FACTORS ASSOCIATED WITH UPTAKE OF KIDNEY TRANSPLANTATION AMONG PATIENTS WITH END-STAGE KIDNEY DISEASE ATTENDING DIALYSIS CENTRE IN DAR ES SALAAM REGION

Elizabeth Stephen Moshi

A Dissertation Submitted in Partial Fulfilment of the Requirements for the Masters of Public Health of Muhimbili University of Health and Allied Sciences

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School of Public Health and Social Sciences

Factors Associated with Uptake of Kidney Transplantation among Patient with End Stage Kidney Disease Attending Dialysis Centre in Ilala District in Dar es Salaam Region

By

Elizabeth Stephen Moshi

'Dissertation submitted to the School of Public Health and Social Science in partial fulfillment of the requirements for the award of Master Degree of Public Health of Muhimbili University of Health and Allied Sciences'

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance a dissertation entitled "***Factors associated with uptake of kidney transplantation among patient with end stage kidney disease attending dialysis centre in Ilala district in Dar es salaam Region****"*, in partial fulfilment of the requirements for the Masters of Public Health of Muhimbili University of Health and Allied Sciences.

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Prof. Donath Tarimo, MD, MSc, PhD

(Supervisor)

……

Date

DECLARATION AND COPYRIGHT

I, **Elizabeth Stephen Moshi** declare that this dissertation is my own original work and that it has not been presented and it will not be presented to any other University for the similar or any other degree award.

Signature…… Date ……...

ACKNOWLEDGEMENT

First and foremost; I thank the Almighty God to have given me the strength, will, and energy for the accomplishment of this academic achievement. This achievement is a contribution in terms of advice, comments assistance, encouragement, and constructive criticisms from some individuals to whom I owe sincere respect and gratitude.

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Any mistakes in this dissertation, however, remain entirely mine.

DEDICATION

I dedicate this dissertation to my late brother Dr. Sebastian Stephen. Kinabo and his family for their support, God bless you.

ACRONYMS

CI	Confidence Interval
CKD	Chronic Kidney Disease
ESKD	End-stage Kidney Disease
LMICs	Low and Middle-Income Countries
MUHAS	Muhimbili University of Health and Allied Sciences
NCD	Non-communicable Diseases
OR	Odds Ratio
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan African

DEFINITION OF KEY TERMS

Chronic kidney disease (CKD): This has been defined as decreased kidney function revealed by glomerular filtration rate of less than 60 mL/min per 1·73 m2, or markers of kidney damage, or both, of at least three months duration, regardless of the underlying cause [1].

End-stage kidney disease (ESKD): the stage in kidney disease during when clinical treatment, such as transplantation or dialysis, becomes indispensable. “End-stage" refers to the end of kidney function [1].

Haemodialysis: treatment for kidney failure in which the blood goes through an artificial dialyser to take out wastes and water [2].

Kidney transplant: This is a surgical process to place a healthy kidney from a deceased donor or living into an individual whose kidneys are not function properly [3].

ABSTRACT

Background: In Tanzania, kidney transplantation was introduced in November 2017. There is limited information on the factors that associated with uptake of this treatment option within Dar es Salaam.

Objectives: This study examined the factors that associated with uptake of kidney transplantation among patients with end-stage kidney disease among patients on dialysis in Dar es Salaam.

Methodology: A quantitative hospital-based cross-sectional study was carried among 142 patients with end-stage kidney disease in Dar es Salaam dialysis centre. The data has been summarized at the univariate level by descriptive statistics; comparisons at bivariate level was carried by the non-parametric test, the level of significance set at $p = 0.05$ (5%). A multivariate logistic regression analysis was done to assess factors affecting the uptake of kidney transplantation.

Results: Results showed that most of the participants were knowledgeable and aware of the availability of kidney transplantation. Out of 142 surveyed respondents, 39 (27%) had adequate knowledge, while 72 (51%) had moderate knowledge on kidney transplantation. Furthermore, out of 142, 45 (32%) participants had negative attitudes towards kidney transplantation. The most important factors found to explain participants' uptake of the kidney transplantation included: cost of the transplantation AOR=0.38 (95% CI, 0.16-0.97, $p<0.05$), discussion with the physician about kidney transplantation AOR=3.86 (95% CI, 1.18-12.61, $p<0.05$), and having a positive attitude toward kidney transplantation AOR=2.61 (95% CI, 1.14-5.93, ($p<0.05$).

Conclusion: This study has identified factors influencing patients' uptake of kidney transplantation. More research is needed to uncover why some of the patients have negative attitude towards kidney transplant will provide crucial information to the clinicians and health management. Information provided will help to advice on how transplantation education/counselling can be tailored towards needs of specific population.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Problem

Non-communicable diseases (NCDs) are the leading cause of death globally and one of the major health challenges of the 21st century and are estimated to account for 71% of the 57 million global death [4]. Kidney disease have been found to contribute significantly to the global burden of disease, however, a low priority has been placed on kidney disease within the public health response to NCD in low-income countries. Globally there has been an increase of 29.3 percent in the prevalence of chronic kidney disease (CKD) from the year 1990 to 2017 [5]. Likewise, the global incidence of dialysis and kidney transplantation increased by 10.7 percent and 12.8 percent respectively [2]. Nevertheless, estimates show that less than 10 percent of clients in need of renal replacement services do get it [6]. There is a huge discrepancy in access to renal replacement globally and has been higher in Africa, specifically in eastern Africa [7].

In Tanzania, available administrative and research data from a hospital and community-based facilities indicate a high prevalence of kidney diseases ranging from 7.0 percent to 12.4 percent [8, 9]. In 2017, the Muhimbili National Hospital (MNH) in Dar es Salaam and Benjamin Mkapa Hospital (BMH) in Dodoma started the provision of the transplantation services including extensive evaluation of both donors and recipients prior to referral [10]. About 28 patients have undergone transplantation services (24 cases were performed at MNH and 4 cases at BMH) [10].

Kidney transplantation remains the favourite modality of handling patients with end-stage renal disease and accessibility to the transplantation is crucial for service provision [3]. Patients might be limited in access care due to a number of reasons including geographical location, transport and insurance coverage. Furthermore, accessibility might be limited with financial barriers, lack of referral, health system barriers, no identified donor were found to

explain transplantation. Nonetheless, in most cases, no single barrier predominated the uptake of the transplant services. Factors such as demographic characteristics, financial protection (insurance status), and referral system were not significant in explaining transplant uptake [11, 12]. Renal transplantation awareness, knowledge and acceptability among patients with end-stage renal disease are among the factors that affect the uptake of the transplantation [13]. Ensuring clients are aware and have enough/clear knowledge on the transplantation process and the aftermath of transplantation is crucial in terms of coping not only with a short term but also in a long term outcomes [14]. Information shows that the longer the duration of being in a kidney disease the higher the level of knowledge while the longer the dialysis duration lead to the reduction in the knowledge score [14]. In most cases inadequate health education on kidney diseases leads to a poor access to kidney transplant services.

The decision to undertake transplantation at times may be induced by a patient's attitudes towards different treatment options available in a given centre, may also be induced by knowledge and perceptions about the disease and its treatment [15]. Evidence suggests that patients with positive attitude to renal transplantation have been found to be younger, those with better education, and those who are more likely to be employed [15]. In most cases, attitude influences individual decisions and may become a hindrance in accessing transplantation. It is important to understand patients' attitudes towards transplantation as it shapes the whole process of accessing care.

1.2 Statement of the Problem

The incidence of end-stage renal disease (ESRD) worldwide is rising and kidney transplantation remains the best treatment option for it. In Tanzania, kidney transplantation services are provided at the two centres of MNH and BMH. Hospital records show that less than 30 patients have received kidney transplantation in the two centres. Given the low uptake of transplantation, there is a need to assess the factors that influence the uptake of this treatment option. Identifying these factors will contribute to policy decisions regarding client-tailored education to positively influence the uptake of kidney transplantation as a definitive treatment for chronic kidney disease. This study is set out to examine the factors that influence

the uptake of kidney transplantation among patients with end-stage kidney disease among patients on dialysis in Dar es Salaam.

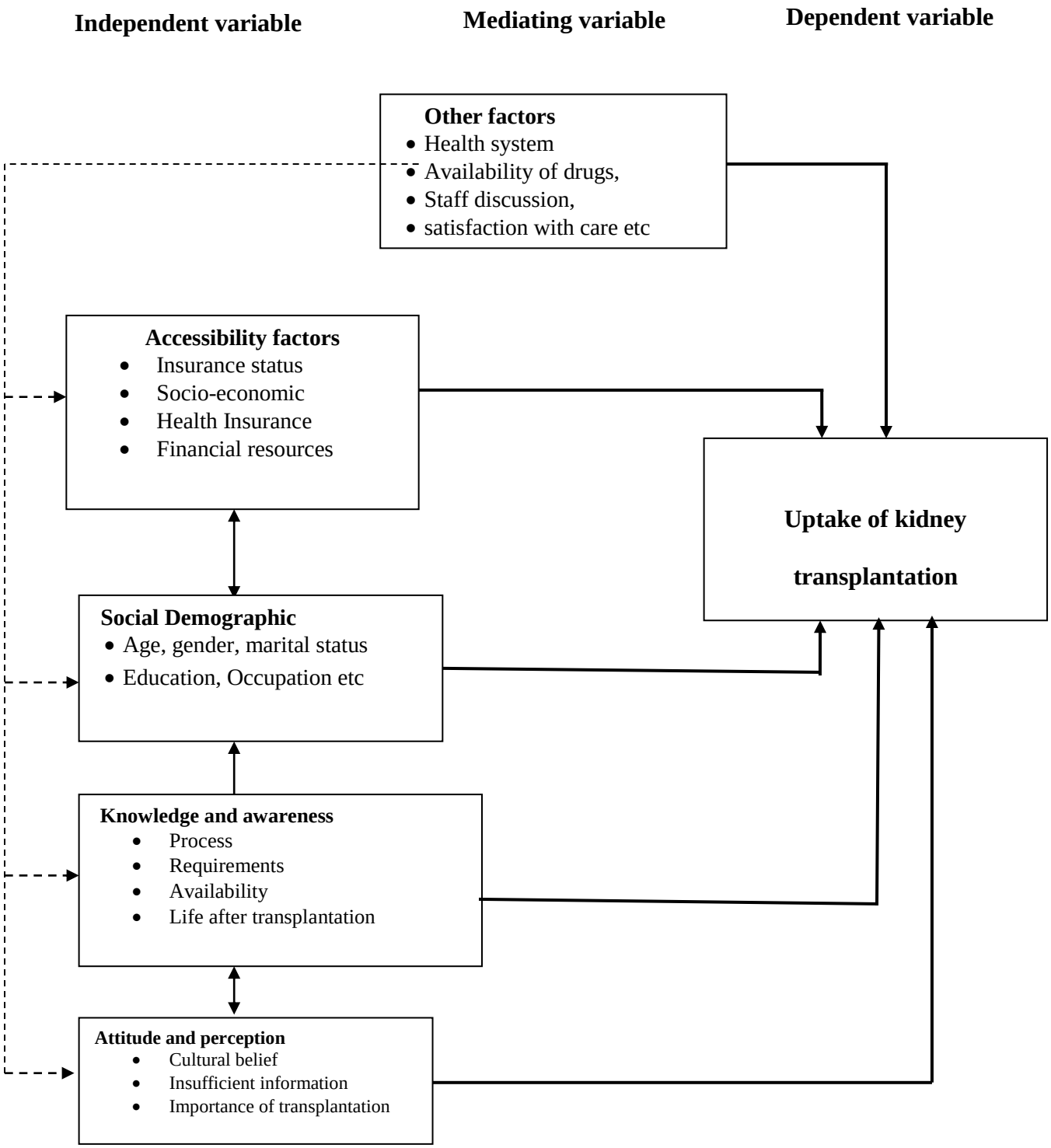
1.3 Significance of the Study

The study identified patient attitudes on kidney transplantation in order to eliminate negative attitudes towards kidney transplantation. Moreover, the study helps to create awareness on the importance of kidney transplantation and accessibility to reach the services to improve health system delivery for a patient with end-stage renal disease. The findings from this study are expected to guide healthcare managers in taking initiatives towards educating the community on the importance of kidney transplantation. Furthermore, findings shade more light to stakeholders who are interested in the same or related topics on kidney transplantation.

1.4 The Conceptual Framework

Figure 1. Below presents the conceptual framework of the study. Literature review has shown that a number of factors influence kidney transplantation. Social-demographic characteristics such as education, age and financial resources have been found to influence transplantation. For example, most aged patients are less likely to undertake the transplantation services as compared to the younger patient. Moreover, patient acceptability affects the uptake of transplantation. In most cases if an individual rejects the service based on self-evaluation it will affect the whole process. Other factors such as awareness on limitations of dialysis and availability of transplant as a permanent Rx; knowledge on the management of end stage renal disease; patient attitudes towards management of end stage renal disease, including transplant; and perceptions towards the management of end stage renal disease, including transplant as well as benefits of transplantation induces individual to undertake kidney transplantation. For example, patient with a negative perception on the overall transplantation services will not be ready to undertake the kidney transplantation.

Figure 2.1 Conceptual Framework



1.5 Main Research Questions

What are the factors associated with uptake of kidney transplantation among patients with end stage kidney disease attending dialysis centres in Dar es Salaam?

1.6 Specific Research Questions

i. What factors influence accessibility to kidney transplantation among patients with end stage kidney disease attending dialysis centres in Dar es Salaam?
ii. What is the level of awareness on the availability of kidney transplantation as a treatment for patients with end stage kidney disease attending dialysis centres in Dar es Salaam?
iii. What is the level of knowledge on the available remedies for end stage kidney disease among patients attending dialysis centres in Dar es Salaam?
iv. What are the attitudes and perceptions towards the available remedies for end stage kidney disease among patients attending dialysis centres in Dar es Salaam?

1.7 Objectives of the Study

To determine the factors associated with uptake of kidney transplantation among patients with end stage kidney disease attending dialysis centres in Dar es Salaam.

1.7.1 Specific Objectives

i. To examine the factors that influence accessibility to kidney transplantation among patients with end stage kidney disease attending dialysis centres in Dar es Salaam.
ii. To examine the level of awareness on availability of kidney transplantation as a treatment for patients with end stage kidney disease attending dialysis centres in Dar es Salaam?
iii. To determine the level of knowledge on the available remedies for end stage kidney disease among patients attending dialysis centres in Dar es Salaam.
iv. To explore the attitudes and perceptions towards the available remedies for end stage kidney disease among patients attending dialysis centres in Dar es Salaam

CHAPTER TWO

LITERATURE REVEW

2.1 Factors that influence accessibility to kidney transplantation

Globally kidney transplantation has been found to improve healthcare outcomes for clients with end-stage renal disease. Numerous barriers have been found to impede the whole process of identification and transplantation of the organ to the clients [16]. In most cases, clients are referred to the transplant centres after the initiation of dialysis. A survey designed to elicit some of the potential barriers to pre-emptive renal transplantation revealed that the median time from diagnosis of renal disease to the time of referral was sixty months [17]. Among the factors associated with pre-emptive transplantation was clients' knowledge of the service. In addition, employment status, referral by a nephrologist and the diagnosis of polycystic kidney disease were also associated with seeking transplant care before initiation of dialysis. The education of the client on various options for transplantation was the main factor associated with renal transplantation [17].

Kidney transplantation is beneficial; however, there was some evidence for low uptake of the service. For example, a retrospective survey was conducted using a telephone-administered questionnaire to identify the barriers among 235 patients. The main factors identified during the survey included a longer time between diagnosis and transplant, and the average time between educations/counselling about transplant services. Nonetheless, in most cases no single barrier predominated the uptake of the transplant services. Factors such as demographic characteristics, financial protection (insurance status), and referral system were not significant in explaining transplant uptake [11].

In Sudan, it was found that the low renal transplantation rate among patients who were recommended for such services was mainly due to financial constraints, the lack of medical personnel and the absence of a suitable kidney donor [3]. In addition, the findings revealed that patients attending the dialysis centres had misperceptions regarding transplantation and preferred to continue on dialysis. To improve the kidney transplantation rate more initiatives

should be taken to promote and improve the outcome of kidney transplants and create patients' confidence in the health system [3].

2.2 Awareness on availability of kidney transplantation

Safeguarding equal access to kidney transplantation among patients is of paramount importance [18]. In US, a comparison was made on public insured patients and private insured patients. Authors found that of the 7395 veterans public insured, only 9.3 percent received transplants as compared to 35,450 (24 percent) of 144,651 patients with private insurance. Patients with private insurance were more likely. Among the factors causing most of those with private insurance to access care included waiting time. Patients with supplemental private insurance had the same likelihood of transplantation as those with private insurance [18].

The willingness of clients to receive a kidney transplant is important in the whole process of serving the life of the clients [19]. A study conducted in China, using both univariate and multivariate logistic regression found that the mean age for the clients accessing the service was 50.7±15.1 years of age and about 46.4 percent were willing to receive a transplant. Young clients age, awareness of the transplantation benefits and those with self-reporting good health, were less likely to deny the transplant [19]. Overall clients aged less than 60 years of age were about thirteen times more likely to favour kidney transplantation than those above 60 years of age. Findings indicate that older patients were less likely to accept a transplant and recommend the need to raise awareness on the benefits of transplantation to the clients.

A convenience sample of 104 adults referred and scheduled for a kidney transplant was invited to participate in a study. Among the factors identified included affording medication and affording operation services for transplantation. Furthermore, attendance to healthcare services for transplantation was associated with finding a living donor together with higher general knowledge about transplantation [20].

2.3 Knowledge on the available remedies for end stage kidney disease

In Nigeria, a survey was conducted with 100 participants, where they found that seventy-nine percent of the participants were aware of renal transplantation, 70 percent would recommend transplantation to others, while 67 percent accepted renal transplantation [13]. About 62 percent were of the opinion that the transplantation is very expensive, while 33 percent of the participants did not know the cost for transplantation. The low level of uptake was mainly influenced respondents' fear of death, and shortage of financial resources for kidney transplantation. Moreover authors found that majority of the participants were aware of, knowledgeable, and accepted renal transplantation, nonetheless, accessibility to renal transplantation was mainly affected by the high cost associated with such service [13]. In a different study in Nigeria, it was revealed that demographic characteristic, comorbidities, and financial resources limit the kidney transplantation for the majority of the patients [21]. Other hindrances to the uptake of the kidney transplantation were previously failed kidney transplant and religious belief. Most patients were aware of the availability of the services for kidney transplantation; however, financial resources limit the access to the services.

A patient survey conducted in Bangladesh to assess knowledge on disease, attitude and perception towards transplantation revealed that out of 100 participants only 30 percent claimed to have adequate knowledge on kidney transplantation while 43 percent had none. Among the sources of information included doctor's 47 percent and patient's relative's 33 percent. Majority of the patients agreed to take part in the transplantation program and only 16 percent agreed to pre-emptive transplantation [22].

In Norway, a study involving 159 kidney recipients at a Norwegian centre found that a longer duration of kidney disease was positively and significantly associated with an increased knowledge. In addition the longer the time for undertaking dialysis prior to patient undergoing transplantation as well as post-operative complications had a negative impact on patient knowledge [23]. In a non-experimental, descriptive design constituting about 60 participants in a hospital setting within India they found that majority of the participants 48 (80 percent) had moderately adequate knowledge towards kidney transplantation, while most of the participants

33 (55 percent) had adequate attitude about the kidney transplantation, whereas 33 (55 percent) had inadequate perception about the kidney transplantation [24].

2.4 Attitudes and perceptions towards the remedies for end stage kidney disease

A study conducted in Moroccan Interregional constituting a total of 2066 haemodialysis patients where the authors investigated patient's attitude toward renal transplantation found that 73 percent of patients were like to undergo transplantation. Majority had a positive attitude towards receiving organ from a living or cadaveric donor while 18 percent had a negative attitude towards organs from related living donor and remaining 6 percent reject organs from donors after brain death. Among the most motivating factor towards transplantation was a fluid restriction and diet constraint. One third of the participants viewed organ donation on the perspective of religion not allowed and some thought it is not allowed. Independent factors which were found to affect patients' attitude toward transplantation included gender, persistence of residual diuresis, young age, better information and availability of a related living donor [25].

In China, a survey of 326 haemodialysis outpatients was conducted to assess attitude towards kidney transplantation. Of the surveyed patients, 35 percent were willing to take part in the transplantation process and of those willing to undergo transplantation about 44 percent had started a procedure to be grafted [26]. Moreover, few patients were of the opinion that transplantation offers a better quality of life, while majority believed that transplantation service is more expensive as compared with haemodialysis. Study and work-related factors were found to induce uptake of the transplantation.

In United States, a cross-sectional survey was conducted with 213 CKD patients from an outpatient nephrology clinic to examine the factors associated with willingness to receive a kidney transplant using a questionnaire [27]. Authors found that willingness to undergo a kidney transplant among the CKD clients was associated with a positive perception towards living kidney donation, perception on the improvement of the quality of life compared to dialysis, attendance in education/counselling classes and clear information on a transplant from other sources [27].

CHAPTER THREE

METHODOLOGY

3.1 Study Area

The study was conducted in Dar es Salaam where most of the dialysis services are found. In Dar es Salaam there are 10 known dialysis centres including Muhimbili National Hospital, Regency Hospital, TMJ Hospital, Shree Hindu Mandal Hospital, Alshifa Hospital, Shree Hindu Mandal –Kunduchi hospital, CCBRT, TMJ- Gongo la mboto, Cardinal Rugambwa Hospital and Saifee Hospital. Available data from Muhimbili National Hospital patient registers showed that this centre receives about more than 300 patients per month respectively. Muhimbili National Hospital is selected as the study area because of the number of patients attending dialysis. Dialysis centres provide both diagnosis and treatment care to a patient who has been referred from primary healthcare facilities within and outside Dar es Salaam.

3.2 Study Design.

A quantitative hospital-based cross-sectional study was carried with patients attending Muhimbili National Hospital.

3.3 Study Population

The study population for the study included all adult patients who were more than 18 years of age on maintenance intermittent haemodialysis at Muhimbili National Hospital.

3.4 Sample Size and sampling procedure

3.4.1 Sample size calculation

The sample size came from a finite population of 200 clients who were registered at the dialysis centre. We then use Yamane's non-probability sampling method to get the sample size for the study applying the formula below: -

$n = N / [1 + N (e) 2]$

Where; n = the sample size

N = the finite population (=200)

e = the level of significance or limit of tolerable error (5%)

1 = unit or a constant

$n=200/[1+200(0.05)^2$

n=133

Assuming a non-response rate of 10%, i.e. response rate of 90%, to adjust for non-response use the formula:

Adjusted n = n (1/R) i.e. n x 1/0.9.

Adjusted n=133(1/0.9) = 148

Therefore, the targeted sample size was 148 patients who are clinically suspected of chronic kidney disease.

3.4.2 Sampling Procedure

Two dialysis centres were purposively selected for this study. In the selected centred a simple random sampling technique was used, where each patient attending dialysis had an equal probability of being selected. At the dialysis centre, a list of all the client attending services at the respective facility was obtained. Thereafter, each individual was assigned a number. A random number table was prepared and individuals were randomly picked.

3.5. 1 Inclusion Criteria

This study considered all adult patients more than 18 years of age on maintenance intermittent haemodialysis for more than three months. Furthermore, those who consented after being informed of the study.

3.5.2 Exclusion Criteria

Critically ill patients and patients who were below 18 years of age.

3.5.3 Study Variables

3.5.3.1. Independent Variables

1. Patients Socio-demographic information: Age, education level, gender, marital status, occupation, religion, residency

2. Patients awareness on availability of kidney transplant as treatment; level of knowledge on the transplantation; patient attitudes and perceptions towards kidney transplantation.

3.5.3.2 Dependent variable

Kidney transplantation uptake: This entail patient's willingness to uptake transplantation of a kidney.

3.6 Data Collection tools

The principal investigator was responsible for recruiting the study participants based on the inclusion criteria at the dialysis centres. For the eligible candidates, informed consent was obtained, and data collection was done by using a structured questionnaire as an instrument for data collection. The structured questionnaire was prepared through the use of standard literature in dialysis and was tested for efficacy through a pre-test study and validated by testing the content with 15 participants.

The questionnaire consisted of social economic and demographic characteristics of the patients, accessibility, awareness, knowledge, perception and attitude towards kidney transplantation. A Likert scale was used in assess patient's knowledge, perception and attitude [22, 28]. Two research assistants with a degree in social science and experience in conducting data collection assisted the principal investigator. They were trained for three days, and thereafter participated in the pre-test of the tools gaining further experience for the actual data collection.

3.6.1 Data Reliability and Validity

Reliability is the consistency of study results over time and the accurate representation the whole population in measuring what it intended to measure given the available information [29]. In this study data collection tools were assessed by different observers, who are more knowledgeable in relation to the study topic.

Validity of the data determines whether the research truly measures what it was intended to measure in the study population. Validity is concerned with whether the findings are really about what they appear to be about [30]. In this study, prior to the pre-test study the questionnaire guide was reviewed by knowledgeable person to ensure its content validity. Furthermore, a pre-test survey of 15 clients was carried in order to improve the questionnaire before embarking on the actual data collection.

3.6.2 Data Management

Data was entered directly into a statistical package for the social sciences (SPSS). Information from open-ended questions were coded and the frequency of similar responses were counted. Descriptive statistics have been used to describe the basic features of the data in this study. In addition, before data analysis a reliability test was performed considering the reference point of Cronbach's Alpha cut off point of 0.70 to ensure the data is reliable [29].

3.6.3 Data Analysis Plan

Social Demographic characteristics of the respondents

Descriptive statistics have been used to summarize patient’s economic and demographic characteristics. Demographic and socioeconomic characteristics includes information on patient gender, age, education, and employment status. Binary and categorical variables are presented in terms of frequency and proportion while continuous variables mean and standard deviation have been used. Results are presented in a frequency distribution table, charts and graphs.

Specific objective 1

Descriptive statistics have been used to summarize factors influence accessibility to kidney transplantation among patients with end stage kidney disease attending dialysis centres in Dar es Salaam. The data are summarized at the univariate level by descriptive statistics (percentages, median, mean in frequency tables); comparisons at bivariate level was carried by the non-parametric test (Mcnemar's chi square test and Mann- Whitney U Test), the level of significance set at P = 0.05%. Variables with a P < 0.05 were entered into a multivariate logistic regression analysis to obtain odds ratios and their 95% CI; to control for confounders, adjusted odds ratios and their 95% CI were calculated.

Specific objective 2

Participant's level of awareness on the availability of kidney transplantation as a treatment for patients with end stage kidney disease attending dialysis centres in Dar es Salaam have been analysed using simple descriptive statistics and displayed using normal frequency distribution tables, charts and graphs indicating the level of awareness for each question asked. Some of the questions included: - aware of availability of kidney transplantation program, knowledge of the number of centres offering the services, availability of service and affordability.

Specific objective 3

Knowledge on kidney transplantation questionnaire comprised of 6 questions was developed. A Likert scale was developed with score range from 1 "strongly disagree" to 5 "strongly agree". Response were later on grouped those who agreed and strongly agreed scored 1, while those who disagreed, strongly disagreed and neutral score 0. The grouping was similar to a study which was used to assess knowledge, attitude and perception about Renal Transplantation of CKD Patients and their Care Givers in Nigeria [22]. A higher score indicated good knowledge on kidney transplantation. The level of knowledge was then categorised as, "high level of knowledge" if the sum of the scores was above mean score 8 - 10, "low level of knowledge" if the sum of the scores was below 4 and "Moderate level of

knowledge" if the sum of the scores ranges from 5 - 7. The data were summarized at the univariate level by descriptive statistics (percentages, median, and mean in frequency tables).

Specific objective 4

Patient's attitudes and perceptions towards the available remedies for end stage kidney disease among patients attending dialysis centres in Dar es Salaam were categorized into a positive or negative attitude. Participants attitudes towards transplantation was assessed as the mean of the sum of attitudes scores for the 8 questions. During the analysis all the values below the mean score were recorded as a negative attitude towards transplantation, while scores above the mean were reported as a positive attitude. We used the same approach as documents elsewhere on assessing attitude towards kidney transplantation services [31].

Patient's perception was assessed using the 5 questions in a Likert scale (Table 4.11) and the responses were summed up and a total score was obtained for each respondent. During the analysis all the values were summed up to obtain mean score, and those scoring below mean score recorded as a negative perception towards transplantation, while scores above the mean were reported as a positive perception. Furthermore, the data was summarized at the univariate level by descriptive statistics (percentages, median, and mean in frequency tables).

3.7 Ethical Consideration

Permission to conduct the study was sought from the dialysis centres' administration. All information obtained from consented patients who were enrolled in the study was kept confidential. Informed consent forms in English/Swahili languages were provided to all study participants for signatures/fingerprint. All the information obtained was used for this study alone and not otherwise. Ethical clearance was sought from the MUHAS Institutional Review Board. The research permit was also sought and obtained from relevant authorities upon visiting a dialysis centres before the data collection.

CHAPTER FOUR

RESULTS

This chapter presents study findings, which are organized according to the study objectives. Thus, the chapter consists of sections, namely: demographic characteristics of the study population; access and knowledge about kidney transplantation; perception and attitude toward kidney transplantation. It is worth noting that the sample size of the study was 148 participants however only 95.9% (142) completed the survey and information has been used during the analysis. The remaining 4.4% (6) respondents terminated the interview midway. The information from these respondents was incomplete and was thus excluded from analysis.

4.1 Demographic characteristics of the Study population

Table 4.1 presents characteristics of the 142 surveyed respondents, of these: 19 (13.4%) completed primary education, 57 (40%) completed secondary and remaining 47 (33%) reported to have tertiary education.

In terms of respondents' age, results show that 64 (45%) were between 18 – 45 years of age, and 48 (34%) were between 45 – 60 years of age. Regarding marital status, about 73 (51%) of the respondents were single and 59 (41%) were married. Of the participants, 103(73%) were male and remaining 39(27%) were female.

Of the surveyed participants, 25(18%) reported to be employed in formal sector, and 64(45%) were self-employed. Majority (75%) reported to be residents of Dar es Salaam and remaining 25% were residents from other regions of Tanzania.

Table 4.1 Demographic characteristics of the Study population

	Frequency (N=142)	Percent
Education Level		
Completed Primary	19	13.4
Secondary incomplete	19	13.4
Completed secondary	57	40.1
Tertiary education	47	33.1
Age of Respondents		
18 - 45 years	64	45.1
45 – 60	48	33.8
Above 60 years	30	21.1
Gender		
Male	103	72.5
Female	39	27.5
Marital Status		
Single	73	51.4
Married	59	41.5
Living together	10	7.0
Employment		
Employment in formal sector	25	17.5
Self employed	64	45.1
Peasant	25	17.6
Unemployed	28	19.7
Religion		
Christian	72	50.7
Muslim	70	49.3
Residency		
Dar es Salaam	106	74.6
Others	36	25.4

4.2 Factors influencing accessibility to kidney transplantation among patients

Participants were asked about access to kidney transplantation services in the study facilities. Findings indicate that close to two thirds (63%) considered access and utilization of services not affordable to them (Table 4.3). Furthermore, more than a half (57%) were aware of the legal procedures for kidney transplantation. Among the reason rated by participants on the affordability of services included lack of financial support (62%), health insurance (29%) and family support (6%) in accessing and testing for kidney transplantation as summarized in table 4.2.

Table 4.2 Factors influencing accessibility to kidney transplantation among patients

S/N	Statement	Score in Percentage			
		YES	No	Don't Know	**Total**
		n (%)	n (%)	n (%)	**N (%)**
1	Are you able to afford the costs for visit and test	52(36.6)	90(63.4)	0(0.0)	**142(100)**
2	Aware of legal procedures for following kidney transplantation	81(57.0)	61(43.0)	0(0.0)	**142(100)**
3	Reasons for not affording		**N= 90**		
	No financial support		56(62.2)		
	Have no health insurance		26(28.9)		
	Transport		3(3.3)		
	No family support		5(5.6)		

4.2.1 Logistic regression analysis showing factors influencing accessibility of transplantation

Among of the factors accounting for the accessibility of kidney transplantation included: cost of the transplantation AOR=0.38 (95% CI, 0.16-0.97, $p<0.05$), discussion with physician about kidney transplantation AOR=3.86 (95% CI, 1.18-12.61, $p<0.05$), and having a positive attitude toward kidney transplantation AOR=2.61 (95% CI, 1.14-5.93, $p<0.05$) as presented in table 4.3.

Table 4.3 Logistic regression analysis showing factors influencing accessibility of transplantation

	Univariate		Multivariate	
	Crude Odds Ratio	p-value	Adjusted Odds Ratio	p-value
Education Level				
Primary Education	Reference		Reference	
Secondary incomplete	0.81(0.23-2.89)	0.746	0.36(0.06-1.86)	0.223
Secondary and above	0.87(0.32-2.31)	0.773	0.81(0.21-3.13)	0.763
Employment				
Formal employed	Reference		Reference	
Self employed	0.47(0.18-1.20)	0.116	0.35(0.12-1.07)	0.065
Peasant	1.39(0.45-4.35)	0.564	0.87(0.24-3.26)	0.845
Unemployed	1.04(0.35-3.11)	0.933	1.78(0.44-7.19)	0.420
Age of Respondents				
Below 46 year	Reference		Reference	
46 – 60	0.75(0.35-1.58)	0.445	0.76(0.27-2.08)	0.598
Above 60	0.77(0.32-1.84)	0.560	0.38(0.12-1.14)	0.083
Marital Status				
Cohabiting	Reference		Reference	
Married	1.25(0.64-2.44)	0.514	1.03(0.41-2.58)	0.954
Cost of transplantation				
Low cost	Reference		Reference	
High costs	0.38(0.19-0.78)	0.009	0.40(0.16-0.97)	0.043
Discussed with physician				
Not discussed	Reference		Reference	
Discussed	2.26(0.94-5.45)	0.069	3.86(1.18-12.61)	0.025
Heard of success stories				
Heard	Reference		Reference	
Not heard	0.21(0.06-0.67)	0.008	0.36(0.08-1.57)	0.175
Knowledge				
Low	Reference		Reference	
Medium knowledge	1.26(0.46-3.49)	0.652	2.01(0.50-8.05)	0.325
High knowledge	1.18(0.43-3.25)	0.743	1.87(0.47-7.31)	0.369
Attitude				
Negative	Reference		Reference	
Positive	2.51(1.27-4.93)	0.008	2.61(1.14-5.93)	0.022
Constant			0.459(0.062- 3.402)	0.447

NB Significance at respectively *, = 5% **, =1% *** =0.1%

4.3 Awareness on availability of kidney transplantation as a treatment for patients with ESRD

The large majority (96%) of the respondents were aware on the availability of kidney transplantation in Tanzania, and more than a half (56%) were aware of centres performing kidney transplantation. A large majority (81%) of the study participants pointed out that they had discussed with a physician, while 26 (18%) stated that they have been referred for transplantation, while 20(14%) reported to have heard of a successful case after transplantation. About two thirds (65%) reported to have heard of sad and unsuccessful case after transplantation, however about the same percentage (67%) indicated that were considering having transplantation as presented in table 4.4.

Table 4.4 Awareness on the availability of kidney transplantation as a treatment for patients with ESRD

S/N	Awareness Statements	Score in Percentage			
		YES	No	Don't Know	Total
		n(%)	n(%)	n(%)	N (%)
1	Aware of availability of kidney transplantation in Tanzania	137(96.5)	5(3.5)	0(0.0)	142(100)
2	Know centers performing kidney transplantation	80(56.3)	62(43.7)	0(0.0)	142(100)
3	Physician discussed	115(81.0)	27(19.0)	0(0.0)	142(100)
4	Ever referred for transplantation	26(18.3)	116(81.7)	0(0.0)	142(100)
5	Heard of successful cases after transplantation	20(14.1)	81(57.0)	41(28.9)	142(100)
6	Heard of sad and unsuccessful case after transplantation	92(64.8)	47(33.1)	3(2.1)	142(100)
7	Considering having transplantation	95(66.9)	47(33.1)	0(0.0)	142(100)

Also the study participants were asked about discussing with the physician about considering having kidney transplantation at any time, the results revealed that large majority (86 %) discussed with physician about kidney transplantation while 14 % did not discuss with physician about kidney plantation. In addition, of the patients not considering having kidney transplantation, more than two thirds (70 %) discussed with physician about kidney transplantation while 30 % did not discuss with physician about kidney transplantation. The statistical association between the influence of physician discussion with patients on their consideration for kidney transplantation was tested using chi-square and p-value at 5% significant level. The results revealed that, patients who discussed with physician were more likely to consider having kidney transplantation compared to patients who did not discuss with physician about kidney transplantation (Chi square 5.295, *p= 0.021*) as indicated in Table 4.5

Table: 4.5 Influence of physician discussion with patients on their consideration for kidney transplantation

Physician discussion	**Consideration for kidney transplantation**		**Chi square value**	**p-value**
N (%)	Yes	No		
Yes	82(86.3)	33(70.2)	5.295	0.021
No	13(13.7)	14(29.8)		
Total	95 (100)	47 (100)		

Furthermore, the respondents were asked about the importance of availability of kidney transplantation. The findings show that a large majority (87%) considered availability of kidney transplantation to be important as presented in table 4.6.

Table 4.6 Importance of availability of kidney transplantation

Response	Frequency	Percent
Not important	9	6.3
Somewhat important	9	6.3
Important	29	20.4
Very important	95	66.9
Total	142	100

Also the source of information on kidney transplantation was solicited in the study. The large majority (92%) of the study participants reported to have heard of kidney transplantation services, the main identified source was physician 73.3 %, followed by nurse 12.2% and books (internet) 7.6% as presented in table 4.7.

Table 4.7 Source of information on kidney transplantation among study participants

S/N		Score in Percentage			
		YES	No	Don't Know	Total
		n(%)	n(%)	n(%)	N (%)
1	Heard about kidney transplantation	131(92.3)	11(7.7)	0(0.0)	142(100)
2	Source of information	**N = 131**			
	Physician	96(73.3)			
	Nurse	16(12.2)			
	Relative	0(0.0)			
	CKD patients	6(4.6)			
	Books-internet	10(7.6)			
	Others	3(2.3)			

4.4 Knowledge on the available remedies for ESRD among patients

In this study participants' knowledge was measured using a Likert scale. The knowledge score had a sum of 10 points and was categorized into three levels; high level of knowledge for those who scored 8 - 10 points, moderated level of knowledge 5 - 7 points and low level of knowledge 0 - 4 points. The results show that half (51%) of the respondents had a moderate level of knowledge, while (37%) had high level of knowledge on kidney transplantation as presented in table 4.8.

Table 4.8 Level of Knowledge on kidney transplantation among study participants

Level of Knowledge	Frequency	Percentage
Low level of knowledge	17	11.9
Moderate level of knowledge	72	50.7
High level of knowledge	53	37.3
Total	142	100

Furthermore, the relationship between study participant's knowledge on kidney transplantation with their level of education was tested using a chi square test and p-value at 5% significant level. The findings show that, there was no relationship between study participants knowledge on kidney transplantation with their level of education (chi square 1.753, *p=0.416*). However, half (50%) of respondents with primary education had moderate knowledge on kidney transplantation followed by 44% who have high knowledge on kidney transplantation. Moreover, half (50%) of respondents with secondary education and above had high knowledge on kidney transplantation followed by 40% who had moderate knowledge on kidney transplantation. Furthermore, only 9% of respondents with secondary education and above had low knowledge on kidney transplantation as presented in table 4.9.

Table: 4.9 Relationship between study participants' Knowledge on kidney transplantation and their Education Level

Knowledge on Kidney Transplantation	**Education Level**			**Chi square value**	**P-value**
N (%)	Primary	Secondary and above	Total		
High Knowledge	4(23.5)	13(76.5)	17(11.9)	1.753	0.416
Moderate Knowledge	9(12.5)	63(87.5)	72(50.7)		
Low Knowledge	6(11.3)	47(88.7)	53(37.3)		
Total	19	123	142		

4. 5 Attitudes towards transplantation remedies for end stage kidney disease.

Participant's attitude toward kidney transplantation was assessed using the 8 questions. The responses were summed up and a mean score was obtained for each respondent, the minimum score was 0 and maximum was 8. Those who scored above the mean value had positive attitude and scores below the mean meant negative attitude towards kidney transplantation. Of the surveyed respondents, majority (68%) had positive attitudes while few (31%) had negative attitudes on kidney transplantation

Table 4.10 Responses on attitude towards kidney transplantation

S/N	Attitude towards kidney transplantation	Score in Percentage			
		YES	No	Don't Know	Total
		n(%)	n(%)	n (%)	N (%)
1	Would ask for kidney donation	102(71.8)	14(9.9)	26(18.3)	142(100)
2	Willing for my family member to donate kidney for me	133(93.7)	2(1.4)	7(4.9)	142(100)
3	Willing to attend a class about kidney transplantation	131(92.3)	5(3.5)	6(4.2)	142(100)
4	Would consider purchasing a kidney from a living donor if there is an opportunity to do that	74(52.1)	46(32.4)	22(15.5)	142(100)
5	Would prefer kidney donation from deceased donor	12(8.5)	108(76.1)	22(15.5)	142(100)
6	Would recommend transplantation to someone aged 60 years old and above	35(24.6)	81(57.0)	26(18.3)	142(100)
7	Would recommend transplantation for everybody	108(76.1)	29(20.4)	5(3.5)	142(100)
8	Transplantation is good than hemodialysis	112(78.8)	30(21.1)	0(0.0)	142(100)

4. 6 Perceptions towards the available remedies for end stage kidney disease.

When asked whether transplantation is the best possible solution for a patient on dialysis, 70(49%) fully agreed, while 56(39.4%) agreed. Also 58(41%) fully agreed that the cost of transplantation was high compared to dialysis. Furthermore 48(34%) fully agreed that their health would not improve by only staying on dialysis for a year, while 41(29%) disagreed that their health would improve. Half of the participants (51%) perceived that transplantation

surgery is not an ordinary procedure (Table 4.11). The mean score for the Likert scale used in assessing perception was 18.7, with a minimum and maximum score of 13 and 23 respectively. Of the surveyed respondents, majority (36%) had a negative perception towards kidney transplantation.

Table 4.11 Likert Scale responses on perceptions towards kidney transplantation

S/N	Perception towards kidney transplantation	Score in Percentage					
		Strong Disagree	Disagree	Neither agree nor disagree	Agree	Strong Agree	Total
		n(%)	n(%)	n(%)	n(%)	n(%)	N (100)
1	Do you perceive transplantation to be the best possible solution for a patient on dialysis?	4(2.8)	12(8.5)	0(0.0)	56(39.4)	70(49.3)	142(100)
2	Do you perceive high costs associated with transplantation surgery?	16(11.3)	21(14.8)	3(2.1)	44(31.0)	58(40.8)	142(100)
3	Do you perceive improved in overall health status one year by staying on dialysis?	11(7.7)	41(28.9)	0(0.0)	42(29.6)	48(33.8)	142(100)
4	Do you perceive haemodialysis is cheaper treatment compared to kidney transplantation	30(21.1)	47(33.1)	7(4.9)	13(9.2)	45(31.7)	142(100)
5	Do you perceive transplant surgery is not an ordinary service	7(4.9)	34(23.9)	3(2.1)	26(18.3)	72(50.7)	142(100)

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.0 Discussion

The study aimed to explore access and knowledge about kidney transplantation; perception and attitude toward kidney transplantation and factors affecting uptake of kidney transplantation among clients attending dialysis centres in Dar es Salaam. The subsequent sections present discussion of the research findings in this particular study.

5.1 Summary

This was a quantitative hospital-based cross-sectional study was carried among 142 patients with end-stage kidney disease in Dar es Salaam dialysis centres. Results showed that most of the participants had moderate knowledge and were aware of the availability of kidney transplantation. Furthermore, few participants had negative attitudes towards kidney transplantation. The most important factors found to explain participants' uptake of the kidney transplantation included; cost of the transplantation, discussion with physician about kidney transplantation, and having a positive attitude toward kidney transplantation.

5.1.1 Factors that influence accessibility to kidney transplantation

The findings on the effect of negative perception on the kidney transplantation are similar to a study which was conducted in Budapest, Hungary [15]. Authors applies a logistic multivariate model, and found that negative patient perceptions about transplantation and negative expectations related to the health outcomes after transplantation significantly influence patient uptake of transplantation. In most cases a negative attitude has been found to be a barrier toward access and utilization of transplantation services in different places [32]. Majority considers access and utilization of services not affordable to them. Among the reason rated by participants on the affordability of services includes, have no financial support, have no health insurance and lack of family support in accessing and testing for kidney transplantation. Financial burden to the patient as well as family influence the decision to undertake

transplantation [33]. In Nigeria most of the study participants' were of the opinion that the transplantation is very expensive, and level of uptake was mainly influenced respondents' fear of death, and shortage of financial resources for kidney transplantation [13]. Studies have shown that patients perceive the service to be costly and this becomes a burden to the patient as well as family and relatives [33]. Most costs are associated with access to and utilization of healthcare services, food, medicines and other basic needs [33, 34]. In United States, it was found that willingness to undergo a kidney transplant among the CKD clients was associated with a positive perception towards living kidney donation, perception on the improvement of the quality of life compared to dialysis, attendance in education/counselling classes and clear information on a transplant from other sources [27].

5.1.2 Awareness on availability of kidney transplantation

We found that most of the participants knowledgeable and aware on availability of kidney transplantation. Most of the interviewed people were not only aware but also they were able to mention some of the facilities performing kidney transplantation. Patients regard information as a tool to understand and get prepared for medication. A regular discussion and follow-up with doctor/physician together with healthcare educators' increases patients awareness of kidney transplantation as they are expected to provide quality information to the patient [33]. Uptake of kidney transplantation relates to the trust patient place on physician. A long term patient-doctor relationship gives the patient room to ask questions and becomes more aware of things related with the transplantation and this makes a patient more comfortable with the treatment. The relationship might be complex; most studies indicate that doctor usually dominates patient decision [35, 36]. Patient's awareness of the benefits of the transplantation influences the decision to undertake transplantation. Evidence shows that individuals who do not know that kidney transplantation improves the quality of their life a less likely to accept transplantation services [37].

5.1.3 Knowledge on the available remedies for end stage kidney disease

Knowledge assessment in this study revealed that lager proportion of the participants had higher knowledge, followed with those with a moderate knowledge on kidney transplantation. Participants pointed out different sources of information including, discussion with a physician, and nurse. While others mentioned the source of information to be from relative, CKD patients and through readings from books-internet. Good flow of information from the healthcare providers and patients is crucial in influencing patients' level of knowledge [38]. In this study patients get knowledge from various sources this is similar to other study which assessed prior knowledge of kidney transplant and the source of information [27]. Health facility is the most important source of information on the availability of services to the patients. In this study we did not assess the influence of time on the knowledge, however in Norway, it was found that the longer the time for undertaking dialysis prior to patient undergoing transplantation had a negative impact on patient knowledge [23].

5.1.4 Attitudes and perceptions towards the available remedies for end stage kidney disease

Participants had a positive attitude towards a kidney donation from a family member and majority were willing to attend a class about kidney transplantation. Most of the surveyed respondents had positive attitude while few had negative attitude on kidney transplantation. A systematic review study to assess the factors influencing decision to renal replacement indicated that religious believe was associated with a positive attitude [33]. Authors argued that elderly patients with strong religious beliefs in most cases tend to select conservative treatment because of personal beliefs [33]. The findings on attitude are similar to a cross sectional study undertaken in Moroccan Interregional which found that majority of the patients had a positive attitude towards receiving organ from a living or cadaveric donor while few reject organs from donors after brain death [25].

5.2 Limitations of the Study

The research was done to people with ESRD disease only attending dialysis which may not reflect the general population. A more representative study can be carried out across the country to understand the magnitude of the problem and the need for undertaking kidney transplantation. Also there is a great possibility of patients giving desirable answers (social desirability bias). Use of a well-trained interviewer can help avoid this bias to some extent [39]. During data collection research assistants were well trained on probing skills this helped to reduce the social desirability bias.

5.3 Conclusion

This study has identified factors influencing patients' uptake of kidney transplantation. This study has identified factors influencing patients' uptake of kidney transplantation. More research is needed to uncover why some of the patients have negative attitude towards kidney transplant will provide crucial information to the clinicians and health management. Information provided will help to advice on how transplantation education/counselling can be tailored towards needs of specific population.

5.4 Recommendations

Basing on the findings of this study it is recommended that:

Practice

1. It is crucial to promoting multiple information sources existing in different settings such as local radio, television, friends, newspapers, and other social media to increase level of awareness and knowledge of kidney transplantation to the public.
2. Healthcare providers should ensure people centred healthcare services; this will improve doctor-patient relationship and will subsequently influence the uptake of the transplantation services.

Training

3. It is therefore important to ensure patients become aware of the health benefits to undertake kidney transplantation prior to the onset of dialysis services.
4. Healthcare providers should be capacitated with enough skills to undertake cancelling and renal transplantation

Policy

5. The government should invest in the services so as to reduce the high costs for dialysis as well as transplantation process
6. Advocacy on the importance of health insurance as people covered by health insurance have higher opportunity to access care as compared to none insured

Research

7. More research is needed to uncover why some of the patients have negative attitude towards kidney transplant will provide crucial information to the clinicians and health management.
8. In-depth qualitative research to explore how attitudes, knowledge, and certain socio-demographic information impact a patient's intention to pursue kidney transplant.

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Appendix 1: Informed consent, English Version

Appendix I: INFORMED CONSENT FORM (ENGLISH VERSION)

ID-HD/MUH/T.639/2019.

Dear participant, Greetings!

My name is Elizabeth Stephen Moshi; I am conducting research to determine the factors associated with uptake of kidney transplantation among patients with end stage kidney disease attending dialysis centres in Ilala District in Dare s salaam Region

Purpose of the study

The study conducting is for the partial fulfilment for attaining of the degree of Master of Public Health (MPH) from Muhimbili University of Health and Allied Science. Moreover, the study aims at adding more knowledge on the factors associated with uptake of kidney transplantation among patients with end stage kidney disease.

Participant involvement

Once a patient agrees to be involved in the study and informed consent has been signed, a series of questions will be asked, based on the data collection tool.

Confidentiality

Information obtained from each study participant will be kept confidential. Interviews will be done as discreet as the environment allows. No name will appear on any document of the study and identification numbers shall be used instead.

Participant rights

The decision for participating in the study is voluntary. Refusal or withdrawal from the study will not have interference with your management at the hospital and no penalty will be give

Benefits

Your participation will help us in the medical field with more knowledge on factors. And in so doing will assist in better care and support of dialysis and transplantation in the society.

Risks

Your participation in this study would not compromise your disease outcome nor influence your health service provision at the hospital. Also, all your personal medical information will not be disclosed to the public and will be always is kept confidential except to those involved in undertaking the study.

Contacts

In case you have doubts or need more clarification regarding the study, you can contact I, Elizabeth S. Moshi, the Principal Investigator through my mobile number +255 784 892 435 or P. O. Box 65000 Dar es Salaam or Prof. Donath Tarimo (Mobile number +255 784 496 718, the Supervisor of this study.

I ……have read and understood the contents of this form. I have agreed/not agreed to participate in this study.

Signature of Participant ……..Date…….……

Signature of Researcher ……..Date…….

Appendix II :(INFORMED CONSENT SWAHILI VERSION) FOMU YA RIDHAA

Namba ya utambulisho-HD/MUH/T.639/2019

Utambulisho

Habari, Jina langu ni Elizabeth Stephen Moshi, ninafanya utafiti kwa lengo la kufahamu sababu zinazohusisha utumiaji wa upandikizaji figo kati ya wagonjwa wa figo walio katika hatua ya mwisho wanaohudhuria vituo vya usafishaji figo katika wilaya ya Ilala mkoa wa Dar es salaam.

Malengo ya utafiti

Utafiti unaofanywa nikwa ukamilisho wa shahada ya uzamili (Master degree of Public Health) kutoka Chuo Kikuu cha Muhimbili. Zaidi utafiti huo unakusudia kuongeza maarifa zaidi katika uwanja wa upandikizaji wa figo kwa wagonjwa wanaohudhuria huduma hizo katika vituo.

Ushiriki

Mara tu mgonjwa akikubali kushiriki katika utafiti na fomu ya ridhaa kuwa imesainiwa, mfululizo wa maswali yataulizwa kulingana na mwongozo wa ukusanyaji wa taarifa.

Usiri

Taarifa zitakazopatikana kutoka kwa kila mshiriki wa utafiti huu zitahifadhiwa kwa siri. Mahojiano yatafanywa kwa busara kama mazingira yatakavyo ruhusu. Hakuna jina litakaloonekana kwenye hati yoyote ya utafiti na badala yake namba zitatumika.

Haki ya mshiriki

Uamuzi wa kushiriki katika utafiti ni wahiari. Kukataa/kujiondoa kwenye utafiti hakutoathiri upatikanaji wa huduma na hakuna adhabu yoyote itakayotolewa.

Manufaaa

Ushiriki wako utatusaidia katika uwanja wa matibabu na kujua zaidi juu ya upandikizwaji wa figo. Na kwakufanya hivyo kutasaidia utoaji wa huduma bora na msaada kwa wagonjwa wa figo.

Madhara

Ushiriki wako kwenye utafiti huu hautoathiri matokeo ya ugonjwa wako, pia hauto athiri kupata huduma hospitalini. Pia taarifa zako binafsi zihusuzo ugonjwa/matibabu hazitofichuliwa kwa umma na zitahifadhiwa kwa siri isipokuwa kwa wale wanaohusika katika kufanya utafiti.

Mawasiliano

Endapo unashaka, ama utahitaji maelezo zaidi juu ya utafiti huu, wasiliana na Elizabeth S. Moshi, mtafiti mkuu kwa namba ya simu +255 784 892 435, ama sanduku la posta (S.L.P 65000, Dar es Salaam ama wasiliana na Prof. Donath Tarimo (kwa namba +255 784 496 718), ambaye ni mshauri, msimamizi na mtafiti mkuu.

Mimi .....nimesoma na nimeelewa yaliyomo katika fomu hii ya mimi kukubali kushiriki katika utafiti huu.

Sahihi ya mshiriki ……..Tarehe…….……

Sahihi ya mtafiti ……..Tarehe…….

Appendix III: Structured Questions –English version

SECTION A: Social Demographic characteristics of the respondents

For official use only

Identification number ☐☐

Date of Interview ……/……/……

S/N	Variables	Categories	Response
1	Age	a) 18-45 b) 46-60 c) above 60 years	
2	Sex	a) Male b) Female	
3	Marital status	a) Single b) Married c) Divorced d) Separated e) Widow f) Widower	
4	Education level	a) No formal education b) Primary incomplete c) Primary completed d) Secondary incomplete e) Secondary completed f) Tertiary education	
5	Occupation	a) Employed in formal sector b) Self employed c) Peasant d) Unemployed	
6	Residency	a) Dar es salaam b) Others Mention…….	
7	Religion	a) Christian b) Muslim c) Others.....	

SECTION B: Accessibility to kidney transplantation and Awareness on availability of kidney transplantation as treatment for patients with end stage kidney disease

S/N	Variable	Response	Choice
8	Are you aware of availability of kidney transplantation program in Tanzania?	a) Yes b) No	
9	Do you know how many centres in Tanzania perform kidney transplantation?	a) Yes b) No	
10	How important is this availability of kidney transplantation program to you?	a) Not important b) Somewhat important c) Important d) Very important e) Don't know	
11	Are you considering having kidney transplantation at any time	a) Yes b) No	
12	If no, what is your reason for not considering kidney transplantation?	a) No donor b) No financial support c) Medically unfit d) No family support e) Not motivated f) Others ……	
13	Are you affording the cost for visits and tests during the evaluation process?	1. Yes 2. No	
14	If no, what could be the reasons for not affording the cost?	1. No financial support 2. No insurance 3. No family support 4. No means of transport	
15	If yes, are you aware of legal procedures following kidney transplantations?	a) Yes b) No	

SECTION C: Level of knowledge on the available remedies for end stage kidney disease

S/N	Variable	Response	Choice
16	Heard about kidney transplant (Prior knowledge)	1.Yes 2.No	
17	What was the source of information	1. Physician 2. Nurse 3. Relatives/ 4. CKD patients/ 5. Books/Internet 6.Others (mention)	
18	The physician discussed transplant with the patient?	1.Yes 2.No	
19	Ever referred for transplant evaluation?	1.Yes 2.No	
20	I have seen many successful cases after Transplantation	1.Yes 2. No 3. Do not know	
21	I have seen many sad and unsuccessful cases after Transplantation.	1.Yes 2. No 3. Do not know	
22	I have sufficient knowledge regarding transplantation.	1.Strongly Agree 2.Agree 3.Uncertain 4.Disagree 5.Strongly disagree	
23	Kidney transplantation is removing 1 kidney from a donor to recipient.	1.Strongly Agree 2.Agree 3.Uncertain 4.Disagree 5.Strongly disagree	
24	Well screened eligible donation is safe in most cases	1.Strongly Agree 2.Agree 3.Uncertain 4.Disagree 5.Strongly disagree	
25	Transplant is done when one reaches	1.Strongly Agree	

	dialysis stage	2.Agree 3.Uncertain 4.Disagree 5.Strongly disagree	
26	Transplantation will end requirement for dialysis	1.Strongly Agree 2.Agree 3.Uncertain 4.Disagree 5.Strongly disagree	
27	Types of kidney donors are….	1.Directed donation from living donors 2.Non-directed donation	
28	I know a lot about how long a transplanted kidney might work for me	1.Strongly Agree 2.Agree 3.Uncertain 4.Disagree 5.Strongly disagree	
29	On a 5 point scale ranging from "no knowledge of it" (1 point) to "well informed" (5 points). What would you say about your level of knowledge about kidney transplant?	1.No knowledge of it 2.Little knowledge 3.Uncertain 4.Informed 5.Well informed	

SECTION D: The attitudes and perceptions towards the available remedies for end stage kidney disease

S/N	Variable	Response	Choice
30	Transplantation is the best possible solution for a patient on dialysis	1.Agree 2.fully agree 3.disagree 4. Fully disagree 5. Dont know	
31	I prefer for kidney transplantation rather than haemodialysis	1.Agree 2.fully agree 3.disagree 4. Fully disagree 5. Dont know	
32	Kidney transplantation causes more problems than benefits for a patient	1.Agree 2.fully agree 3.disagree 4. Fully disagree 5. Dont know	
33	I am concerned about the cost of transplantation surgery	1. Fully agree 2. agree 3. disagree 4. Fully disagree 5. Dont know	
34	I am concerned about the cost of lifelong treatment following transplantation	1.Agree 2.fully agree 3.disagree 4. Fully disagree 5. Dont know	
35	What do you think your overall health will be like in one year if you stay on dialysis?	1.Very poor 2. Poor 3.Fair 4. Good 5. Excellent	
36	Haemodialysis is cheaper treatment compared to kidney transplantation	1.Agree 2.fully agree 3.disagree	

		4. Fully disagree 5. Dont know	
37	Would you ask for kidney donation?	1.Yes 2.No 3.Dont know/Not sure	
38	I am willing for my family member to donate kidney for me	1.Yes 2.No 3.Dont know/Not sure	
39	Willing to attend a class about kidney transplantation?	1.Yes 2.No 3.Dont know/Not sure	
40	Transplant surgery is ordinary/ serious/ very dangerous	1.Agree 2.fully agree 3.disagree 4. Fully disagree 5. Dont know	
41	Would you consider purchasing a kidney from a living donor if there is an opportunity to do that?	1.Yes 2.No 3.Dont know/Not sure	
42	Would you prefer kidney donation from deceased donor?	1.Yes 2.No 3.Dont know/Not sure	
43	Would you recommend transplantation to someone aged 60 years old and above?	1=Yes 2=No 3=Don’t know/Not sure	
44	Would you recommend transplantation to 35 years old?	1=Yes 2=No 3=Don’t know/Not sure	
45	Kidney transplantation is a good thing and should be promoted	1=Yes 2=No 3=Don’t know/Not sure	
46	Would you recommend transplantation for everybody?	1=Yes 2=No 3=Don’t know/Not sure	

Appendix IV: Structured Questions- Swahili Version
KIPENGELE A: Taarifa binafsi

Namba ☐☐
Tarehe ya mahojiano _____

Namba	Maelezo	Chaguzi	Jibu
1	Umri	a) 18-45 b) 46-60 c) Zaidi ya 61	
2	Jinsia	a) Mwanaume b) Mwanamke	
3	Hali ya ndoa	a) Hajaoa/hajaolewa b) Ameoa/Ameolewa c) Achana d) Tengana	
4	Ngazi ya elimu	a) Hajasoma kabisa b) Hajamaliza elimu ya msingi c) Amemaliza elimu ya msingi d) Hajamaliza sekondari e) Amemaliza sekondari f) Amesoma Zaidi ya elimu ya sekondari	
5	Shughuli/Kazi	a) Mwajiri wa sekta rasmi b) Amejiajiri c) Mkulima d) Mfanyabiashara e) Hajaajiriwa/Jiajiri	
6.	Makazi	1. Dar es Salaam 2. Kwingine(taja) ……	
7.	Dini	a) Mkristo b) Muislam c) Nyingine (taja).....	

KIPENGELE B: Upatikanaji na Ufahamu wa huduma za upandikizaji wa figo kama matibabu kwa wagonjwa wa figo

Namba	Maelezo	Chaguzi	Majibu
8	Je unatambua kwamba huduma ya upandikizaji wa figo inafanyika tanzania	1=Ndio 2=Hapana	
9	Je wajua ni vituo vingapi kwa Tanzania vinatoa huduma ya upandikizaji figo?	1=Ndio 2=Hapana	
10	Je ina umuhimu kiasi gani upatikanaji wa huduma za upandikizaji figo?	1.Sio muhimu 2. Muhimu kiasi 3. Muhimu 4. Muhimu sana 5. Sijui	
11	Je wafikiria kufanya upandikizaji wa figo muda wowote?	1. Ndio 2. Hapana	
12	Endapo hapana, je ni sababu zipi zikufanyazo usifanye upandikizaji wa figo?	1.Hakuna mtoaji 2. Hakuna msaada wa fedha 3. Sipo sawa kiafya 4. Hamna msaada wa familia 5. Sipo tayari 6. Nyinginezo (taja)	
13	Unaweza kumudu gharama za kufika kituoni na vipimo wakati wa tathmini?	1. Ndio 2. Hapana	
14	Kama hapana,kipi kinaweza kua sababu ya kushindwa kumudu gharama?	1. Hakuna msaada wa kifedha 2. Sina bima ya afya 3. Usafiri 4. Hakuna msaada wa kifamilia	
15	Endapo ndio, je watambua taratibu maalumu za kisheria katika upandikizaji wa figo	1.Ndio 2. Hapana	

KIPENGELE C: Uelewa wa huduma za figo na upandikizaji

Namba	Maelezo	Chaguzi	Majibu
16	Umewahi kusikia kuhusu upandikizaji figo?	1. Ndiyo 2. Hapana	
17	Ni kipi chanzo cha taarifa?	1. Daktari 2. Muuguzi 3. Ndugu 4.Wagonjwa wengine 5.Vitabu/majarida/ mitandao 6. Nyingine (taja)	
18	Daktari alijadili upandikizaji na mgonjwa	1. Ndiyo 2. Hapana	
19	Uliwahi pewa rufaa ya kwenda kufanya tathimini ya upandikizaji	1. Ndiyo 2. Hapana	
20	Nimeshuhudia kesi nyingi zisizo na mafanikio baada ya upandikizaji	1. Ndiyo 2. Hapana 3. Sijui	
21	Nimeshuhudia mafanikio baada ya upandikizaji	1. Ndiyo 2. Hapana	
22	Nina uelewa wa kutosha kuhusu upandikizaji	1.Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
23	Upandikizaji ni kutoa figo kutoka kwa mchangiaji kwenda kwa mgonjwa	1.Nakubali sana 2. Nakubali	

		3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
24	Upandikizaji hufanyika mara mgonjwa afikiapo hatua ya usafishaji figo	1.Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
25	Upandikizaji utasitisha usafishaji wa figo	1.Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
26	Upandikizaji hupelekea kusitishwa kwa huduma ya usafishaji figo	1.Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
27	Aina za uchangiaji figo ni.....	1.Kutokakwa binadamu anayeishi 2.Kutokakwa waliofariki	
28	Nafahamu sana kuhusu muda ambao figo iliyopandikizwa itafanyakazi kwangu	1.Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	

29	Katika ngazi ya hatua 5 kuanzia kutokuwa na ufahamu (1ngazi ya kwanza) hadi kuwa na ufahamu mzuri (ngazi ya 5). Je waeza sema upo katika ngazi ipi ya uelewa wa upandikizaji wa figo?	1.Sina uelewa 2. Uelewa kidogo 3. Sina hakika 4. Uelewa upo 5.Uelewawa kutosha kabisa	

KIPENGELE D: Mtazamo na Mwelekeo kuhusu upatikanaji wa huduma

Namba	**Maelezo**	**Chaguzi**	**Majibu**
30	Upandikizaji wa figo ndio njia mbadala kwa mgonjwa anayefanyiwa usafishaji wa figo	1.Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
31	Napendelea upandikizwaji wa figo ukilinganisha na huduma ya usafishwaji wa figo	1.Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
32	Upandikizwaji wa figo unasababisha madhara zaidi ya manufaa	1. Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
33	Nina wasiwasi juu ya gharama ya upandikizwaji wa figo	1. Nakubali sana 2. Nakubali 3. Sina hakika	

		4. Sikubali 5. Sikubali kabisa	
34	Nina wasiwasi juu ya gharama ya matibabu ya muda mrefu baada ya upandikizaji wa figo	1. Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
35	Je unafikiri kwa ujumla afya yako itakuwaje baada ya mwaka mmoja endapo utabaki kwenye huduma ya usafishwaji figo?	1. Mabaya sana 2. Mabaya 3. Kiasi 4. Mazuri 5. Mazuri sana	
36	Huduma ya usafishaji wa figo ni rahisi ukilinganisha na huduma ya upandikizwaji figo	1. Nakubali sana 2. Nakubali 3. Sina hakika 4. Sikubali 5. Sikubali kabisa	
37	Je utaomba huduma ya upandikizwaji figo?	1. Ndio 2. Hapana 3. Sina hakika	
38	Nipo tayari kwa mwanafamilia kujitolea figo kwa ajili yangu	1. Ndio 2. Hapana 3. Sina hakika	
39	Nipo tayari kuhudhuria darasa litoalo elimu kuhusu upandikizwaji wa figo	1. Ndio 2. Hapana 3. Sina hakika	
40	Upandikizaji wa figo ni wa kawaida/hatari	1. Nakubali sana 2. Nakubali 3. Sina hakika	

		4. Sikubali 5. Sikubali kabisa	
41	Je utafikiria kununua figo kutoka kwa mwanadamu anayeishi endapo kuna nafasi ya kufanya hivyo?	1. Ndio 2. Hapana 3. Sina hakika	
42	Je utapendelea figo kutoka kwa mtu aliyefariki?	1. Ndio 2. Hapana 3. Sina hakika	
43	Je! Utapendekeza Kupandikiza kwa mwanamke wa miaka 67?	1=Ndio 2=Hapana 3=Sijui	
44	Je! Utapendekeza kupandikiza kwa mtu wa miaka 35?	1=Ndio 2=Hapana 3=Sijui	
45	Kupandikiza figo ni jambo zuri na inapaswa kukuzwa	1=Ndio 2=Hapana 3=Sijui	
46	Je! Utapendekeza upandikizwaji wa figo kwa kila mtu?	1=Ndio 2=Hapana 3=Sijui	