A Woman's Job, A Man's Privilege? Identifying Ethical, Racial, Societal Factors in the Prevailing Gender Disparity in Organ Donation

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ABSTRACT

Background: Women have been major organ donors in the world while men have predominantly played the role of recipients. This, along with various socio-cultural, racial, and economic factors as well as personal attitudes and beliefs, has made it difficult to meet the growing demand of organs for transplantation. The aim of the study was to investigate the prevailing degree of gender disparity in organ donation and to find out factors which contribute to such disparity.

Methodology: Search were performed using the MeSH terms and the related keywords on MEDLINE. A total of 47 out of 60 articles were included. This study analyzed the various reviews on the association between gender and organ transplantation, and the factors that may influence the same.

Results: We found that there exists a gender disparity not only where women donate more but men are the major recipients, and that multiple other factors medical or otherwise either directly or indirectly contribute to the same. Despite males and females having equal likelihood of getting through the required steps to be approved as a donor, females have shown more likelihood to agree to donate their organs, live or otherwise. Men are more likely to donate for their children than for their wives. Male and younger recipients are favored, while females and middle-aged or older donors are preferred.

Conclusion: Gender disparity in organ donation exists throughout the world and there is a need to bridge this gender gap through a concerted and cohesive plan of action.

Keywords: Gender, Bioethics, Transplantation, Organ Donation, Women Health

Introduction

A larger number of live organ transplantations are facilitated by women as donors than men [1]. Out of all transplants, 54.7% women were donors. A striking contrast was observed with only 39.4% of women being recipients [2]. In such progressive times, organs that are crucial for survival remain inequitable. Many studies conducted all around the world have established this trend. In cases of liver transplants women are more likely to die on the waitlist [3]. In the ever-evolving field

of transplant medicine, there exists a gap and to make organ transplantation accessible to all, this gender gap must be bridged. Benevolence does not only pertain to women. Myths must be driven away, and correct education must be imparted to all minority communities, all genders and all age groups to allow the supply of organs to meet the growing demand. This review analyses the injustice women face when transplant is the only treatment option and its by-products like further complications. The education one receives also shows a conspicuous trend [4]. In a study conducted, it was established that women have less knowledge and are less informed about transplant procedures and therapy, and yet have a greater sense of responsibility to undertake the role of a donor [7]. 13.5% more students in the medical fraternity are willing to donate as opposed to that of students majoring in economics [5]. This review assesses the interplay between the emotional, socioeconomic, racial, educational and ethical aspects in the gender disparity in organ donation.

Research objectives

- To scope for and establish the prevailing degree of gender disparity in organ donation.
- To identify and discuss what factors contribute to the variance in the degree of disparity, if any.

Review approach

The research question entailed assessing the relevance of gender in organ transplantation. A search was done by using PubMed to find all original and review articles with original reports, published from the period of January 2000 to February 2020. A combination of keywords with Medical Subject Headings (MeSH) related to gender and organ donation was used. The following MeSH terms were used interchangeably and in combination, so as to find all relevant articles which encompassed disparity in organ donation with respect to gender: 'gender', 'gender disparity', 'organ donation', 'transplant medicine', 'ethics', 'bioethics', 'religion', 'religious beliefs', 'BAME', 'race', 'women', 'donor', 'recipient'.

Inclusion and exclusion criteria

The articles to be analysed were included if they were found using the aforementioned search process for our review, with respect to the above listed databases, MeSH and search terms. All articles having free full text available through PubMed were included in our review. We included studies which spoke about the importance of gender in organ transplantation and did not limit to a specific organ. Case reports, letters to editors and commentaries were excluded in the scope of this review.

Data Review

Table 1: Details and decision to include/exclude the retrieved reviews on the association between gender and organ transplantation.

Sr. No.	PubMed Reference ID	Year	Endpoint (measurement)	Type of Study	Inclusion/Exclusion Criteria	Included or excluded	Journal Published	Article Source
1	3999296	1985	Public attitudes and behaviour about organ donation	Original Article	No inclusion/exclusion criteria as part of the article.	Excluded	JAMA	National Library of Medicine
2	10977785	2000	Gender disparity in living renal transplant donation	Original Article	family members of living donor allograft recipients at a single large center over a 5-year period (n = 144).	Included	American Journal of Kidney Diseases	National Library of Medicine
3	11821739	2002	Gender imbalance in living donor renal transplantation	Original Article	Electronic medical records of all living related and living unrelated kidney transplants performed between 1964 and 2000	Included	Transplantation	Wolters Kluwer

					were reviewed			
4	12741404	2002	Giving until it hurts: prisoners are not the answer to the national organ shortage	Topic for Debate	No inclusion/exclusion criteria as part of the debate.	Excluded	Indiana Law Review	National Library of Medicine
5	15859919	2003	Ethical issues in organ and tissue transplantation	Topic for Debate	No inclusion/exclusion criteria as part of the analysis.	Excluded	Experimental and Clinical Transplantation	National Library of Medicine
6	15501205	2004	The net transfer of transplant organs across race, sex, age, and income	Original Article	Subjects included were all transplant donors in the United States from 1996 to 2001. 6% of subjects who were neither black nor white were excluded.	Included	The American Journal of Medicine	Elsevier
7	15701672	2005	Gender imbalance among donors in living kidney transplantation: the Norwegian experience	Original Article	Patients > 18 years were included and the medical criteria of : Kidney function must be normal with creatinine clearance >80 ml/min and the urine specimen must be normal. Blood pressure should be in the normotensive range (<140/90 mmHg). X-ray of the chest as well as exercise echocardiogram in donors >40 years of age must be normal. Body mass index >30 kg/m ² and elevated fasting blood glucose are exclusion criteria.	Included	Nephrol Dialysis Transplant	Oxford Academic
8	16127268	2005	Kidney transplantation and gender disparity	Original Report	No inclusion/exclusion criteria as part of the study analysis.	Included	American Journal of Nephrol	Karger
9	15696526	2005	Ethics, transplantation, and the changing role of anatomists	Topic for Debate	No inclusion/exclusion criteria as part of the analysis.	Excluded	Clinical Anatomy	National Library of Medicine
10	16181018	2005	Gender-specific issues in liver and kidney failure and transplantation: a review	Review Article	No inclusion/exclusion criteria as part of the review.	Included	Journal of Women's Health	National Library of Medicine
11	17164705	2006	Gender disparities in the live kidney donor evaluation process	Original Article	Potential donors were evaluated for live donor kidney transplantation between January 1, 2000, and January 1, 2004, if they fulfilled the adequate donor criteria.	Included	Transplantation	Wolters Kluwer
12	16857540	2006	Ethnic and gender differences in willingness among high school students to donate organs	Original Article	883 students attending health science class at nine inner-city high schools in Seattle, Washington	Included	Journal of Adolesc Health	Elsevier
13	18089300	2007	Gender bias in renal transplantation: are women alone donating kidneys in India?	Original Article	Retrospective analysis of all LD renal transplantations performed at a single center between 2001 and 2005	Included	Transplant Proceed	Elsevier

14	17524816	2007	Donor gender balance in a living-related kidney transplantation program in Oman	Original Article	Retrospective study of the distribution of female and male donors or recipients among living kidney transplantations performed from 1980 to 2005, namely 198 Omani recipients of living-related kidney transplantations.	Included	Transplant Proceed	Elsevier
15	17366949	2007	Assessing racial and ethnic differences in medical student knowledge, attitudes and behaviours about organ donation	Original Article	500 first- and second-year students attending one of three Ohio medical schools completed the 41-item questionnaire.	Excluded	Journal of the National Medical Assocn	National Library of Medicine
16	18635494	2008	Gender issues in transplantation	Review Article	No inclusion/exclusion criteria as part of the review.	Included	Anaesthes Analgesia	Wolters Kluwer
17	18580010	2008	Gender disparity in kidney transplantation	Original Article	The data of age, gender, nationality, donor type and waiting time before transplantation of 1426 (61.85% male, 38.14% female) recipients who underwent transplantation in Imam Reza Hospital in the northeast of Iran from 1990 to 2003, was analysed.	Included	Saudi Journal of Kidney Diseases and transplantat ion	National Library of Medicine
18	18190416	2008	Ethics of organ donation and transplantation involving prisoners: the debate extends beyond our borders	Review Article	No inclusion/exclusion criteria as part of the review.	Excluded	Internal medicine journal	Wiley Library
19	19129311	2009	Age and comorbidities are effect modifiers of gender disparities in renal transplantation	Original Article	National cohort study of 563,197 patients with first onset ESRD between 2000 and 2005.	Included	Journal American Society of Nephrol	National Library of Medicine
20	19469039	2009	Attitudes, beliefs and behaviours surrounding organ donation among Hispanic women	Review Article	No inclusion/exclusion criteria as part of the review.	Included	Current Opin Organ Transplant	Wolters Kluwer
21	21265292	2010	Attitudes toward organ donation and donor behaviour: a review of the international literature	Review Article.	members of the public (i.e., not transplant recipients, donor families, or health professionals)	Included	Prog Transplant	National Library of Medicine
22	20879013	2010	Gender disparity in liver transplant waiting-list mortality: the importance of kidney function	Original Article	Organ Procurement and Transplantation Network data for patients with end-stage liver disease (ESLD) on the waiting list who were registered between February 2002 and August 2009. 42,322 patients and 610,762 person-months of waiting-list experience were included in the analysis.	Included	Liver transplantat ion	Wiley Library

23	20209639	2010	Gender-specific differences associated with living donor liver transplantation: a review study	Review Article	We contacted 89 national and international transplantation registries, single transplant centres, and coordinators. In addition, a sample of 274 articles dealing with LDLT and its outcomes was reviewed and compared with the registry data.	Included	Liver transplantat ion	Wiley Library
24	21668497	2011	Organ donation from children: time for legal, ethical and cultural change	Review Article	No age restriction as part of the inclusion/exclusion criteria.	Excluded	Acta Paediatr	Wiley Library
25	21426918	2011	Gender disparity and MELD in liver transplantation	Letter to the Editor	No inclusion/exclusion criteria as part of the research.	Excluded	Journal of Hepatol	National Library of Medicine
26	21239479	2011	Incentivizing deceased organ donation: a Swedish priority-setting perspective	Original Article	No inclusion/exclusion criteria as part of the article.	Included	Scand Journal of Public Health	National Library of Medicine
27	23722379	2011	Organ donation after circulatory death: vital partnerships	Case Report	No inclusion/exclusion criteria as part of the case report.	Excluded	The American Journal of Nursing	Wolters Kluwer
28	23008117	2012	Impact of estimated liver volume and liver weight on gender disparity in liver transplantation	Original Article	The final cohort had 28,866 patients who were analysed depending on the Organ Procurement and Transplantation Network Data as of August 2009.	Included	Liver Transplanta tion	National Library of Medicine
29	22931405	2013	Gender disparity of living donor renal transplantation in East China	Original Article	139 living donor renal transplants performed in our center between 2003 and 2010.	Included	Clinical Transplanta tion	Wiley Library
30	24064859	2013	Gender issues in solid organ donation and transplantation	Review Article	No inclusion/exclusion criteria as part of the review.	Included	Annals Transplanta tion	National Library of Medicine
31	24119046	2013	The effect of gender and gender match on mortality in paediatric heart transplantation	Original Article	population of 3630 heart transplant recipients less than 18 years old.	Included	American Journal of Transplanta tion	Wiley Library
32	25457096	2014	Organ donation by suicides: sex and ethnicity	Original Article	An analysis of 2,034 actual organ donations by suicides for the years 2008-2010	Included	Psychologic al reports	National Library of Medicine
33	24996438	2014	Impact of gender and professional education on attitudes towards financial incentives for organ donation: results of a survey among 755 students of medicine and economics in Germany	Original Article	Between October 2008 and February 2009, a quantitative survey was conducted among German students of medicine and economics	Included	BMC Medical Ethics	National Library of Medicine
34	26413291	2015	A peer outreach initiative to increase the registration of minorities as organ	Original Article	A peer outreach programme piloted in Harrow (Middlesex) in 2009 and later rolled out to Hounslow, Lewisham and	Included	Clinical Kidney Journal	Oxford Academic

			donors		Lambeth in 2010 (all in London, UK) was taken as the superset.			
35	26465666	2015	Gender in the allocation of organs in kidney transplants: meta-analysis	Review article	Twenty-nine studies involving 765,753 patients were included.	Included	Revista de saude publica	National Library of Medicine
36	25742669	2015	Postpartum Women's Perspectives on the Donation of Placentas for Scientific Research in Campinas, Brazil	Original Article	Postpartum women at CAISM maternity hospital.	Included	Journal of Empirical Research on Human Research Ethics	National Library of Medicine
37	27692353	2016	Does Donor Status, Race, and Biological Sex Predict Organ Donor Registration Barriers?	Original Article	Young adults residing in Illinois between the ages of 18 and 24 completed a telephone survey.	Included	Journal of the National Medical Assocn	Elsevier
38	27471591	2016	Organ transplantation and gender differences: a paradigmatic example of intertwining between biological and sociocultural determinants	Commentary	No inclusion/exclusion criteria as part of the commentary.	Included	Biology of Sex Differences	National Library of Medicine
39	27015531	2016	Gender Disparity in Living-Donor Kidney Transplant Among Minority Ethnic Groups	Original Article	analysed 713 living-donor kidney transplant procedures that were performed from 1987 to 2014.	Included	Experimental and Clinical Transplantation	National Library of Medicine
40	28288834	2017	Exception Points and Body Size Contribute to Gender Disparity in Liver Transplantation	Original Article	Data from the United Network of Organ Sharing registry of candidates placed on the waitlist from May 10, 2007, through June 17, 2013.	Included	Clinical Gastroenterology and Hepatol	Elsevier
41	29284769	2017	Few Gender Differences in Attitudes and Experiences after Live Kidney Donation, with Minor Changes Over Time	Original Article	455 live kidney donors between 1974 and 2008 were considered for this study.	Included	Annals of Transplnt	National Library of Medicine
42	27352118	2017	Assessing Transplant Attitudes: Understanding Minority Men's Perspectives on the Multifarious Barriers to Organ Donation	Original Article	A 57 question Health and Wellness survey was designed to assess participants' demographic information, medical history, professional background, and opinions about organ transplantation. Participants were also asked to complete Quality Metric's Short Form-8 (SF-8) survey to assess physical health, mental health, and quality-of-life. Three	Included	Journal of Racial & Ethnic Health Disparities.	National Library of Medicine

					hundred twenty-six surveys were administered to minority men.			
43	28540899	2017	Gender differences in perceptions and attitudes of general population towards organ donation: An Indian perspective	Original Article	A cross-sectional descriptive study was conducted among randomly selected patient relatives (n = 193) at the outpatient department of a tertiary care center.	Included	Saudi journal of kidney diseases and transplantat ion	National Library of Medicine
44	29309946	2018	Deterrents to Organ Donation: A Multivariate Analysis of 766 Survey Respondents	Original Article	A survey capturing individual attitudes and factual knowledge of organ donation/transplantation was distributed online (Survey Monkey) and in paper format in four healthcare provider waiting rooms in Georgia.	Included	Journal of the American Colony of Surgeons	Elsevier
45	29880964	2018	NASH Leading Cause of Liver Transplant in Women: Updated Analysis of Indications for Liver Transplant and Ethnic and Gender Variances	Original Article	The study included 127,164 adult patients registered for LT	Included	AM J Gastroenter ology	Wolters Kluwer
46	30587146	2018	Gender disparity in health-related quality of life and fatigue after living renal donation	Original Article	Two hundred and eleven (211) living renal donors were evaluated (female 62.2%).	Included	BMC Nephrology	National Library of Medicine
47	30062839	2018	Understanding the sex disparity in living kidney donation	Original Article	Living donors of kidney transplantation.	Included	Journal of Evaluation in clinical practice	Wiley Library
48	30051397	2018	Heart Transplantation Survival and Sex-Related Differences	Review article	No inclusion/exclusion criteria as part of the review.	Included	Advances in Experiment al medicine and biology	National Library of Medicine
49	30213924	2018	Factors in Organ Donation Coordinators: A Cross-Sectional Study in China	Original Article	From March to May 2017, we administered questionnaire surveys to 320 organ donation coordinators from 32 cities.	Excluded	Annals of transplantat ion	National Library of Medicine
50	31929292	2019	Women donate, men receive gender disparity among renal donors	Original Article	A single centre, retrospective cohort study on 600 kidney donors between 2013 and November 2018	Included	Saudi journal of kidney diseases and transplantat ion	Wolters Kluwer
51	30105865	2019	Gender dynamics in the donation field: human tissue donation for research, therapy and feeding	Review Article	No inclusion/exclusion criteria as part of the review.	Included	Sociology of Health and Illness	National Library of Medicine
52	30747857	2019	Equally Interchangeable? How Sex and Gender Affect Transplantation	Review Article	No inclusion/exclusion criteria as part of the review.	Included	Transplanta tion	Wolters Kluwer
53	30384800	2019	<i>A care ethics</i>	Original	No inclusion/exclusion	Included	Nursing	Sage

			<i>approach to the Gender Kidney Donation Gap</i>	Article	criteria as part of the article.		Ethics	
54	31518477	2019	In sickness and in health: Living HIV positive kidney donation from a wife to her husband, with 7 years' post-transplant follow-up	Case Report	No inclusion/exclusion criteria as part of the case report.	Excluded	Transplant Infectious Disease	Wiley Library
55	31461744	2019	Sex and Gender Considerations in Transplant Research: A Scoping Review	Review Article	No inclusion/exclusion criteria as part of the review.	Included	Transplantation	Wolters Kluwer
56	30777567	2019	Gender Disparity and the Relationship Between Living Donors and Recipients in Kidney Transplants in an Organ Transplant Center in Turkey	Original Article	Analysed the hospital records of living kidney donors (1611 cases) and all 1991 kidney recipients who underwent living-donor and deceased-donor kidney transplant procedures in a university hospital between 1985 and 2017.	Included	Experimental and Clinical Transplantation	National Library of Medicine
57	30879523	2019	Attitude Toward Organ Donation in the Population of Cienfuegos, Cuba	Original Article	Population over 15 years old as stratified by age and sex.	Excluded	Transplantation Proceeding	National Library of Medicine
58	31533778	2019	An ethical comparison of living kidney donation and surrogacy: understanding the relational dimension	Review Article	No inclusion/exclusion criteria as part of the review.	Excluded	Philosophy, ethics & humanity in medicine	National Library of Medicine
59	31906885	2020	Impact of the donor-recipient gender matching on the graft survival from live donors	Original Article	1113 kidney transplant recipients were studied in this retrospective cohort study.	Included	BMC Nephrology	BMC
60	11802081	2020	Understanding disparities in donor behaviour: race and gender differences in willingness to donate blood and cadaveric organs	Original Article	Cross-sectional telephone survey of persons aged 18 to 75 living in the Baltimore, Maryland metropolitan area contacted via random digit dialling.	Included	Medical Care	Wolters Kluwer

From the above taken 60 studies via the database, a total of 47 studies met all the inclusion criteria and were selected following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guideline [6]. A comprehensive outline for the method of selection is as given in Figure 1.

Figure 1: PRISMA Flow Diagram for Selection of Review Material

Results

Through our review, we found that there exists a disparity between men and women in the context of organ donation, which is further substantiated by the fact that not only do women tend to donate more, but also that men are more predominantly the recipients [7-8]. This disparity transcends all relations, in that spousal as well as parental donations are from women to men [9-12]. As for female recipient numbers, they could be 38% vs 62% for males [13], or as skewed as 11% vs 89% for males [14]. Nevertheless, females predominantly donating and males predominantly receiving is a universal trend. This, despite males and females having a level playing field in terms of getting through the required steps to be approved as a donor. However, among approved potential donors, females have shown more likelihood to donate [15] and are also more likely than men to agree to donate their organs, live or otherwise [16].

Organs and organ systems

organ donation patterns have almost universally highlighted a propensity for females to play the role of live donors [17]. This could be as simple as donation of blood [18] or as complex as donation of liver and kidney [19-20]. According to a study done in the United States, women had a 25% lesser chance of receiving a liver transplant, compared to male recipients, in any given month, coming with increasing the likelihood of women dying while waitlisted [21-22]. The same applies for spousal kidney donations; they are more likely to be from wife to husband [19-20].

Role of gender in graft rejection

Female-donated livers come with a higher risk of graft rejection, however it is not known to what degree such findings influence transplantation of other organs like the heart, lung or kidneys [23]. Overall, the findings tend to confirm that genders of the donor and recipient influences the recipient survival, thus exacerbating the already prevalent gender bias in organ transplantation and donation [24]. In one such example, boys in a study of South-Asian study received only the kidneys donated by men [2] despite there being no concrete evidence to support such practice [23], as if pre-emptive measure to reduce the chances of graft rejection on account of the difference in gender between donor and recipient.

Age

There is a palatable disparity in most transplantations of kidney, liver, lung, heart and, in some cases, even hematopoietic transplantations be it in adult or paediatric age-group cases [25]. In a study, we also discovered that in the cases where men agree to be donors, they do so more readily for their children than for their wives [2]. Donations to children have not been as skewed towards males as donations among adults, with women having as much as 11% lesser chance of receiving a transplant, the ratio becoming more skewed in case of specific races or organs [22,26]. Nevertheless, there is a propensity for male and younger recipients to be favoured, while in case of donors, females and middle-aged or older individuals are preferred [27-28]. This suggests that the engulfing by stereotypes and psycho-socio-economic factors, of organ donation and transplantation, occurs nearer to the human “middle age” [26].

Social Relations

It is no secret now that societal factors have been mirrored in the prevalent disparity in organ donation between the two binary genders. With a majority of donations being between those related by blood, it is ever more important to examine exactly how much the prevailing systems burden women [8]. Women themselves are somewhat reluctant to be recipients of an organ [23] but are astonishingly high in number among those who hold a donor card [5]. In a study of South Asian spousal transplants, the majority of the donations were done from wife to the husband, which has been the trend in all the studies reviewed. In the same study, it was found that children were donated to equitably irrespective of their gender. However, boys received only those kidneys that were donated by men [2].

Medical factors

Multiple studies under our review mention the probable iatrogenic factors leading to this disparity in organ donation. Several studies mentioned how, in case of liver transplants, the Model for End-stage Liver Disease (MELD) Score places women at a significant disadvantage as the scores are based on serum creatinine levels, without taking into account that women have physiologically lower serum creatinine levels than their male counterparts [29-30]. In another comparison of men and women on the waitlist for a liver transplant, women were generally less favoured on the grounds of their short stature leading to increased transplantation failure [3]. Besides, the probable and quite accounted for gender bias among medical professionals and their work environment might also be a significant contributor [31].

Race, religion, and culture

It is documented that while women tend to donate more than men overall, White individuals donate more than other races, especially more than Black individuals [32-33] while a study reported that in the United States, Asian-Americans make up the least number of registered donors [34]. In a study of race-gender groups, Black women donated blood the least, while Black men were most reluctant for themselves to be donated as cadavers [35]. This can be attributed to a well-known mistrust of minorities in general and Black communities in particular in the medical system and their perception of the profession, and there is a very strong correlation between race and the unwillingness to donate organs [36]. Concerns also remain among individuals about the acceptance of organ donation in their religion [16], and the desire to be buried intact [37]. As for

certain Asian races, a study conducted in China reported that 34.4% expressed willingness to donate organs, but that the overwhelming majority of respondents showed concerns about appropriate use and legislation, ranging between 61.4% and 88.9% depending on the factors considered, while overwhelming favouring consideration of family opinions [38]. Meanwhile, in India, some religious and linguistic communities are more altruistic than others, as seen in Mumbai, where 85% of eye donations and 95% of skin donations in 2013 and 70% of the cadaver donations recorded in 2016 were from the Jain and Gujarati communities, which have also been known to be leaders in the donation of blood, per Mumbai's Zonal Transplant Coordination Committee [39]. However, misconceptions such as one kidney being insufficient for survival and fear of the operation exist in various Asian communities, preventing the widespread acceptance of such practices [40].

Economic perspective

There is a growing consensus that the shroud of altruism is one of the reasons behind the demand-supply chasm in organ donation, especially of the deceased type, and a lot of organs that could be harvested are missed out on, irrespective of reason [41]. Besides, the idea of altruism and summary bans on commercial transplants have led to factors conducive for monetisation of organ transplantation [42] illegally and exploitatively. Aside from this, certain communities, majorly the Black community, do agree more to subsidies, if not incentives, for deceased organ donors' funeral expenses to be covered, for example [36], especially among men [5]. Even in Chinese communities, 64.5% respondents agreed on compensation for donors, while 74.4% agreed that "Donated organs have not been fairly and appropriately used; the wealthy and celebrities have been favoured [38].

Discussion

There have been professed to be a multitude of factors for the disparity, as described earlier, but the fact remains: women tend to play the role of donors more than they do of recipients, and the problem can only be surmounted through a collective effort by society to carefully analyse and make aware of said factors and commonly tackle them. Women, intrinsically, have been known to hold greater emotional quotient [43] and have an inherently more profound sense of responsibility [7] as their biological role as child bearers and carers. This same sense of responsibility, even in the modern world, leads to their greater self-sacrifice—which might explain their reluctance to undergo transplant surgery [23] and their care not just directed towards the health and longevity of their children, but also of their spouses an idea that has even found place and reasoning in certain religions and prayer. Women have also shown greater application of scientific thought, in that a study found that women hold lesser superstitions and other disgust about organ donation while also not being too keen on the idea of bodies being intact during last rites. [44] This may lead to an inherent bias in women taking on the role of donors, especially of their own volition. Thus, it could be hypothesised that women are inherently more willing to donate organs than men.

However, factors brought in by societal thought and sociocultural relations contribute to an exacerbation of this bias: In another study, it was observed that the transplants most suitable for survival were either male donor to male recipient or male donor to female recipient. [45] This in the light of two observations, one being from the aforementioned study of South-Asians and the other being that women still bear the burden of donating, suggest that the vitality and life and health of males is preferred by society, over females. This is compounded by the universally greater income of men compared to women doing the same work that may place the job of organ donation on women to ensure the breadwinner's health is not compromised. Adding to this, a gender bias among medical professionals [31], that normally extends in a few other fields [46-48], thereby increasing the already inherent gap.

Even in parameters made to assess the need for a transplant, the physiological reasons behind better scores for women remain unaccounted for [21,30,49], thus making them appear healthier and subsequently increasing their time on the waitlist, leading to women dying on the waitlist far more than men [3]. This, coupled with an inequitable access to medical care for women of all ages [25], including but not limited to organ transplantation [25], serves to further widen the gap.

As for racial factors, there remains a deep-rooted historical mistrust in the medical profession [16], of non-white races in general, and Black communities in particular [50-53]. Multiple studies have highlighted the inequitable access of Black women to, for example, pain medications/epidural during delivery [54] as doctors, especially white doctors and medical trainees, tend to wrongly believe that black women have a higher tolerance to pain [55]. As for Black men, the history of their ancestors being used for medical trials without proper information, consent and ancillary care has caused their mistrust in the medical community [56], to a point where they believe "... if doctors know I am an organ donor, they won't try to save my life..." [36]. Nevertheless, here too, women tend to suffer more and as all these factors, along with a perceived inequity on who the organs will go to [36], transcends into organ transplantation and donation, so does the community. However, there was consensus on the willingness to donate a loved one's organs [36] and that no relative should override a deceased donor's wish to donate [57]. Meanwhile, in India, relatives have been known to override a deceased person's wish and express consent to donate, and superstitions about organ donation being sinful, belief in rebirth especially that intact bodies are required for rebirth and acceptance into heaven exist in India. This is known to be one of the major reasons why only 1% of Indians consent to organ donation after death, as compared to 70-80% of Western populations, as per reports from non-governmental organisations (NGOs). It has been widely suggested that religious leaders be roped into popular discourse to dispel a lot of the superstition, as religion has been known to play a key role in influencing followers towards or away from organ donation, be it live or cadaver donations [58].

As for economics, there is no doubt that organ transplant has blossomed into an often-illegal trade, thanks to the principle of altruism that is normally followed, and the lucrative money-making options in the field, leading to people resorting to illegal and unethical means to obtain organs. This may cause poorer girls and women to be forcefully made to donate organs, either by financial conditions or subjugation and suppression by men [1]. However, doubts linger as to whether direct incentivisation should be allowed or indirect benefits [5], for example the coverage of funeral expenses, should be provided. Consensus is split among gender and racial lines [5]. Nevertheless, it is agreed that relying solely on altruism is insufficient to bridge the demand-supply gap and target illegal organ trade [41].

It is therefore abundantly clear that participation will be needed from all levels of society, be it from the individual or from government. The initiative could come from anywhere and in any form, but it shall require a concerted effort from all levels with equal gusto. At the individual level, one could start by scoping for and identifying the various socio-cultural and psychological factors behind the prevailing gender gap in organ transplantation and donation and assimilating them, while also raising awareness among their peers, family and friends and gauging their attitudes and beliefs [59]. The awareness-building could be elevated to a broader level by the efforts of the community, while community organisations can mobilise efforts to assess economic factors as well, to encourage social support organisations especially for women and to encourage "health-seeking behaviours" in women [31] and to provide, per a study, "... Improving the general, physical, and mental health of minorities, coupled with an active educational outreach program..." in case of minorities, as it "...could result in a greater percentage of minorities registering and willing to be organ and tissue donors [60]." As for the medical profession, more needs to be done to repair an often tested relationship with the marginalised and underprivileged, be it in terms of race, financial background or otherwise. The beginning is to revisit the misconceptions plaguing an otherwise scientific profession and coming to terms with our checkered past, for that is the best way to begin to unlearn all falsehoods and through education, community engagement and empathy, can we regain lasting trust of all in the medical fraternity. More theoretically, tests or scores used to assess the need for organs, like the MELD Score, and in general, should account for the biological and physiological differences between the genders. Finally, at the level of government, we need a broad relook at the various legislations governing organ donation in each country and, where necessary, amend existing laws to influence the nations' citizens towards a more informed polity and encourage scientific temper, while also ensuring accountability, transparency and due recourse for any illegalities or immoral transgressions.

It must be acknowledged that no one person, party or platform can effectively bring about lasting reforms unless aided and in cohesion with every element of society, free of bias and personal stake.

Conclusion

Gender disparity in organ donation exists throughout the world. Wives to husbands, mothers to sons and sisters to brothers women have been obeying the gender roles enforced on them for ages. It indeed is a challenge to go beyond the gender gap to make the domain of organ transplant impartial, equitable and just, but it remains the need of the hour if we are to ensure equitable healthcare and healthy living for all, regardless of their gender. Inequitable and immoral practices have personal and ethical implications and need to be eliminated to advance our goals of equality and justice as a basic tenet of respect for every human life and to advance further as a civilised society.

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