



(RESEARCH ARTICLE)



## Evaluation of knowledge and attitudes towards kidney transplantation in patients undergoing hemodialysis at Muhimbili National Hospital, Tanzania.

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### Abstract

Renal replacement therapy (RRT) is the treatment of choice for patients with End Stage Renal disease (ESRD), RRT include dialysis and kidney transplantation. Some sub-Saharan African countries including Tanzania have improved nephrology services dialysis and kidney transplant. This study aimed to assess knowledge, attitude and practices towards kidney transplantation among patients undergoing dialysis at Muhimbili National Hospital. This was a hospital based cross-sectional study that was conducted at Muhimbili National Hospital. A total of 190 patients were interviewed, majority were males 133(70%) with the age range of 18-80 years. Most patients 183(96.35%) were aware of Kidney transplantation the main source of information 175(95.6%) being hospital with 159 (86.9%) patients being aware of rules guiding kidney transplantation and 166 (90.7%) were aware of lifelong medication use after kidney transplantation. Knowledge on transplant was noted in 115(62.8%) with all of them being willing to receive kidney from blood related relatives. Majority 188 (64.5%) patients were not sure whether live kidney donation was better than deceased kidney donation. Better knowledge may ultimately translate into the act of donation. Effective measures should be taken to educate people with relevant information with the involvement of media, doctors and religious scholars. Large proportion considers Kidney Transplant positively but it limited by shortage of donors.

**Keywords:** Awareness; Knowledge; Attitude; Hemodialysis; Kidney transplant

### 1. Introduction

Organ transplantation is one of the noteworthy advancements in medical science. Since ancient times, organ and tissue transplantation has been widely contemplated to be feasible. The first organ to be transplanted was the kidney, performed by Dr. Joseph Murray and Dr. David Hume at Brigham Hospital in Boston in 1953[1]. Organ transplantation saves thousands of lives worldwide. According to WHO data, kidney transplants are carried out in 91 countries, around 66,000 kidney donations, 21,000 liver donations and 6000 heart donations were transplanted globally in 2005. Organs for donation are procured from both living donors as well as cadavers [2]. At the World Health Organization's (WHO) Second Global Consultation on Human Transplantation March 2007, it was predicted that organ trafficking accounts for 5% to 10% of the kidney transplants achieved annually throughout the world [3].

The epidemiological pattern of diseases has changed in low income countries including Tanzania whereby there is a paradigms shift to Non Communicable Disease (NCD) leading to high demand of nephrology services (dialysis and transplant) due. In Tanzania about 933 patients with Chronic Kidney Disease (CKD) are on dialysis [4]. The demand of nephrology services could high due to the fact that some studies have reported a high prevalence of CKD among diabetes mellitus patients attending clinic at Bugando Medical Centre in Mwanza [5] but also the lack of national registry for CKD patients can lead to under estimation of the burden [6]. The first-ever kidney transplantation to be conducted in

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Tanzania was carried out at Muhimbili National hospital in 2017[7], Benjamin Mkapa Hospital in Dodoma followed in 2018. We believe that success of Kidney Transplant in Tanzania will be contributed by capacity building, awareness, knowledge and attitudes of Tanzanians towards this treatment modality. Our study aimed to assess knowledge, attitude and practices towards kidney transplantation among patients on dialysis at Muhimbili National Hospital-Nephrology Unit, Dar Es salaam, Tanzania.

## 2. Methodology

This was a cross-sectional, hospital based study that was conducted at Muhimbili National Hospital (MNH)-Nephrology Unit. Muhimbili National Hospital-Nephrology Unit has about 54 dialysis machines. The unit at Upanga and Mlongazila campuses can provides dialysis to about 256 patients [4]. Fifty six patients received kidney transplants at MNH. We calculated our sample of 195 adults patients Using Bailey et al [8] study as a reference and by convenient sampling 190 adults of 18 years of age and above attending dialysis at Muhimbili National Hospital-Nephrology Unit were enrolled. We included all patients on dialysis at MNH aged 18 years and above, those who are able to communicate in Kiswahili and English as well as those who are capable of giving out information and an informed consent. We excluded all potential participants who are mentally ill, those with disabilities like deafness and muteness and those who had already undergone Kidney transplantation. Questionnaire was developed in English and then translated into Swahili. A face-to-face interviewer-administered questionnaire was used as an instrument for data collection on different variables Age, Sex, Level of education, Knowledge, attitudes, practices, Socio-economic status. Collected data were analyzed by SPSS Ver. 20.

## 3. Results

A total of 190 patients were interviewed, of which 133(70%) were males. Majority of participants (82.1%) were of adults aged 31 to 70 years and most of them (74.7%) were married. Most participants (97.3%) had primary education and above. Also most participants (54.7%) were unemployed. (Table 1).

**Table 1** Participant's Sociodemographic characteristics

Variable	Frequency(n)
Males	133(70%)
Females	57(30%)
18 – 20	4(2.1%)
21 -30	23(12.1%)
31 -40	36(18.9%)
41 -50	35(18.4%)
51 -60	52(27.4%)
61 – 70	33(17.4%)
71 – 80	7(3.7%)
Single	32(16.8%)
Married	142(74.7%)
Divorced/Separated	7(3.7%)
Widowed	9(4.7%)
Never been to school	3(1.6%)
Incomplete primary education	2(1.1%)
Completed primary education	66(34.7%)
Incomplete secondary education	8(4.2%)
Completed secondary education	64(33.7%)
Tertiary education	47(24.7%)
Government employee	27(14.2%)
Private sector employee	10(5.3%)
Peasants	15(7.9%)
Businesspersons	34(17.9%)
Unemployed	104(54.7%)
Total	190

Out of 190 study participants, 183(96.3%) had heard of kidney transplantation, major source of information being through hospital (95.6%), television (62.8%), radio (50.8%), friends (51.4%) and newspapers (26.2%). Out of 183 who had heard of kidney transplantation, 181(98.9%) were aware of where kidney transplantation services can be accessed, 159(86.9%) were aware of rules guiding kidney transplantation, and 166(90.7%) were aware of lifelong medication use after kidney transplantation. However, only 66(36.1%) participants had awareness on deceased kidney donation. (Table 2)

**Table 2** Participants Knowledge on Kidney transplant

Knowledge Aspect		Frequency		Total
		Yes (%)	No (%)	
Ever heard of kidney transplantation?		183(96.3%)	7(3.7%)	190(100%)
Source of information	Radio	93(50.8%)	90(49.2%)	183(100%)
	Television	115(62.8%)	68(37.2%)	183(100%)
	Newspaper	48(26.2%)	135(73.8%)	183(100%)
	Magazine	1(0.5%)	182(99.5%)	183(100%)
	Public meetings	3(1.6%)	180(98.4%)	183(100%)
	At school	1(0.5%)	182(99.5%)	183(100%)
	Friends	94(51.4%)	89(48.6%)	183(100%)
	At home	1(0.5%)	182(99.5%)	183(100%)
	Hospital	175(95.6%)	8(4.4%)	183(100%)
Do you know where KT is done?		181(98.9%)	2(1.1%)	183(100%)
Are you aware of rules guiding KT?		159(86.9%)	24(13.1%)	183(100%)
Awareness on deceased kidney donation		66(36.1%)	117(63.9%)	183(100%)
Awareness on lifelong medication use after KT		166(90.7%)	17(9.3%)	183(100%)

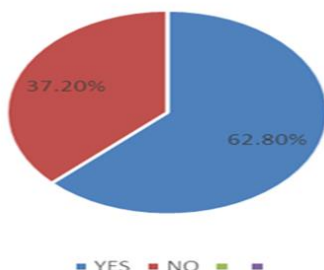
Ninety four (49.5%) participants strongly disagreed that kidney donors experience shorter life expectancy after donation, 118(64.5%) were not sure whether live kidney donation was better than deceased kidney donation or not, 89(48.6%) disagreed on kidney donors being at risk of developing kidney disease, 48.7% disagreed of kidney donation going against the will of God, also most of them were not sure and others disagreed of the attitude that using a deceased kidney is dishonoring the dead.

**Table 3** Attitudes of participants towards kidney transplantation

ATTITUDE	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree
Kidney donors experience shorter life expectancies.	2(1.1%)	15(8.2%)	46(25.1%)	26(14.2%)	94(51.4%)
Live kidney donation is better than deceased kidney donation	12(6.6%)	27(14.8%)	118(64.5%)	12(6.6%)	14(7.7%)
Kidney donors are at risk of developing kidney disease	2(1.1%)	15(8.2%)	52(28.4%)	25(13.7%)	89(48.6%)
Kidney donation is going against God’s will	10(5.5%)	18(9.8%)	26(14.2%)	50(27.3%)	79(43.2%)
Taking a kidney of a deceased is dishonoring the dead body	5(2.7%)	13(7.1%)	76(41.5%)	38(20.8%)	51(27.9%)

Of the 183 patients, 115(62.8%) had considered undergoing kidney transplantation. (Figure 1).Improved quality of life after Kidney transplant (96.6%), long times spent at dialysis sessions/services (95.7%) and high cost of dialysis (88.8%) were the main reasons for those who considered undergoing kidney transplant.

For those who did not consider kidney transplant, 37.2% was because they either believed they would get cured without transplant and 18(26.9%) were not sure whether kidney transplantation can improve their life quality and expectancy. (Table 4).



**Figure 1** Consideration for undergoing Kidney Transplant

**Table 4** Kidney transplantation consideration

Reasons for considering kidney transplantation	Yes (%)	No (%)	Total
I spend a lot of money on dialysis	103(88.8)	13(11.2)	116(100)
I spend a lot of time on dialysis	111(95.7)	5(4.3)	116(100)
KT improves life quality and life expectancy	112(96.6)	4(3.4)	116(100)
Reasons for not considering kidney transplantation			
I can't afford KT financially	4(6.0)	63(94.0)	67(100)
I am not sure whether KT improves life quality and expectancy	18(26.9)	49(73.1)	67(100)
No one available to donate kidney for me	21(31.3)	46(68.7)	67(100)
I am afraid of losing life in the process	2(3.0)	65(97.0)	67(100)
I believe I will get cured	25(37.3)	42(62.7)	67(100)

#### 4. Discussion

Our study shows good awareness of Kidney transplantation as one of treatment modalities for patients with End Stage Renal Diseases (ESRD) which is similar to a study by Babawale et al in Nigeria on knowledge, attitudes and beliefs of first-degree relatives of patients with chronic kidney disease toward kidney donation in which he found 85.1% of participants were aware that Kidney transplantation was a treatment option for (ESRD) [8] although it might have been influenced by counseling sessions which are conducted at Nephrology clinics in our hospital.

One hundred and fifty nine participants (86.9%) were aware of rules guiding kidney transplantation, and 166 (90.7%) were aware of lifelong medication use after kidney transplantation. However, only 66(36.1%) patients had awareness on deceased kidney donation, therefore there is need for more awareness programs and sensitization campaigns concerning deceased kidney donation even though it is not practiced in Tanzania currently it may add to the future practice.

From this study, most participants had positive attitudes regarding kidney transplantation. Out of 183 participants, 94(51.4%) strongly disagreed that kidney donors experience shorter life expectancy, 188(64.5%) were not sure of live kidney donation being better than deceased kidney donation, 89(48.6%) disagreed of kidney donors being at risk of developing kidney disease after donating. This is similar to the findings of the study by Saleem et al in Pakistan [2].

Majority disagreed of kidney donation as going against the will of God, as compared to a study done by Merve Tarhan in Istanbul, which found that all of the religious officials [9] believed in the importance of organ donation by 80 % considering donating their organs, 5 % had made an organ donation [10]. Participants were not sure and others disagreed of the attitude that using a deceased kidney is dishonoring the dead body.

From this study, 115(62.8%) out of 183 participants, had considered receiving kidney transplantation, main reasons being improved quality of life after transplant, long times and high costs of dialysis. These findings were similar to a study done by Illori et al among minority patients at an urban safety-net hospital, U.S.A which revealed positive perception that a kidney transplant will improve quality of life compared to dialysis (OR = 5.40, 95 % CI: 1.97–14.81)[11]. This was also similar to the findings of the study by Takure et al in Nigeria on the acceptance of 66.7% about renal Transplantation [12]. We found that most(58.2%) of those who had started the procedures towards kidney transplantation reporting that the process was difficult especially in getting a compatible organ donor, as the regulation at Muhimbili National Hospital-Nephrology Unit requires only a close relative to donate which narrows down number of potential donors. Most of our clients were willing to receive organ from their children.

Also the study shows that more than half of participants were ready to receive kidneys in exchange for money (63.5%) or from a deceased (62.6%). The reason for those who refused kidney exchange for money may be because of financial barriers or just the attitude they have toward buying a kidney. This is similar to the findings by Rahbi et al on commercial transplant [3].

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## 5. Conclusion

Better knowledge may ultimately translate into the act of donation. Effective measures should be taken to educate people with relevant information with the involvement of media, doctors and religious scholars. Large proportion considers Kidney Transplant positively but it limited by shortage of donors.

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## Compliance with ethical standards

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### *Disclosure of conflict of interest*

The authors declare no competing interests.

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## References

- [1] U.S. Department of Health and Human Services [Updated 2018 Nov 22; cited 2018 Nov 22].
- [2] Saleem T, Ishaque S, Habib N, Hussain SS, Jawed A, Khan AA, et al. Knowledge, attitudes and practices survey on organ donation among a selected adult population of Pakistan. *BMC Medical ethics*. 2009; 12: 1–12.
- [3] Rahbi F Al, Salmi I Al. Commercial Kidney Transplantation: Experience of Recipients. *Kidney Int Reports [Internet]*. 2017; 2(4): 626–33.
- [4] Furia FF, Shoo J, Ruggajo PJ, Kilonzo K, Basu G, Yeates K, et al. Developing nephrology services in low income countries: a case of Tanzania . *BMC Nephrology*. 2019; 20: 378.
- [5] Stanifer JW, Maro V, Egger J, Karia F, Thielman N, Turner EL, et al. The Epidemiology of Chronic Kidney Disease in Northern Tanzania : A Population-Based Survey. *Plos One*. 2015; 1–12.
- [6] Meremo AJ, Ngilangwa DP, Mwashambwa MY, Masalu MB, Kapinga J, Tagalile R, et al. Challenges and outcomes of haemodialysis among patients presenting with kidney diseases in Dodoma, Tanzania. *BMC Nephrology*. 2017; 4–9.
- [7] Kisanga OA, Francis F, Paschal R, Eden M. Renal transplantation in sub-Saharan Africa: A case of Tanzania. *Kidney Nephrol Ther [Internet]*. Januarie. 2017; 69(1): 152–5.

- [8] Bailey PK, Ben-shlomo Y, Tomson CR V, Owen-smith A. Socioeconomic deprivation and barriers to live-donor kidney transplantation : a qualitative study of deceased-donor kidney transplant recipients. *BMJ Open*. 2016; 6: e010605.
- [9] Merve T, Levent D, Huseyin Yildirimoglu AS, SA. The View of Religious Officials on Organ Donation and Transplantation in the Zeytinburnu District of Istanbul. *J Relig Health*. 2015; 54(6): 1975–85.
- [10] Kalender N, Tosun N, Bagcivan G, Cinar FI, Yilmaz MI, Eyileten T, et al. Evaluation of knowledge about and attitudes towards kidney transplantation in patients undergoing hemodialysis treatment. *Turkish Nephrol Dial Transplant J*. 2015; 24(2): 202–6.
- [11] Ilori TO, Enofe N, Oommen A, Odewole O, Ojo A, Plantinga L, et al. Factors affecting willingness to receive a kidney transplant among minority patients at an urban safety-net hospital: A cross-sectional survey. *BMC Nephrol*. 2015; 16(1): 1–9.
- [12] Takure A, Jinadu Y, Adebayo S, Shittu O, Salako B, Kadiri S. The knowledge, awareness, and acceptability of renal transplantation among patients with end-stage renal disease in Ibadan, Nigeria. *Saudi J Kidney Dis Transplant*. 2016; 27(4): 769.