



GENDER DISPARITY IN LIVING SOLID ORGAN DONATION AND TRANSPLANTATION

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ABSTRACT Organ transplantation, a pivotal medical achievement of the twentieth century, offers a lifeline for patients with terminal organ failure. In living organ donor transplantation, a predominance of female-to-male donations has been observed. This gender disparity is more so in developing countries and requires targeted counselling and research to understand whether the cause is medical or sociocultural obstacles. The present study was intended to explore the gender (male and female) disparities in organ transplantation between 2017-2022. The primary data was taken from Indraprastha Apollo Hospital, New Delhi (India), to achieve the study's objective focusing on living donors and recipients. Parameters such as the gender of donors and recipients, marital status of female donors, relationship dynamics between married female donors and their recipients, and instances where husbands are donors were meticulously analysed. Findings reveal significant gender-based differences in organ donation patterns, underscoring the need for addressing these disparities at the societal level.

KEYWORDS : Apollo hospital, gender, Solid organ transplant**INTRODUCTION**

Organ transplantation, a critical medical procedure, involves transferring organs or tissues from donors to recipients to address life-threatening organ failures. This process necessitates donors to be living, brain dead, or deceased due to circulatory collapse, with tissue procurement possible up to 24 hours post-mortem^[1]. The spectrum of transplantable organs and tissues is broad, encompassing kidneys, liver, heart, and more, with kidneys being the most commonly transplanted organ globally. Tissue transplants, such as corneal and musculoskeletal grafts, outnumber organ transplants by almost ten times. The practice raises complex bioethical and ethical issues, including consent, the nature of donor death, financial transactions for organs, medical tourism, socio-economic disparities, and organ trafficking, highlighting the need for careful ethical consideration and regulation^[2].

Status of Organ Transplantation in India

India ranks third globally in organ transplants but faces a significant disparity between the need for organs and the number of transplants performed. The country has a low organ donation rate of approximately 0.52 donors per million people, starkly contrasting Spain's leading rate of 49.6 donors per million^[3]. Despite a fluctuation in the percentage of organs harvested from deceased donors, there has been an overall increase in organ transplants from both cadavers and living donors, rising from 4,990 in 2013 to 15,561 in 2022^[4]. This growth reflects a predominant reliance on living donors, with most transplants, especially kidney transplants, sourced from them, underscoring the critical need for enhanced organ donation awareness and infrastructure improvements in India.

Gender Disparity and Transplant Activity in India

In the landscape of living organ donation in India, women emerge as the predominant contributors, representing 71% of the donor pool^[5]. The familial roles of these female donors often mirror societal expectations, with mothers, wives, and daughters being the primary sources, highlighting the gendered dynamics of donation practices. Despite the significant participation, certain societal norms and health considerations influence the propensity for donation among different family members, such as the rare instances of grandparental donations due to health constraints. The evolving trend of increased father donations signals a shift toward broader family involvement in organ donation^[6]. This complex interplay of social norms, familial obligations, and health considerations underscores the need for a nuanced understanding of the gender dimensions in organ donation.

Factors behind Gender Disparity in Organ Transplantation in India

Several significant factors contribute to gender disparities in organ donation in India, including socio-economic roles, where men, often the primary earners, face constraints against donation, leading to increased pressure on women: family responsibilities and societal expectations further influence women's decisions to donate. Additional challenges include lifestyle diseases affecting organ

demand, consent issues, organ loss in accidents, geographic disparities in medical infrastructure, financial burdens of transplantation, limited awareness, religious beliefs, and the comprehensive care required for both donors and recipients, highlighting a complex interplay of factors necessitating targeted interventions.

Objective Of The Study

To study the gender (male and female) disparities in organ transplantation.

METHOD**Sample (Primary Data)**

The analysis encompassed primary data from 3,252 organ donors at Indraprastha Apollo Hospital, New Delhi, spanning January 2017 to December 2022. To gain deeper insights into the donation patterns, patient demographics such as gender, the relationship between the donor and recipient, and marital status were meticulously collected and examined.

RESULTS

The data taken to attain the objective of the study has been analysed and presented below:

Table 1: Percentage of living organ donors based on gender (male and female) (2017-2022).

Years	Total Number of Living Organ Donors (A)	Gender		Percentage (%) of male donors (B/A x 100)	Percentage (%) of female donors (C/A x 100)
		Male (B)	Female (C)		
2017	486	187	299	38.4	61.5
2018	608	215	393	35.3	64.6
2019	673	252	421	37.4	62.5
2020	363	135	228	37.1	62.8
2021	511	192	319	37.5	62.4
2022	611	262	349	42.8	57.1
Total	3252	1243	2009	38	62

Table 1 presents data on the gender distribution of living organ donors from 2017 to 2022, indicating a consistent predominance of female donors over male donors throughout the years. The percentage of male donors fluctuates slightly but remains significantly lower than that of female donors, with an overall average of 38% for males and 62% for females. This data underscores a significant gender disparity in living organ donation over the studied period. Despite Indraprastha Apollo Hospital New Delhi continuing to undertake transplant surgeries during the COVID-19 pandemic, the drop in the number of transplants in 2020 due to this is evident.

Graph 1 represents the percentage of living organ donors based on gender (male and female)

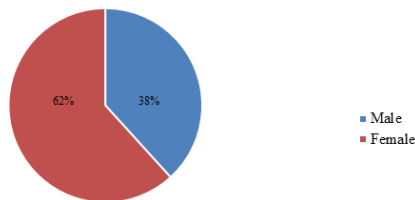
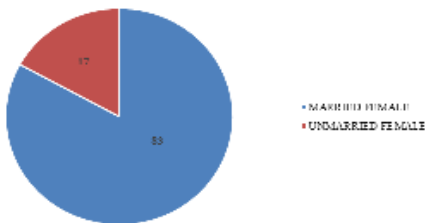


Table 2: Marital Status of female living organ donors (2017-2022)

Years	Total (A)	Marital Status		Percentage (%) of married donors (B/A x 100)	Percentage (%) of unmarried donors (C/A x 100)
		Married (B)	Unmarried (C)		
2017	299	245	54	81.9	18.1
2018	393	314	79	79.8	20.1
2019	421	346	75	82.1	17.8
2020	228	192	36	84.2	15.7
2021	319	267	52	83.6	16.3
2022	349	295	54	84.5	15.4
Total	2009	1659	350	83	17

Table 2 shows the marital status of female living organ donors from 2017 to 2022. Overall, a significant majority (83%) of these donors were married, while 17% were unmarried. This consistent predominance of married female donors suggests that marital status may influence the decision to donate, possibly reflecting social or familial expectations. The relatively stable percentages across the years indicate that this pattern is a persistent feature of the donor demographic during the period studied



Graph 2 shows the marital status of female organ donors (2017-2022)

Table 3: Recipient relationship of married female donors (2017-2022).

Years	Total (A)	Donated to male recipient (husband) (B)	Donated to family members (Parents, siblings, children, and grandparents) (C)	Donated to non-family members (D)	Percentage (%) of the male recipient (husband) (donor: wife) (%) (B/A x 100)	Percentage (%) of family member recipients (Parents, siblings, children, and grandparents) (C/A x 100)	Percentage (%) of Non-family member recipient (%) (D/A x 100)
2017	245	107	104	34	44	42	14
2018	314	131	128	55	42	41	17
2019	346	146	145	55	42	42	16
2020	192	63	101	28	33	53	14
2021	267	104	121	42	39	45	16
2022	295	114	135	46	39	46	15
Total	1659	665	734	260	40	44	16

Table 3 details the recipient relationships for married female donors from 2017 to 2022, showing a balanced distribution among husbands, family members, and non-family members as recipients. The data indicates that a significant portion of organs donated by married women goes to their husbands, with an overall percentage of 40%. Family members, including parents, siblings, children, grandchildren, and grandparents, receive a slightly higher portion, at 44%, while non-family members account for 16% of the recipients. This diversity in recipient relationships underscores the complex motivations behind organ donation among married female donors.

Graph 3 shows the recipient's relationship with married female donors

(2017-2022).

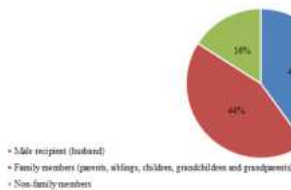


Table 4: Gender comparison of living organ recipients (2017 – 2022).

Years	Total Number of recipients (A)	Gender		Percentage (%) of male recipients (B/A x 100)	Percentage (%) of female recipients (C/A x 100)
		Male (B)	Female (C)		
2017	486	373	113	77	23
2018	608	442	166	73	27
2019	673	487	186	72	28
2020	363	297	66	82	18
2021	511	389	122	76	24
2022	611	463	148	76	24
Total	3252	2451	801	75	25

Table 4 compares the gender of living organ recipients from 2017 to 2022, revealing a significant gender disparity with a higher percentage of male recipients (75%) compared to female recipients (25%). This consistent trend across the years highlights a substantial imbalance in the gender distribution of organ recipients, indicating potential biases or disparities in access to or acceptance of organ transplants.

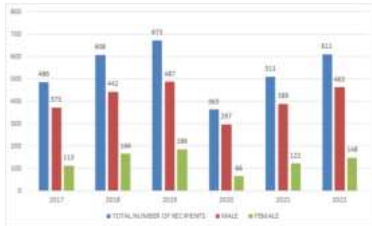
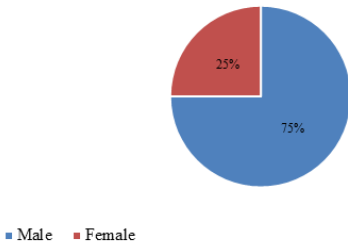


Figure 1 shows a gender comparison of living organ recipients (2017 – 2022).



Graph 4 shows the percentage of living organ recipients (male and female) (2017 – 2022).

Table – 6 Numbers of married female recipients with husbands as donors (2017 – 2022).

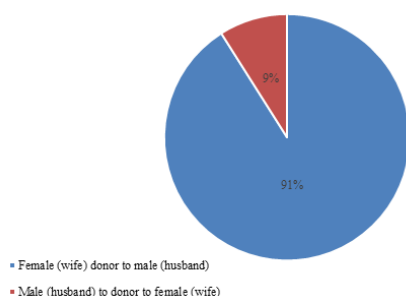
Years	Female recipient (Wife) (A)	Male donor (husband) (B)	Percentage (%) of female recipients (wife) (B/A x 100)
2017	78	10	13
2018	103	7	7
2019	128	15	12
2020	56	12	21
2021	89	9	10
2022	98	9	9
Total	552	62	11

Table 6 showcases the number of married female recipients who received organs from their husbands from 2017 to 2022. The overall data indicate a low percentage (11%) of female recipients whose husbands acted as donors. This suggests that while spousal donations occur, they represent a relatively small proportion of the total organ donations, highlighting potential areas for further exploration in gender dynamics and the decision-making process within spousal relationships regarding organ donation.

Table 7 Details of Spousal Living Organ Donors (2017 - 2022).

Years	Total (A)	Female (wife) donated to male (husband) (B)	The male (husband) donated to the female (wife) (C)	Percentage (%) of female (wife) donor to male (husband) (B/A x 100)	Percentage (%) of male (husband) donor to female (wife) (C/A x 100)
2017	117	107	10	91	9
2018	138	131	7	95	5
2019	161	146	15	90	9
2020	75	63	12	84	16
2021	113	104	9	92	8
2022	123	114	9	93	7
Total	727	665	62	91	9

Table 7 showcases the dynamics of spousal living organ donors from 2017 to 2022. It significantly highlights a gender disparity where the majority of donors are female (wives donating to husbands), constituting 91% of such donations, whereas only 9% are male donors (husbands donating to wives). This trend underscores the prevailing gender norms and roles within the context of organ donation among spouses, with women being the predominant donors to their male partners across the examined period.

**Graph 5** Details of Spousal Living Organ Donors (2017 - 2022).

DISCUSSION

This study aims to examine gender disparities in organ transplantation from 2017 to 2022, using primary data from Indraprastha Apollo Hospital, New Delhi. It focuses on gender-based differences in living organ donation, including donor and recipient gender, marital status of female donors, and relationships between donors and recipients. The findings reveal significant disparities, with females constituting a larger portion of donors than males and a higher prevalence of female donors within family and marital contexts. The study underscores the substantial gender imbalance in organ donation and recipient statistics, suggesting societal and familial pressures influence these trends.

Strategies to Address Gender Disparities in Organ Transplantation

1. Establish transplant awareness centres at community levels.
2. Appoint psychological counsellors to explore the causes of gender disparities in organ donation.
3. To overcome the issues associated with organ donation, the government should draft policies ensuring equitable access to transplantation and disseminate available information on inequities.
4. Re-evaluate traditional gender roles within families to mitigate disparities.
5. Consider families' and women's educational and financial status in understanding transplantation disparities.
6. Implement an equitable deceased donor allocation system with a focus on matching female recipients.
7. Address social biases towards women through comprehensive awareness programs.
8. Encourage existing donors to become advocates for organ donation.
9. Increase awareness of the types of organs that can be donated.
10. Incentivize organ donation through financial support and public recognition.

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