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Assessing the Impact of Social Deprivation on Living Donor Candidates' Approval to Donate: Analysis of the US SRTR Living Donor Collective

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Introduction

- Poverty or having significant socioeconomic challenges may influence whether a motivated potential living donor (LD) can actually donate.
- Socioeconomic measures are often incomplete in electronic medical records at the individual patient level. Thus, we used the Social Deprivation Index (SDI) from Robert Graham Center (a measure of deprivation experienced by individuals living in a specific zip code) for kidney and liver LDs from the Scientific Registry of Transplant Recipients Living Donor Collective, a novel LD candidate registry in the US.
- We examined which individual- and zip code–level factors predicted non-approval to donate.

Methods

- 4,262 LD candidates (3,268 kidney and 994 liver) underwent donor evaluation at 10 kidney and 6 liver centers in the US (June 1, 2018–April 10, 2025).
- The SDI, a composite measure of 7 factors such as income, education, employment, and health, was linked with individual LD data via census tract ID. **Higher SDI indicates greater social deprivation.**
- We conducted multivariable logistic regression assessing whether SDI, demographic, and clinical factors predicted being not approved to donate for medical/psychosocial reasons.

Results

Kidney LDs

- Of 3,268 LD kidney candidates evaluated, 1,403 (42.9%) were not approved to donate (with 63.9% ruled out medically/psychosocially).
- In multivariable regression adjusted for sex, race, relationship to recipient, body mass index (BMI), and health insurance, an increase in 1 score of SDI was associated with 0.33% less odds of kidney donation approval (aOR_{0.9937}0.9967_{0.9997}; *P* = .03) (Table).
- Multivariable modeling found that those with lower SDI, women, white donors, those who did not have biologically close relationships to the recipient, and those who had lower BMI were more likely to be approved as donors (*P* < .05).

Liver LDs

- Of 994 LD liver candidates evaluated, 414 (41.6%) did not donate (with 52.4% ruled out medically/psychosocially).
- No statistical differences in approval to donate emerged based on SDI for liver LDs.
- Multivariable modeling found that women, white donors, and those having lower BMI were significantly associated with approval to donate (*P* < .05).

Table 1. Predictors of Approval to Donate for Kidney Living Donors

Variables	Adjusted Odds Ratio	Lower 95% CI	Upper 95% CI	P-value
Intercept	3.1588	1.9016	5.247	<0.001
SDI	0.9967	0.9937	0.9997	0.03
Male (ref=Female)	0.704	0.5956	0.8321	<0.001
Black/African American (ref=White)	0.4736	0.3609	0.6214	<0.001
Other (ref=White)	0.8432	0.6596	1.0778	
Relationship, Spouse, Life partner (ref=Parent, Child, Identical twin, Full or Half sibling)	1.2759	0.9542	1.7059	<0.001
Relationship, Other relative (ref=Parent, Child, Identical twin, Full or Half sibling)	0.8447	0.6126	1.1645	
Relationship, Unrelated directed donation (ref=Parent, Child, Identical twin, Full or Half sibling)	0.6868	0.5352	0.8813	
Relationship, Other (ref=Parent, Child, Identical twin, Full or Half sibling)	1.1248	0.9109	1.3888	
BMI, [20,25) (ref=[0,20))	1.0495	0.6381	1.7261	<0.001
BMI, [25,30) (ref=[0,20))	1.1224	0.6863	1.8357	
BMI, [30,35) (ref=[0,20))	0.8312	0.5024	1.3753	
BMI, [35,Inf) (ref=[0,20))	0.4527	0.2474	0.8283	
BMI, Unknown (ref=[0,20))	0.9254	0.5328	1.6071	
Health insurance, no/unknown (ref=Yes)	1.0612	0.8316	1.3541	0.63

Conclusions

Further research should explore how to provide socioeconomic support for kidney LDs with identified social determinants of health and those living in zip codes with greater proportions of individuals with SDI scores. Referrals to nationally available programs to help eligible LDs reduce financial disincentives to donation should be provided as early as possible in the donor process.

Citation: *Social deprivation index (SDI)*. Robert Graham Center - Policy Studies in Family Medicine & Primary Care. (2018, November 5). Retrieved January 13, 2025, from <https://www.graham-center.org/rgc/maps-data-tools/sdi/social-deprivation-index.html>.