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Trends in African Americans' Attitudes and Behaviors About Living Donor Kidney Transplantation

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Abstract

Background—Due to marginal efforts to increase living donor kidney transplantation, it is unclear whether interventions to improve African Americans' interest and pursuit of living donation should be tailored to address patients' exposure to or familiarity with dialysis or transplant settings.

Design, Setting, and Participants—We conducted a cross-sectional secondary analysis of baseline data from 3 separate randomized clinical trials among African Americans with varying degrees of experience with dialysis or transplantation (predialysis, on dialysis but not on transplant list, and on transplant wait-list) settings.

Methods—Interest in living donation was described using a 0 to 10 scale and pursuit of living donor kidney transplantation by achievement of at least 1 pursuant behavior. In multivariable logistic regression analyses, we assessed the association of knowledge, health literacy, and trust in health care with interest in or pursuit of living donation.

Results—Interest among the 3 study cohorts was high (predialysis, 62.9%; dialysis, 67.4%; and transplant wait-list, 74.2%). The dialysis and transplant wait-list study cohorts pursued living donation more readily than those not on dialysis (73%, 92%, and 45%, respectively). Interest and pursuit were not statistically significantly associated with knowledge, health literacy, or the 3 factors reflecting medical mistrust.

Conclusion—Interest and pursuit of living donation were greater among study participants with greater exposure to dialysis or transplant settings. Efforts to promote patients' early interest and pursuit of living donor transplants may consider novel strategies to educate patients with less experience about the benefits of living donor kidney transplantation.

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Supplemental Material

Supplemental material for this article is available online.

Keywords

living kidney donor transplant; end-stage renal disease; chronic kidney disease exposure; treatment options; African Americans

Introduction

Early living donor kidney transplant (LDKT) offers the best treatment to prolong life and improve quality of life for most individuals with end-stage renal disease (ESRD) and circumvents barriers related to waiting for a deceased donor kidney.¹⁻⁴ Despite the benefits of early transplantation, evidence suggests early living donor transplantation is underused, particularly among African Americans.^{5,6} Suboptimal pursuit of early LDKT may be attributed to several factors, including lack of knowledge, fear of the process, and potential recipients' difficulties in initiating and sustaining discussion with family members and physicians.^{5,7,8} Although educational and behavioral interventions have shown some promise in increasing access to early living donation among African Americans,^{9,10} rates among this group remains low, suggesting additional efforts to identify barriers to early pursuit are needed.

Patients seeking living donors must complete several key steps toward receiving an evaluation and receiving donated kidney, including (1) discussion of living donor kidney transplantation with family members or friends, (2) discussion of living donor kidney transplantation with their physician, (3) initiation of the clinical evaluation for potential recipients, (4) completion of the clinical evaluation for potential recipients, and (5) identification of a potential live kidney donor.¹⁰ Research shows that completing these steps can be particularly challenging for African Americans and contributes significantly to the disparities in the low rates of preemptive and nonpreemptive living donor transplants.¹¹ Therefore, it may be necessary to identify specific barriers and facilitators that may differentially impact the interest of African Americans to undertake these steps along varying stages of the disease and treatment process, including their treatment before the onset of kidney failure. For example, African American patients with advanced kidney disease who have no exposure to dialysis settings (predialysis study cohort) may know less about living donation, have less discussions, and therefore, may have less pursuit of living donors. In contrast, those exposed to dialysis settings (dialysis study cohort) may have more knowledge and more discussions about living donation, but they might have other barriers, such as mistrust in healthcare settings, which could pose barriers to their interest or pursuit of living donor transplantation.

To date, studies examining differences in patient interest and/or pursuit of LDKT or barriers to interest or pursuit among patients with varying degrees of experience with kidney disease or exposure to transplant have not been performed. We sought to characterize interest and pursuit among African Americans with varying levels of exposure to dialysis or transplant treatments, including those not yet on dialysis, those on dialysis, and those on a transplant wait-list. Additionally, we assessed whether commonly cited facilitators or barriers such as

knowledge,¹ trust in health care,¹² and health literacy¹³ were associated with interest and pursuit of LDKT among these populations.

Design/Methods

Design

We conducted secondary cross-sectional analyses of baseline data collected from 3 separate randomized controlled trials conducted among African American patients with advanced kidney disease. Each trial targeted participants with a different level of exposure to treatment options for their advanced kidney disease: a predialysis cohort with advanced chronic kidney disease (CKD, Talking About Live Kidney Donation [TALK] Study); a dialysis cohort (Providing Resources to Enhance Patients' Readiness to Make Decisions about Kidney Disease [PREPARED] Study); and a cohort of patients on the transplant waiting list (Talking about Living Kidney Donation Support [TALKS] Study). All data for the secondary analyses were approved by the Institutional Review Board of the Duke University.

Population/Setting

TALK study cohort—The TALK¹⁰ study was a randomized controlled trial that assessed the effectiveness of educational and social worker interventions designed to encourage early discussions and active pursuit of preemptive LDKT in patients with progressive CKD, but not on dialysis. Participants were enrolled between February 2009 and May 2011. Among a total of 130 participants recruited from 5 academically affiliated and community-based nephrology practices in the Baltimore, Maryland, metropolitan region, 62 were African American. To participate, patients were required to speak English, aged 18 to 70, and to have stage 3 to 5 nondialysis-dependent CKD. Patients were excluded from TALK if they self-reported cancer within 2 years prior to recruitment, stage IV congestive heart failure, end-stage liver disease, unstable coronary artery disease, pulmonary hypertension, severe peripheral vascular disease, history of HIV, chronic (debilitating) infections, prior kidney transplant, or prior dialysis treatment.

PREPARED study cohort—The PREPARED¹⁴ study was a randomized controlled trial that assessed the effectiveness of informational and financial interventions to overcome barriers to pursuit of LDKT among African American patients who were on dialysis and their families. Participants were enrolled between April 2012 and July 2013. A total of 92 African American participants were recruited from 11 academically affiliated and community-based dialysis centers in Baltimore, Maryland. To participate, patients were required to self-identify as African American, be at least 18 years old, English-speaking, have ESRD, and have been receiving hemodialysis for <2 years. Patients were excluded from PREPARED if they had dementia, prior kidney transplant, cancer within 2 years prior to recruitment date, stage 4 congestive heart failure, end-stage liver disease, unstable coronary artery disease, pulmonary hypertension, severe peripheral vascular disease, or had chronic debilitating infections.

TALKS study cohort—The ongoing TALKS⁵ study was a randomized trial designed to determine the effectiveness of behavioral, educational, and financial assistance interventions

to improve access to LDKT among African Americans on the deceased donor kidney transplant recipient waiting list. Participants were enrolled between September 2015 and 2017. Duke University Hospital electronic health records were used to identify study-eligible African American patients listed on the deceased donor waiting list at the Duke Kidney and Pancreas Transplant Program with no prior kidney transplant. Patients were excluded from TALKS if they had a prior kidney transplant, were cognitively impaired or had a change in cognition, had impaired hearing or speech, or did not speak English.

Data Collection

Study Outcomes

To explore the 2 primary outcomes, participants' interest in LDKT and participants' pursuit of LDKT, we used questions from the predialysis, dialysis, and the transplant wait-list study cohorts. Participants' interest in LDKT was defined by the question "on a scale of 0 to 10, how interested do you think you would be in getting a kidney from your family member?" Participants' responses were dichotomized as having less interest if they responded 7 or lower, and more interest if they responded 8 or higher. Participants' pursuit of LDKT for the predialysis and dialysis cohorts were assessed by documenting their self-reported achievement of at least 1 of 5 behaviors necessary to complete LDKT, including (1) discussion of living donor kidney transplantation with family members or friends, (2) discussion of living donor kidney transplantation with their physician, (3) initiation of the clinical evaluation for potential LDKT recipients, (4) completion of the clinical evaluation for potential LDKT recipients, and (5) identification of a potential live kidney donor. Pursuit of LDKT for participants in the transplant wait-list cohort study was assessed by the self-reported achievement of at least 1 of 2 behaviors: (1) discussion of living donor kidney transplantation with family members or friends or (2) identification of a potential live kidney donor.

Potential facilitators or barriers to living donor kidney transplantation interest or pursuit—To explore a number of potential facilitators or barriers to LDKT among all 3 study cohorts, we used questions from predialysis, dialysis, and the transplant wait-list study cohorts that measured LDKT knowledge, health literacy, and trust in medical care. Participants' factual knowledge was assessed using 10 true or false questions, with the sum of the number of correct answers being used as a measure of factual knowledge about living donor transplantation. Health literacy was measured using the Rapid Estimate of Adult Literacy in Medicine (REALM) test¹⁵ (66 items) in the predialysis and dialysis cohorts. The number of words pronounced correctly were summed for a possible score ranging from 0 to 66. Rapid Estimate of Adult Literacy in Medicine scores of 0 to 18 indicates a reading level of third grade or below; scores of 19 to 44 is equivalent to fourth- to sixth-grade reading level; scores of 45 to 60 represent seventh to eighth-grade reading level; and scores >60 indicate a ninth-grade reading level or above. The REALM-Short Form (REALM-SF¹⁶; 7 items) was used to assess literacy in the transplant wait-list cohort. Possible score ranged from 0 to 7, where a score of 0 indicates a reading level of third grade or below, scores of 1 to 3 represents fourth- to sixth-grade reading level, scores of 4 to 6 represent a seventh- to

eighth-grade reading level, and a score of 7 represents a ninth-grade reading level or above. The REALM and REALM-SF scores were treated as continuous measures.

Trust in medical care was explored using 12 questions derived from the Trust in Physician Scale,¹⁷ Medical Distrust Index,¹⁸ and Healthcare Discrimination survey.¹⁹ We applied principal component analysis techniques to the dialysis study cohort data to reduce the 12 correlated trust questions into fewer, uncorrelated factors, and varimax rotation was performed to facilitate interpretability of the factors. Questions with factor loadings >0.4 in absolute value were deemed associated with a given factor. Three latent factors reflecting medical mistrust were identified and resulted in meaningful factor interpretations. The first factor contained trust questions such as “do you believe that doctors have ever given you treatment as part of an experiment without your permission?” and “how likely is it that you, or people like you, might be used as guinea pigs without your consent?,” and was interpreted as trust in ethical care. The second factor targeted trust in impartiality of care regardless of race, gender, age, or financial status. The third factor was thought of as a measure of trust in the healthcare system as a whole (physicians, hospitals, and insurance companies). The 3 factors were used as outcome measures for medical care trust. The study cohorts and outcome measures used across all studies are summarized in Supplemental Table 1. It is available online.

Participant demographic characteristics—We assessed participants’ age (in years), sex (male and female), education (less than or equal to a high school diploma/general education degree [GED]; greater than a high school diploma/GED), marital status (married, separated, divorced, widowed, or single), employment (retired/disabled, full-/part-time, or other), and income (less or greater than US\$20 000).

Data Analysis

We conducted separate analyses within each study cohort. We first described participants’ demographic characteristics by study cohort and characterized the proportion of participants in each study with high living transplantation interest or having performed pursuit behaviors using descriptive analyses. Cochran-Armitage trend tests were used to analyze linear trends for interest and the 3 factors reflecting medical mistrust across the 3 study cohorts. For these tests, the 3 trust factors were dichotomized at their respective medians. Within each cohort, a multivariable logistic regression was used to assess the association between LDKT interest or pursuit and 3 modifiable predictors, knowledge, health literacy, and trust, adjusted for age, sex, marital status, and education. A Wald test was used to jointly assess the association between all modifiable predictors and LDKT interest or pursuit, respectively.

Analyses were performed using R version 3.3.0 (R Core Team 2016, Vienna, Austria). All tests were 2-sided using significance level $\alpha < .05$.

Results

Participants’ Characteristics

The median age of the participants was similar across the 3 study groups and ages ranged from 44 to 63. There was a higher proportion of females among the predialysis and dialysis

cohorts and a higher proportion of males in the transplant wait-list group. A majority among all 3 cohorts reported being not married, and a majority of the predialysis and dialysis cohorts reported having high school or less education. Fewer than one-third of participants among the predialysis and dialysis cohorts reported having Medicare health insurance, while over half of the transplant wait-list cohort reported having Medicare. A majority among all the cohorts reported being retired or disabled. A majority among the dialysis cohort reported household income <US\$20 000, while a majority among the predialysis and transplant wait-list cohorts reported household income >US\$20 000 (Table 1).

Participants' interest and pursuit of living donor transplantation—Interest in LDKT among the 3 study cohorts was high (predialysis, 62.9%; dialysis, 67.4%; transplant wait-list, 74.2%). Pursuit of LDKT behavior increased according to participants' greater clinical exposure to dialysis or transplant settings (Figure 1). Majority of the predialysis study cohort (54.8%) and 27.2% of the dialysis cohort did not complete any behaviors toward receiving an LDKT. Trend analysis was performed to determine whether interest in living donation changed, as patients moved along the continuum of the disease and treatment process. Results showed evidence of an upward trend as patients had more exposure to dialysis and transplant settings (predialysis: 65.0%; dialysis: 67.4%; transplant: 74.2%). However, this trend was not significant ($P = .14$).

Participants' facilitators or barriers to LDKT—Factual knowledge of LDKT was similar and high among participants across all 3 study groups (median [interquartile range] 80 [60–80], 70 [70–80], and 80 [70–80] for predialysis, dialysis, and transplant wait-list cohorts, respectively). Furthermore, the median health literacy score among all 3 study groups was at the ninth-grade level. Interest, pursuit, knowledge, and literacy scores are available in Supplemental Material (see Supplemental Table 2).

Trust in ethical care was high across all 3 study cohorts (predialysis, 75.3%; dialysis, 67.1%; and transplant wait-list, 75.6%), respectively. Similarly, participants' perceived impartiality of care regardless of race, gender, age, or financial status was also high (predialysis, 66.8%; dialysis, 73.8%; and transplant wait-list, 80.4%). Additionally, trust in the health-care system as a whole (physicians, hospitals, and insurance companies) was particularly high, with majority of responses being over 80% across all 3 study cohorts (predialysis, 86.1%; dialysis, 79.8%; and transplant wait-list, 84.4%). A trend analysis was also performed to determine whether trust in impartiality of care regardless of race, gender, age, or financial status, trust in ethical care, or trust in the health-care system as a whole (physicians, hospitals, insurance companies) trended upward or downward across the predialysis, dialysis, and wait-list study cohorts. A significant upward trend was observed in trust in impartiality of care regardless of race, gender, age, or financial status across the predialysis, dialysis, and wait-list study cohorts (66.8% vs 73.8% vs 80.4%; $P < .01$). However, we found no significant trend for trust in ethical care (75.3% vs 67.1% vs 75.6%; $P = .14$) or trust in the health-care system as a whole (physicians, hospitals, and insurance companies; 86.1% vs 79.8% vs 84.4%; $P = .41$ across the 3 study cohorts).

Association of outcomes with potential facilitators or barriers to LDKT—In multivariable logistic regression models, we found no statistically significant association

between LDKT interest and factual knowledge in any of the 3 study cohorts (odds ratio, OR [95% confidence interval, CI] was 1.02 [0.96–1.08], 1.01 [0.97–1.05], and 0.98 [0.94–1.01] for predialysis, dialysis, transplant wait-list, respectively). Also, health literacy was not associated with LDKT interest in any of the 3 study cohorts (OR [95% CI]: 0.99 [0.95–1.03], 1.03 [0.98–1.09], and 1.28 [1.00–1.66] for predialysis, dialysis, transplant wait-list, respectively). The 3 factors reflecting medical mistrust were not associated with interest in LDKT. When jointly testing all predictors, we found no relationship with living donation interest in any of the study cohorts ($P = .61$, $.80$, and $.36$ for predialysis, dialysis, and transplant wait-list, respectively; Table 2).

Similarly, there was no evidence of a statistically significant association between LDKT pursuit and factual knowledge (OR [95% CI] was 1.06 [1.00–1.12], 1.06 [1.00–1.12], and 1.03 [0.97–1.10] for predialysis, dialysis, transplant wait-list, respectively); health literacy (OR [95% CI] was 0.98 [0.94–1.01], 0.92 [0.82–1.02], and 1.37 [0.87–2.14] for predialysis, dialysis, transplant wait-list, respectively); and the 3 factors reflecting medical mistrust. When jointly testing all predictors, we found no relationship with LDKT pursuit in any of the study cohorts ($P = .63$, $P = .20$, and $P = .66$ for predialysis, dialysis, transplant wait-list, respectively). However, age was significantly associated with pursuant behavior among the dialysis cohort in that older people had lower odds of completing at least 1 pursuant behavior compared to younger people (0.94 [0.89–1.00]). Among the transplant wait-list cohort, there was a significant association between sex and pursuit; in that, males had lower odds of completing at least 1 pursuant behavior compared to females (0.07 [0.81–0.83]). There was also significant association between education and pursuit in that those with greater than high school education had lower odds of pursuit behavior than those with less than high school education (0.04 [0.00–0.71]; Table 3).

Discussion

In this study, conducted among 3 populations of African Americans with varying levels of exposure to dialysis and transplant care, we found that most individuals had high interest in LDKT, while those on the transplant wait-list had greater interest. Despite this, few in the predialysis cohort had completed living donor behaviors, while majority of those who had prior dialysis experience completed at least 1 of the 5 pursuant behaviors. In addition, we observed no statistically significant associations between interest or pursuit of LDKT with knowledge, health literacy, or the 3 factors reflecting medical mistrust. Our findings suggest that patients with advanced kidney disease may have great interest in living donation transplantation very early in their treatment experiences (i.e., predialysis). However, they may not be activated to engage in behaviors likely to lead to LDKT until they have greater exposure to dialysis or transplant settings.

To our knowledge, studies describing patients' interest of pursuit of LDKT according to their experiences with dialysis or transplant settings have not been performed. Our findings of nearly uniformly high interest in living donation but differences in behaviors required to obtain LDKT may provide new insight into opportunities to improve access to living donors for African Americans. For instance, it is possible that patients with advanced kidney disease who have not yet initiated dialysis may not understand the experience of dialysis and how

that may compare to kidney transplant. Hence, they may be less motivated than those who have already received these treatments to pursue LDKT. Similarly, patients who have not yet initiated dialysis may not be fully aware of the need to initiate behaviors early if they are to obtain a living donor. Patients' family members, who are critically important to achieving some of the behaviors, may also be unaware of the need for early engagement in LDKT behaviors. Prior studies have demonstrated that patients with advanced kidney disease who have not yet initiated dialysis or transplant may experience denial^{10,20} and therefore may not appreciate the need to begin engaging in LDKT behaviors (eg., discussions with potential donors and family members) as early as possible. To address this, health-care providers caring for patients prior to their initiation of dialysis may need to emphasize the importance of LDKT more frequently and more early.

Additionally, the potential facilitators or barriers that have been previously shown to be associated with access to LDKT were not statistically significantly associated with interest or pursuit of living donation among our 3 study cohorts. The majority of our participants had a high level of knowledge and a majority had relatively high health literacy, suggesting these factors may not be critical determinant of participants' interest or behaviors. Despite this, it could be important to distinguish factual knowledge²¹ (i.e., mastery of basic concepts of treatments) from experiential knowledge²² (i.e., understanding gained from personal experience with treatments or settings). Our knowledge questions did not assess the extent to which participants had experience with LDKT and thus may not have captured aspects of knowledge that could be more closely associated with interest or pursuit of living donor transplantation. It is also note-worthy that a greater proportion of persons with greater than high school education were on the transplant waiting list when compared to other study cohorts. Studies examining the role of patient's educational level in facilitating access to LDKT may be warranted. Among the transplant wait-list cohort, males had lower odds of completing at least 1 pursuant behavior compared to females.

In general, women are more likely than men to engage in health seeking behaviors.²³

Although trust in health care has been associated with deceased organ donation among ethnic/racial minorities,²⁴ it has not been closely linked to LDKT interest or behaviors in other studies. Future research may be needed to identify whether trust built as a result of patients' experiences related to dialysis or transplantation could influence their desires to pursue LDKT. Finally, concern for family members after transplant care may override the impact of knowledge, the ability to read health information, or trust in medical care. Therefore, future research should address concern for family members after transplant care in both the potential recipient population and the transplant community. According to Rodrigue et al,⁹ including the patient support system in the LDKT education process can promote discussion and assuage concerns about LDKT.

Our study has potential limitations. First, each cohort was relatively small, and participants were identified in select clinical settings and geographic locations. It is possible findings may not generalize to African Americans receiving care elsewhere. It is also possible that we were unable to measure strong associations between potential barriers or facilitators to LDKT with outcomes due to small study sample size. Finally, our analyses were cross-

sectional and therefore did not assess potentially causal associations which would require longitudinal analyses. Despite this, our findings of differences in pursuit of LDKT based on participants' exposure to transplant settings is novel and may provide insight into future interventions to improve living donor transplantation among African Americans.

Conclusion

In summary, interest in LDKT was high among African American patients with varying levels of exposure to dialysis or transplant settings. Patients with less exposure to dialysis or transplant settings exhibited fewer behaviors to pursue LDKT compared to those with greater exposure. Interest and exposure were not associated with knowledge, health literacy, or trust. Future studies exploring whether novel interventions that improve patients' understanding of LDKT, perhaps through more exposure to dialysis or transplantation may yield insight on ways to further improve African Americans' early consideration of living donor transplantation.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1. Interest and pursuit of living donor kidney transplant (LDKT) among the predialysis, dialysis, and transplant wait-list study cohort.

Table 1.Demographic Characteristics of Predialysis, Dialysis, and Transplant Wait-List Participants^a

	Predialysis	Dialysis	Transplant Wait-List
n	62	92	155
Age, median (IQR)	59 (53–63)	54 (44–61)	53 (44–60)
Sex			
Female	37 (59.68)	47 (51.09)	65 (41.94)
Male	25 (40.32)	44 (47.83)	90 (58.06)
Missing	0(0)	1 (1.09)	0 (0)
Marital status			
No	35 (56.45)	61 (66.3)	91 (58.71)
Yes	27 (43.55)	30 (32.61)	64 (41.29)
Refused	0 (0)	1 (1.09)	0 (0)
Education			
HS education	38 (61.29)	67 (72.83)	57 (36.77)
>HS education	24 (38.71)	25 (27.17)	98 (63.23)
Health insurance			
Private	15 (24.19)	13 (14.13)	32 (20.65)
Medicare	19 (30.65)	28 (30.43)	81 (52.26)
Medicaid	18 (29.03)	25 (27.17)	6 (3.87)
Medicare/Medicaid	4 (6.45)	16 (17.39)	35 (22.58)
Uninsured/self-pay	4 (6.45)	5 (5.43)	0 (0.0)
Other	0 (0.0)	3 (3.26)	1 (0.65)
Don't know/refused	0 (0.0)	2 (2.17)	0 (0.0)
Missing	2 (3.23)	0 (0.0)	0 (0.0)
Employment			
Retired/disabled	34 (54.84)	54 (58.7)	101 (65.16)
Full/part-time	20 (32.26)	12 (13.04)	34 (21.94)
Other	8 (12.9)	26 (28.26)	19 (12.26)
Refused	0 (0)	0(0)	1 (0.65)
Income			
US\$20 000	22 (35.48)	53 (57.61)	38 (24.52)
>US\$20 000	35 (56.45)	28 (30.43)	95 (61.29)
Refused	5 (8.06)	10 (10.87)	21 (13.55)
> Missing	>0 (0)	>1 (1.09)	>1 (0.65)

Abbreviations: IQR, interquartile range; HS, high school.

^aData are presented as number (percentage) unless otherwise stated.

Table 2.

Multivariable Association Between Modifiable Predictors and Living Donor Transplant Interest.

	<u>Pre-dialysis</u>	<u>Dialysis</u>	<u>Transplant Wait-List</u>
	<u>OR (95% CI)</u>	<u>OR (95% CI)</u>	<u>OR (95% CI)</u>
Age	0.97 (0.88–1.06)	0.96 (0.92–1.01)	0.97 (0.93–1.02)
Sex			
Female	1.0	1.0	1.0
Male	2.74 (0.47–16.04)	0.94 (0.29–2.99)	1.69 (0.67–4.28)
Marital status			
Separated, divorced, and widowed	1.0	1.0	1.0
Married	1.36 (0.30–6.10)	1.81 (0.52–6.25)	1.01 (0.41–2.52)
Education			
High school diploma	1.0	1.0	1.0
>High school diploma	0.26 (0.06–1.01)	0.74 (0.21–2.61)	1.14 (0.44–2.94)
LDKT knowledge	1.02 (0.96–1.08)	1.01 (0.97–1.05)	0.98 (0.94–1.01)
Health literacy	0.99 (0.95–1.03)	1.03 (0.98–1.09)	1.28 (1.00–1.64)
Trust in ethical care	0.75 (0.30–1.83)	0.88 (0.50–1.56)	0.59 (0.32–1.06)
Trust in impartiality of care regardless of race, gender, age, or financial status	1.16 (0.44–3.04)	1.08 (0.62–1.89)	0.91 (0.55–1.52)
Trust in the health-care system as a whole (physicians, hospitals and insurance companies)	0.83 (0.39–1.78)	1.02 (0.61–1.70)	0.58 (0.30–1.13)

Abbreviations: CI, confidence interval; LDKT, living donor kidney transplant; OR, odds ratio.

^aStatistically significant at the 0.05 level.

Table 3.Multivariable Association Between Modifiable Predictors and Living Donor Transplant.^a

	<u>Predialysis</u>	<u>Dialysis</u>	<u>Transplant Wait-List</u>
	<u>OR (95%CI)</u>	<u>OR (95%CI)</u>	<u>OR (95%CI)</u>
Age	0.97 (0.90–1.05)	0.94 (0.89–1.00) ^a	0.92 (0.84–1.01)
Sex			
Female	1.0	1.0	1.0
Male	2.21 (0.50–9.75)	0.68 (0.17–2.77)	0.07 (0.01–0.83) ^a
Marital status			
Separated, divorced, and widowed	1.0	1.0	1.0
Married	0.54 (0.13–2.20)	5.34 (0.98–29.14)	6.31 (0.87–45.68)
Education			
High school diploma	1.0	1.0	1.0
>High school diploma	2.47 (0.67–9.14)	0.40 (0.09–1.70)	0.04 (0.00–0.7) ^a
LDKT knowledge	1.06 (1.00–1.12)	1.06 (1.00–1.12)	1.03 (0.97–1.10)
Health literacy	0.98 (0.94–1.01)	0.92 (0.82–1.02)	1.37 (0.87–2.14)
Trust in ethical care	1.10 (0.52–2.34)	1.67 (0.83–3.33)	0.59 (0.19–1.85)
Trust in impartiality of care regardless of race, gender, age, or financial status	1.05 (0.44–2.52)	0.70 (0.33–1.50)	0.70 (0.29–1.69)
Trust in the healthcare system as a whole (physicians, hospitals, and insurance companies)	0.79 (0.42–1.47)	1.10 (0.57–2.12)	0.72 (0.23–2.22)

Abbreviations: CI, confidence interval; LDKT, living donor kidney transplant; OR, odds ratio.

^aStatistically significant at the 0.05 level.