmanuel**
Title	**"Barriers to Kidney Transplantation as a Modality of Renal Replacement Therapy Among End Stage Kidney Failure Patients in Dar es Salaam Tanzania"**
Institution	Muhimbili University of Health and Allied Sciences
supervisor	Mr. Pius Temba Prof. Francis F. Furia (MUHAS)
Co - Supervisor	. Sabitina Mrisho (MNH)
Period	28th February, 2024 to 30th April, 2024

Approval has been granted to the above principal investigators to collect data at MNH. Dissemination of study findings at MNH shall be overseen by **Sabitina Mrisho (**MNH) supervisor.

Kindly ensure the named principal investigator abide to the ethical principles and other conditions of the research approval.

Sincerely,

Dr. Charles K. Hallangyo
For: Head of Clinical Research, Training and Consultancy Unit

HEAD, TEACHING, RESEARCH & CONSULTANCY
P.O. Box 65000
DAR-ES-SALAAM

c.c DNS
c.c Sabitina Mrisho
c.c **Tarsila Emmanuel**

Upanga West, Kalenga Street, Plot No. 10480/3, P.O. BOX 65000, Dar es Salaam, Tanzania.
Telephone: +255-22-2151367-9, Telephone: +255-22-2151351-2
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The Aga Khan Hospital, Dar es Salaam

An Institution of the Aga Khan Health Service,Tanzania

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Dar es Salaam, Tanzania
Tel: + 255 22 2115151- 3
+ 255 22 2344100
+ 255 22 2344600
Email:agakhan@akhst.org

16th April 2024

REF: AKH/MD/0021/24

Tarsila Emmanuel
Muhimbili University of Health and Allied Sciences.
Dar es Salaam

Dear Ms Tarsila,

RE: Ethical Approval for A Study Titled: BARRIERS TO KIDNEY TRANSPLANTATION AS A MODALITY OF RENAL REPLACEMENT THERAPY AMONG END STAGE KIDNEY FAILURE PATIENTS IN DAR ES SALAAM TANZANIA.

Reference is made to the above heading.

I am pleased to inform you that the Hospital Ethical Committee has on behalf of the hospital reviewed your proposal and approved the research to be conducted in line with the Aga Khan hospital's policy, laws, regulations, and ethical guidelines.

Should you have any further questions, please do not hesitate to contact us.

Sincerely,

for

Dr. Harrison Chuwa
Medical Director
Aga Khan Health Service, Tanzania

Africa Healthcare Network Tanzania Limited
Plot 50a, Industrial Road, Light Industrial Area, Mikocheni
P.O. Box 23037
Dar es Salaam – Tanzania
Tel: +255 789036893
www.africahealthcarenetwork.com

1st March, 2024.

Center Head,
CCBRT Dialysis Center.

RE: PERMISSION TO COLLECT DATA AT AHN-CCBRT DIALYSIS CENTER

Name of student	Tarsila Emmanuel
Title	Barriers to Kidney Transplantation as a Modality of Renal Replacement Therapy Among End Stage Kidney Failure Patients in Dar es Salaam, Tanzania.
Institution	Muhimbili University of Health and Allied Sciences
Supervisor	Mr Pius Temba Prof Francis F. Furia
Period	29th February, 2024 to 30th April, 2024

Approval has been granted to the above PI to collect data at the Dialysis center located at CCBRT. The results and dissemination of the finding shall be brought the Clinical Excellence Departments.

Please ensure the named PI abides to the ethical principles and our AHN policy whenever she/he gets to see our clients within the unit.

Sincerely,



Dr. David Mwaipaya,
Clinical Excellence Manager
+255766195889
david@africahealthcarenetwork.com

C.C Janeth Kavishe (Head Nurse)
C.C **Tarsila Emmanuel**

Appendix VIII: Digital receipt

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Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

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Submission title:	BARRIERS TO KIDNEY TRANSPLANTATION AS A MODALITY O...
File name:	RESEARCH_REPORT_V5_-_tarsila_1.doc
File size:	4.05M
Page count:	63
Word count:	12,779
Character count:	75,809
Submission date:	04-Jul-2024 06:53PM (UTC+0300)
Submission ID:	2412517804



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Appendix IX: Plagiarism report

BARRIERS TO KIDNEY TRANSPLANTATION AS A MODALITY OF RENAL REPLACEMENT THERAPY AMONG END STAGE KIDNEY FAILURE PATIENTS IN DAR ES SALAAM TANZANIA.

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