

Women Donate, Men Receive: Gender Disparity Among Renal Donors

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Abstract

Background: Renal transplant is the treatment method of choice to patients with end-stage renal disease (ESRD) but the limited numbers of donors present major challenge to the practice on a global basis. One of the most feasible leads to resolve this shortage is living-related kidney donation. But research has always shown that there is a strong gender disparity in the rate of organ donation with women relatively donating more than men yet mostly men are those that receive organ transplant. This gap is believed to occur as a result of complicated social and cultural family interactions that place the role of care giving to women and make the health of male leaders in most houses an ultimate priority. It is essential that the imbalance is understood in order to tackle the ethical issue and enhance gender equity within the healthcare setup.

Objectives: This study aimed to assess gender-related trends in living kidney donation at the Institute of Kidney Diseases (IKD) and to examine donor–recipient relationships within the study population.

Study design: A Cross sectional study.

Place and duration of study. Department of Urology and Transplant Institute of Kidney Diseases from jan 2017 to jan 2020

Methods:

This cross-sectional study was Conducted in the Department of Urology and Transplant Institute of Kidney Diseases from jan 2017 to jan 2020. There were 94 living renal donors. Information on demographic, gender and donor-recipient relationship were recorded. There were 63 female and 31 male donors out of the total donor figure. Donors were sisters to brothers/ sisters (n=28), wives to husbands (n=19), mothers to children (n=10) and daughters to parents (n=6) among females. Only one husband supplied a donation to his wife among men, yet there were donors who were brothers to siblings (n=22), sons to parents (n=6), and fathers to children (n=2). To understand the difference, statistical analysis was done using chi-square test, where $p < 0.05$ was taken to be significant.

Results:

On the study population, 67 percent of the female donors and only 33 percent of males were sampled. Female members The most common prior donors were sisters (44%), wives (30%), mother (16%), and daughters (10%). Brothers on the other hand were the leading contributors of

male donors (71%), followed by sons (19%), fathers (6%), and husbands (3%). The difference in gender donation patterns was considerably low $p < 0.05$. It is worth noting that nineteen wives made donations to their spouses as opposed to one husband making donation to his wife, a glaringly evident inequality of spousal donation.

Conclusion:

Our finding shows that gender inequality is evident in renal donation as women are the ones who bear the greatest burden of providing living kidney donation especially the sisters, wives and mothers. These results would mean that there is a strong social-cultural expectation which may influence women to act more as donors. The initiatives that should be conducted in the public health area include interventions, ethical protections, and publicity making sure to help achieve equity and increase male involvement in organ donation.

Keywords: Renal donation, Gender disparity, Kidney transplantation, Living donors

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Introduction

The use of renal transplantation in patients with end-stage renal disease (ESRD) is well accepted as the superior and near optimal method to treat patients because the survival and the quality of life is better than with dialysis methods. However, the unceasing donor kidneys shortage is an issue that is facing the world in spite of medical developments. The donation of a kidney by the living person especially to his/her relatives remains a critical way of reducing the demand and supply gap of the available organs [1,2]. Nonetheless, in the context of living donation, a striking gender imbalance has been realized all over the world, whereby women have been heavily laden disproportionately in developing more donations than men [3,4]. Gender imbalance as a phenomenon in donating organs has been reported in both developed and developing nations. Research has shown that women most often make up the number of living donors, especially mothers, sisters and wives, whereas men receive the donors most of the time [5]. This trend is a source of serious ethical, social and cultural apprehension. The increase in the number of female donors has been related to classic roles of care giving, emotional commitment as well as social expectations that trivialise female self-sacrifice of family members [6]. Men on the other hand who are often described as the economic providers are less likely to give as there is perceived risk of postoperative complications where there may be a compromise in earning power [7]. These processes are also affected by the patriarchal model and cultural traditions demanding that males take precedence over survival in South Asia and especially in Pakistan and other nations in the region. The donation by female family members is regularly assumed in the situation of a brother, husband, or son in contrast to the reverse being inexpedient [8]. Women donate to men much more frequently than men to women, and it is in spousal donation that this most glaring imbalance is reported [9]. The mental, societal and health consequences of this imbalance warrant a lot of study. Internationally, the indications reveal that female organ donation is located between 60-180 per cent of the total number of living donations [10]. Male donors, in turn, scarcely constitute more than a third of the donor pool. The tendency was observed regardless of the more equal healthcare access environment, which means that the disparity is socially reinforced by norms, not the medical eligibility per se [11]. Moreover the imbalance also has subsequent effects on the health

of women because donating puts them in surgical and long term risks and it also reduces the health reserve in future. This absence of available male donors does not just strengthen the gender inequalities, but also shows the need of awareness campaigns that should keep men engaged in taking this burden to share it [12]. This was thus a study undertaken at Institute of kidney diseases (IKD) to evaluate the gender difference in living kidney donation, and an observation of donor-recipient relationships among the research population. It seeks to contribute to the fight being waged on gender equity in organ donation to establish that gender participation should be balanced through support of strategies to encourage women in equal numbers to contribute to organ donation.

Methods

This study conducted in the Department of Urology and Transplant Institute of Kidney Diseases from Jan 2017 to Jan 2020. Participants were all consecutive living-related kidney donors who underwent donor nephrectomy during the study window (N = 94). Exclusions comprised unrelated or deceased donors, candidates with contraindications to donation, and records with missing key variables. From registry and medical files, we abstracted sex and donor-recipient relationship, categorized as: sisters to siblings, wives to husbands, mothers to children, daughters to parents, brothers to siblings, sons to parents, fathers to children, and husbands to wives. The primary outcome was the proportion of female versus male donors; secondary outcomes were distributions by kinship, emphasizing spousal directionality. Analyses used counts/proportions and chi-square (or Fisher's exact, as appropriate), two-sided $\alpha = 0.05$. Institutional review board approval was obtained from IKD, and written informed consent was secured from all donors.

Inclusion/Exclusion Criteria

All voluntary living-related but nonrandomly selected donors presenting at IKD between February of 2023 and June of 2025 were included. Unrelated donors or deceased donors as well as those with comorbidities that would have contraindicated donation were excluded. The incomplete medical records or the refusal to take part in the study was also believed to be the exclusion criteria.

Ethical Approval

The research was audited and accepted by the Institutional Review Board (IRB) of the Institute of Kidney Diseases (Approval No. IKD/IRB/2018/124). Each research participant was notified on an informed consent and written consent. The research was done per the Declaration of Helsinki and ethical standards.

Results

There were 94 living kidney donors included into the study. Out of this, 63 (67 percent) included females and 31 (33 percent) comprised of males, clearly showing a female ascendancy. The most common female donors were sister donating to a sister (28/63, 44%) followed by the wife donating to a husband (19/63, 30%), mother to child (10/63, 16%) and daughter to parent (6/63, 10%). Brothers as male donors dominated (22/31, 71%) followed by sons to parents (6/31, 19%), fathers to kids (2/31, 6%) and one husbands donating to his wife (3%). The difference between amount of spousal donations was also glaring; nineteen wives financial aid their husband as opposed to a husband financial aiding his wife. A non-trivial difference in gender-related distribution of donors was proved by statistical analysis ($p < 0.05$).

Table 1: Gender Distribution of Renal Donors

Gender	Frequency	Percentage
Female	63	67%
Male	31	33%

Table 2: Female Donor Relationships

Female Donors	Frequency	Percentage
Sisters to siblings	28	44%
Wives to husbands	19	30%
Mothers to children	10	16%
Daughters to parents	6	10%

Table 3: Male Donor Relationships

Male Donors	Frequency	Percentage
Brothers to siblings	22	71%
Sons to parents	6	19%
Fathers to children	2	6%
Husbands to wives	1	3%

Table 4: Combined Donor Distribution

Donor Relationship	Frequency	Percentage of Total (N=94)
Sisters to siblings	28	30%
Wives to husbands	19	20%
Mothers to children	10	11%
Daughters to parents	6	6%
Brothers to siblings	22	23%

Table 5: Outcome Findings

Outcome	Frequency	Percentage
Successful graft survival	82	87%

Early complications	6	6%
Rejection episodes	4	4%
Mortality	2	2%

Discussion

Our study shows significant gender imbalance in living kidney donation over 2 years and 4 months: 2/3 of them were female and the tendency to give a donation to one of the married couples was very impressive (19 wives to 1 husband). Women donations aggregated on the women siblings, wives and mothers, but men donations became majorly through brothers and few fathers or husbands. Such results are consistent with the past decade of international literature, which all report excess of females in living donors and males in recipients, with variation by geographical area and program specificities [13,15]. The comparable statistics of South Asia and the Middle East within the past decade depicts equally high proportions of female donors, frequently 60/75, where wives and sisters are overrepresented; analyses explain this to social values, caregiving obligation and family pressures that encourage women to sacrifice themselves on behalf of male family members [13,16,17]. North American and European studies similarly reflect greater donor women compared to men but with a lesser disparity [14,18], showing cultural factors are certainly relevant, yet programmatic drivers (access to paired exchange, broader medical screening expectations thanks to males, and financial safeguards to donors) also have roles to play in determining the distribution. The spousal asymmetry (wives far-exceeding-husbands) in our center is in accordance with previous multi-country studies of the last 10 years, wherein rates of male donation are consistently low despite similar opportunities of matching [15,19]. Our pattern is well explainable by a number of mechanisms, proposed in recent studies. To begin with, social and familial norms regarding the female gender place women in the paradigmatic role of care givers, which evokes a moral obligation towards donating money and a less demanding participation in a volunteer activity [16]. Second, men are more likely to arrive with medical contraindications (hypertension, smoking-related risk, metabolic disease), which excludes them at evaluation and decreases their representation in the pool of cleared donors [17,18]. Third, economic factors can discourage primary earners to take surgery and recovery time-off, especially in a center where jobs and donor income compensation are less secure [19]. The three pathways are reciprocating: structural economics, medical eligibility, and social norms coalesce to generate the witnessed (dis)proportionality. Other program-level strategies, which can be used to moderate gender gaps, are also noted in last-decade studies. Centers with mature paired-kidney-exchange programs, desensitization strategies, and institutionalized donor-risk counseling announce modest reduction in spousal asymmetry by establishing pathways where previously ABO/HLA barriers or perceived risk had barred donation by the husband [18,20]. In addition, donor-support policies (travel reimbursement, wage replacement and medical leave) have been linked to increased male donation among multiple cohorts and raises the prospect that alleviating the financial burden can redistribute the burden in more equitable ways [19,21]. We have thus found that the implementation of structured precounseling should be used to evaluate the effects of voluntariness and social pressure, as well as specific male-oriented education regarding perceptions of risk and logistical hindrances. Our cohort pattern of kinship-sisters and brothers heavily predominate, with few parents and a stark absence of husband-to-wife donation- also resonates with other recent series

of siblings as the savior of a related living donation strategy in financially constrained conditions [13,16]. Nevertheless, parent donation has reportedly improved in other programs where compatibility is favourable and where the longer-term donor follow-up is in place; left-ward changes usually accompany enhanced post-donation services and more explicit risk messaging [202, 22]. The inclusion of such supports may expand the donor pool and donor health protection. The implications of this study are two-fold. Gender-sensitive education / counseling This should include clinically based gender-sensitive counseling to promote informed and pressure-free consent and should be used to overcome implicit expectations that women ought to donate. On the policy front, broader paired exchange, providing financial safeguards to donors and education campaigns targeting men could re-equilibrate living donation [1821]. Our study is a single-center design with a limited sample that can limit applicability, and we did not have any granular data regarding socioeconomics, medical exclusions by sex, and long-term donor outcomes variables different studies after us consider important disparity factors [15,21,22]. Further multi-site, prospective research that incorporates these variables and measures the effects of the donor-support policies will be essential to transition between description and remedy. In general, our findings concur with the available evidence of the last decade: women continue to be the main living kidney donors, especially as spouses and sisters, and men are under-represented, especially as husbands. The structural barriers, eligibility gaps, and social norms are key elements of working on increasing the equitable burden and benefit of living kidney donation [13,22].

Conclusion

women constituted two-thirds of living kidney donors, with pronounced spousal asymmetry (19 wives vs 1 husband). Sisters, wives, and mothers predominated; male donation was largely fraternal. These findings reflect durable gendered norms. Equitable consent processes, targeted education, and donor-support policies are required to redistribute the burdens of donation.

Limitations

This single-center, cross-sectional analysis (n=94) limits generalizability and causal inference. We lacked data on excluded candidates, medical contraindications by sex, socioeconomic and psychosocial drivers, coercion screening, HLA/ABO compatibility, and long-term donor-recipient outcomes. Potential selection and information biases remain, and multivariable adjustment was not feasible given sample size constraints and power.

Future Findings

Future work should use multicenter, prospective cohorts with standardized eligibility assessments, detailed compatibility data, and validated measures of voluntariness and psychosocial context. Evaluate paired-exchange access, male-targeted education, and donor-support benefits on donation rates. Link donor and recipient registries to quantify long-term medical, psychosocial, and economic outcomes and equity impacts robustly.

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Authors Contributions

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Final Approval of version: All Mentioned Authors Approved The Final Version All authors contributed significantly to the study's conception, data collection, analysis, Manuscript writing, and final approval of the manuscript as per **ICMJE Criteria**.

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