

Determinants of Willingness to Donate Kidneys Among Relatives of Haemodialysis Patients in Gaborone, Botswana

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Abstract

Willingness to donate kidneys among relatives of hemodialysis patients is a critical issue, particularly in low-resource settings like Gaborone, Botswana, where kidney disease is a growing public health concern. This study aimed to examine the willingness of relatives of hemodialysis patients to donate kidneys and to identify health status factors that influence this willingness. A descriptive cross-sectional approach was adopted, using a standardized questionnaire to collect information from 131 family members of patients undergoing hemodialysis at selected health institutions in Gaborone. Both descriptive and inferential statistical techniques were applied to detect trends and associations among the study variables. The study revealed that 67.2% of relatives of hemodialysis patients in Gaborone expressed willingness to donate a kidney, while 32.8% were unwilling. Logistic regression showed that willingness to donate kidneys was significantly associated with perceived medical compatibility (AOR = 3.63). This study emphasizes the important influence of prior family experience with organ donation or transplantation on individuals' willingness to donate kidneys. Public health strategies should leverage the influence of prior familial experiences with organ donation to enhance willingness to donate kidneys. Educational programs and counseling sessions can incorporate personal stories and testimonials from families who have participated in donation or transplantation, helping to reduce fear, build familiarity, and motivate potential donors. Healthcare providers should offer tailored guidance that reassures potential donors about the process, risks, and outcomes, while highlighting relatable experiences that encourage positive attitudes.

Keywords: *Willingness to Donate Kidney, Personal health status, history of chronic illnesses, history of organ donation, perceived compatibility with the patient, Haemodialysis Patients*

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1. Introduction

Chronic kidney disease (CKD) poses a significant public health challenge that has become increasingly concerning. It is currently estimated that around 850 million individuals worldwide are affected by CKD and in need of renal replacement therapy (ISN, 2023). Across

many developing nations, particularly in sub-Saharan Africa, available therapies for chronic kidney disease include hemodialysis, peritoneal dialysis, and renal transplantation, with hemodialysis being the most commonly adopted approach (Boima et al., 2021). However, kidney transplantation (KT) provides a superior quality of life and the highest chance of survival at a comparatively lower cost than long-term dialysis (Mwebia et al., 2023). A renal transplant is an operative procedure in which a functioning kidney is placed into an individual with advanced kidney failure, restoring kidney function and overall health. It is considered a life-saving treatment for many (WHO, 2009).

Kidney transplantation is the most frequently performed solid organ transplant globally, accounting for approximately 65% of all procedures, with more than 112,000 transplants reported in 2023 (Global Observatory on Donation and Transplantation, 2024). Transplant activity in high-income countries continues to rise, increasing by an estimated 4–7% annually (World Health Organization, 2023). In sub-Saharan Africa, however, access remains substantially limited, with only eleven countries reporting any transplant activity, largely concentrated in North Africa and South Africa (Okpechi et al., 2023). In Southern Africa, South Africa is the principal provider, performing approximately 200–250 kidney transplants each year, although progress remains constrained by low deceased-donor rates and pronounced disparities between the public and private sectors (South African Renal Registry, 2022). Botswana, by contrast, has not yet developed a national kidney transplant program, so most patients are referred abroad for transplantation, commonly to South Africa or India (International Society of Nephrology, 2023). There are 14 patients post-transplant to date (MoH, 2024).

Despite global initiatives to promote organ donation, including presumed consent policies in some countries, the specific context of willingness among relatives of haemodialysis patients in Gaborone remains underexplored. Thus, this study aims to fill this gap by examining health status factors related to kidney donation in this population, thereby contributing to both local healthcare policy and broader international efforts to enhance transplant accessibility and equity.

2. Literature Review

2.1 Theoretical Review

The theoretical foundation of this research is anchored in the TPB, introduced by Ajzen in 1991. This framework asserts that the most direct predictor of an action is an individual's intention to engage in it. Within TPB, such intention is shaped by three principal dimensions: one's attitude toward the action, the influence of subjective norms, and perceived behavioral control. Attitude represents the overall appraisal of the behavior, incorporating both favorable and unfavorable evaluations of participation. Subjective norms denote the social expectations or pressures perceived from important referents, such as family, peers, or other significant figures, regarding whether the action should be undertaken. Perceived behavioral control reflects an individual's confidence in their ability to perform the behavior successfully, considering both internal confidence and external constraints. Together, these elements offer a nuanced understanding of how intentions are formed and translated into action. These constructs provide a useful lens for understanding the determinants of willingness to donate kidneys among relatives of haemodialysis patients in Gaborone, Botswana. The central focus

of this study is to understand the willingness of relatives of hemodialysis patients to donate kidneys, which is influenced by various health status factors.

2.2 Empirical Review

2.2.1 Health status as a determinant of willingness to donate kidneys among relatives of hemodialysis patients in Gaborone, Botswana

The health status of potential donors is a key factor influencing willingness to donate kidneys, particularly among relatives of hemodialysis (HD) patients. Individuals who perceive themselves as healthy generally feel more capable of undergoing surgery and recovery, which enhances their readiness to donate (Tesema et al., 2023). In contrast, those with pre-existing conditions such as hypertension, diabetes, or obesity often consider themselves at higher risk, reducing their inclination to donate (Sadagah et al., 2020).

Evidence from sub-Saharan Africa supports this pattern. In Uganda, Bunori et al. (2022) found that caregivers with poor health were significantly less likely to contemplate kidney donation, primarily due to concerns about exacerbating their own medical conditions. Similarly, studies in Nigeria identified perceived frailty, chronic illness, and advancing age as substantial barriers among relatives, who feared that donation might compromise their long-term well-being (Mamven et al., 2025). Comparable international studies also indicate that both medical eligibility assessments and donor self-perceptions play a crucial role in shaping donation decisions, even when social or emotional willingness exists (Tamara et al., 2024).

Although data from Botswana are scarce, these findings suggest that it may influence both willingness and the pool of potential donors. Interventions such as targeted counseling and clear information on medical eligibility could help differentiate between actual contraindications and perceived health limitations, thereby fostering more informed and confident decision-making among relatives of HD patients in Gaborone.

2.2.2 Willingness to donate a Kidney

Willingness to donate a kidney reflects an individual's expressed readiness to become a living donor, typically assessed through intention-based or hypothetical survey measures (Kurleto et al., 2022). Among relatives of patients undergoing hemodialysis, this willingness is closely tied to relational proximity, with immediate family members such as parents, siblings, and spouses more likely to express readiness compared to extended relatives (Kidney.org, 2020).

A range of factors influence willingness to donate, including perceived health status, transplant-related knowledge, attitudes, and socio-demographic characteristics. Individuals who view themselves as physically fit and medically eligible are more likely to consider donation, whereas older age, chronic health conditions, or perceived vulnerability tend to reduce readiness (Bunori et al., 2022; Mamven et al., 2025). Greater awareness of the transplantation process and positive attitudes toward organ donation further enhance willingness, whereas cultural and religious beliefs may either support or inhibit the decision (Ayinde, 2019; Mokgatle et al., 2021).

In Botswana, where living-donor kidney transplantation is still developing, understanding the factors that shape willingness among relatives of hemodialysis patients is essential. Measuring this construct not only helps identify potential donors but also informs counseling approaches and intervention strategies to translate intention into action. Given the influence of Setswana

cultural values, Christian and indigenous religious beliefs, and strong familial obligations, context-specific research is crucial for designing culturally responsive programs that support living donation.

3. Methodology

The study used a descriptive cross-sectional design to assess the willingness to donate a kidney among relatives at a single point in time from April 2025 to June 2025 (Tesema et al., 2023). The study was conducted at two private renal centres in Gaborone that offer hemodialysis. The target population for this study comprised relatives aged 18 years and above of patients undergoing hemodialysis treatment in the two selected centres in Gaborone, Botswana, who were eligible for kidney transplantation. The research used stratified sampling to ensure balanced representation of respondents across the two study locations. The overall sample size was 140. Within this investigation, structured questionnaires served as the principal tool for gathering information from respondents

The data analysis was carried out using SPSS version 29. Numerical variables were described using indicators of central tendency (e.g., mean or median) and measures of dispersion (e.g., standard deviation or interquartile range). Categorical variables were summarized using counts and proportions to describe their distribution within the study population. Relationships between categorical variables were examined using bivariate analysis, applying the Chi-square test, which identified statistically significant associations with willingness to donate organs for transplantation. To account for potential confounding variables and to identify independent predictors, logistic regression analysis was performed, with results expressed as Adjusted Odds Ratios (AORs). This approach made it possible to examine the influence of key independent variables on the outcome variable, willingness to donate kidneys for transplantation.

4. Results

4.1 Willingness to donate a kidney

The study found that most respondents, 88 (67.2%), were willing to donate a kidney, while 43 (32.8%) were unwilling.

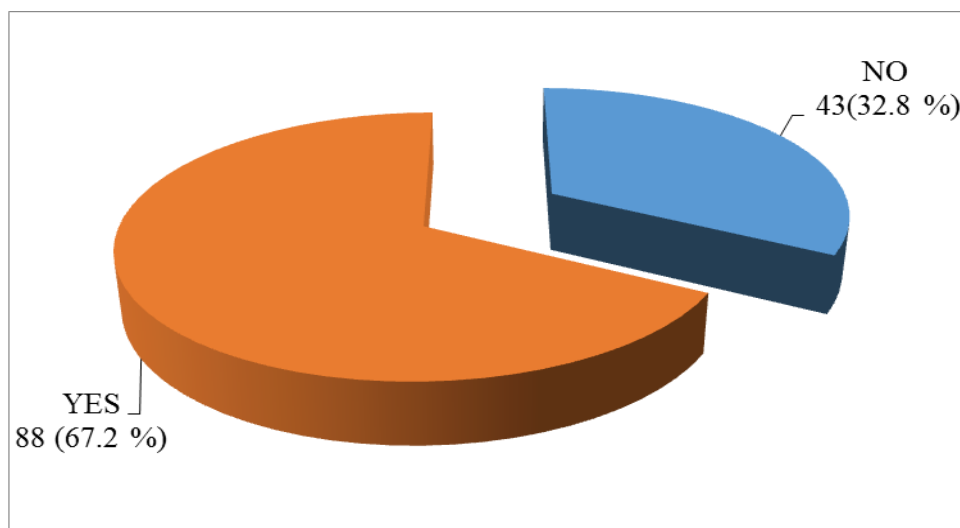


Figure 1: Willingness to donate a kidney

4.2 Descriptive analysis of the health status variables

4.2.1 Personal Health Status or History of Chronic Illnesses

Half of respondents (50.4%, n = 66) rated the quality of health services as good, while 36.6% (n = 48) rated it as fair. A smaller proportion, 9.9% (n = 13), rated the services as excellent, and only 3.1% (n = 4) felt the quality was poor.

Table 1: Overall health rating

Overall health rating	Frequency(n)	Percentage (%)
Excellent	13	9.9
Good	66	50.4
Fair	48	36.6
Poor	4	3.1

A majority, 85 (64.9%), reported that they had never been diagnosed with any chronic illness such as diabetes, hypertension, or heart disease, while 46 (35.1%) indicated they had such a diagnosis. Regarding long-term medication, 48 (36.6%) reported being currently on treatment, compared with 83 (63.4%) who were not. Regarding surgical history, only 23 (17.6%) respondents reported having undergone major surgery, whereas 108 (82.4%) reported no such history.

Table 2: Overall health status

Statements	Yes n(%)	No n(%)
Have you at any point been identified as having a long-term medical condition	46(35.1)	85(64.9)
Are you currently on any long-term medication?	48(36.6)	83(63.4)
Have you ever undergone any major surgery?	23(17.6)	108(82.4)

4.2.2 History of Organ Donation or Receipt in the Family

Table 3 presents findings on whether respondents reported a history of organ donation or receipt within their families. Of 131 respondents, 24 (18.3%) reported that a family member had donated an organ, 48 (36.6%) reported no donation history, and 59 (45.0%) were unsure.

Regarding organ transplantation, 11 (8.4%) respondents indicated that a family member had received an organ transplant, 62 (47.3%) reported no such history, and 58 (44.3%) were unsure.

Table 3: History of Organ Donation or Receipt in the Family

Statement		Frequency	Percentage
Has anyone in your family ever donated an organ?	Yes	24	18.3%
	No	48	36.6%
	Not sure	59	45.0%
	Total	131	100.0%
Has any member of your family ever received an organ transplant?	Yes	11	8.4%
	No	62	47.3%
	Not sure	58	44.3%
	Total	131	100.0%

4.2.3 Perceived Compatibility with the Patient

Twenty-eight (21.4 %) respondents believe you might be medically compatible to donate a kidney to the patient; 42 (32.1 %) did not believe you are medically compatible, while 61 (46.6 %) were not sure. 10 (7.6%) respondents had tested the patient for kidney donation compatibility, while 121 (92.4%) had not.

Table 4: Perceived Compatibility with the Patient

Statement		Frequency	Percentage
Do you believe you might be medically compatible to donate a kidney to the patient?	Yes	28	21.4%
	No	42	32.1%
	Not sure	61	46.6%
	Total	131	100.0%
Have you ever been tested for kidney donation compatibility with the patient?	Yes	10	7.6%
	No	121	92.4%
	Total	131	100.0%
If yes, what was the outcome?	Compatible	2	20%
	Not compatible	4	40%
	I do not remember the outcome	6	60%
	Total	10	100.0%

4.3 Assessment of the relationship between health status and willingness to donate

The association between health status constructs and willingness to donate a kidney was examined using chi-square analysis. Chronic illness status showed no significant relationship with willingness to donate ($\chi^2 = 0.95$, $p = 0.33$), suggesting that having a chronic condition does not markedly influence the decision to donate.

In contrast, a history of organ donation or receipt among family members was significantly associated with the intention to donate ($\chi^2 = 4.26$, $p = 0.039$). Participants lacking such familial experiences were more likely to report willingness (71 vs. 12), suggesting that the absence of prior exposure may be associated with greater openness to donation.

Compatibility perceptions did not yield a statistically significant association ($\chi^2 = 1.84$, $p = 0.18$), implying that perceived medical compatibility alone may not be a decisive factor in donation intent.

Table 5: Relationship between Health status factors and Willingness to donate

Construct	Category (Collapsed)	Willingness to Donate		χ^2	p-Value
		No (n)	Yes (n)		
Chronic illness	Yes	20	42	0.95	0.33
	No	29	40		
Organ donation/receipt in the family	Yes	15	12	4.26	0.039*
	No	33	71		
Compatibility	Yes	46	49	1.84	0.18
	No	12	24		

4.4 Analysis of the significant variables

Logistic regression revealed that perceived medical compatibility had the strongest association (AOR = 3.63, 95% CI: 1.51–8.71, $p = 0.004$), highlighting its critical role in shaping decisions.

Table 6: Logistic Regression Analysis

Predictors	B	SE	Wald	p-Value	Exp(B) [AOR]	95% CI
Perceived Medical Compatibility (Yes)	1.29	0.45	8.24	0.004**	3.63	1.51–8.71
Constant	-2.35	0.78	9.02	0.003**		

5. Discussion

5.1 Willingness to donate kidneys

This study revealed that 67.2% of family members of hemodialysis patients were willing to donate a kidney, while 32.8% were not. This high level of willingness is driven by strong family ties, cultural norms, and a deep sense of empathy for their loved ones, patterns that align with similar findings in both African and global research (Nanjing et al., 2021; Tumin et al., 2022). Interestingly, the willingness rate in Gaborone surpasses those reported in comparable studies, such as among caregivers in China (51.4%) and in Ghanaian communities (48%) (Boima et al., 2020; Boima et al., 2021), indicating a particularly supportive environment for living kidney donation in this region.

However, the fact that nearly a third of respondents were unwilling to donate highlights ongoing challenges. These include fears about personal health risks, concerns about long-term well-being, and inadequate institutional or social support. Globally, while willingness among relatives typically falls between 50% and 70%, actual donation rates are much lower and often hindered by medical issues, psychological reservations, and systemic problems like poor infrastructure and limited post-donation care (Nguyen et al., 2023).

These findings highlight the need for coordinated clinical, policy, and community action. Clinically, educating families and training health workers to address fears and misinformation can improve donor readiness. Policy reforms should ensure standardized consent, donor protections, and post-donation support, while public health education can promote ethical donation. Community engagement, especially with traditional and religious leaders, can dispel myths, align practices with cultural values, and build trust, helping turn willingness into actual kidney donations and strengthening Botswana's transplant program.

5.2 Health status and willingness to donate

The results indicate that having prior experience with organ donation or transplantation within the family significantly influences an individual's willingness to donate a kidney ($p = 0.039$). People whose relatives have either donated or received an organ tend to be more familiar with the process, which can lead to a better understanding, less fear, and stronger motivation to participate in living donation. This finding is consistent with earlier research showing that personal or family exposure to organ transplantation helps build emotional comfort and confidence in the decision to donate (Almutairi et al., 2021; Noman et al., 2022).

On the other hand, having a chronic illness did not significantly influence donation decisions ($p = 0.33$), suggesting that a person's health status alone may not be a decisive factor when compared to the impact of family experiences. Likewise, perceived compatibility with potential recipients was not a statistically significant predictor, suggesting that psychosocial and experiential factors may carry more weight than clinical considerations in shaping willingness to donate (Kaur & Jindal, 2022).

Alongside individual and experiential influences, impede the realization of living kidney donation. These include limited resources, legal ambiguity, psychological concerns, socioeconomic hardship, stigma, and poor awareness (Khalil et al., 2023; Saleem et al., 2023; Okoro et al., 2021).

6. Conclusion

This study emphasizes the important influence of prior family experience with organ donation or transplantation on individuals' willingness to donate kidneys. Having a family member who has gone through the donation process appears to increase familiarity, reduce fears, and strengthen motivation, thereby encouraging positive donation decisions. In contrast, factors such as chronic illness or perceived compatibility with potential recipients did not significantly affect willingness, suggesting that personal and psychosocial experiences may play a larger role than clinical considerations. These findings highlight the value of incorporating personal stories and lived experiences into public health initiatives. By drawing on family experiences and addressing emotional and informational needs, such strategies can foster supportive attitudes and enhance participation in living kidney donation.

7. Recommendations

Public health strategies should leverage the influence of prior familial experiences with organ donation to enhance willingness to donate kidneys. Educational programs and counseling sessions can incorporate personal stories and testimonials from families who have participated in donation or transplantation, helping to reduce fear, build familiarity, and motivate potential donors. While clinical factors such as chronic illness and compatibility may not significantly deter donation, addressing emotional and informational needs remains critical. Healthcare providers should offer tailored guidance that reassures potential donors about the process, risks, and outcomes, while highlighting relatable experiences that encourage positive attitudes. Integrating these approaches into broader organ donation campaigns can strengthen support networks, foster confidence, and increase participation in living kidney donation.

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