



## Exploring Public Awareness of Organ and Tissue Donation

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### ABSTRACT

The primary objective of this study was to gain a comprehensive understanding of the level of awareness and attitudes towards organ donation among individuals seeking healthcare services in tertiary care centres in Bihar. Additionally, the study aimed to assess the many factors connected with these attitudes and awareness levels. The present cross-sectional study was done inside three tertiary care centres in the Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar. The individuals included in the study were not identified as having any preexisting chronic or significant medical conditions. A face-to-face interview was conducted utilising a pretested interview schedule. The interview schedule was established through collaboration with professionals specialising in palliative care and afterwards underwent pretesting and validation. The interviews were carried out during the designated operating hours of the Outpatient Department at the chosen healthcare facilities. The study encompassed a cohort of 500 individuals. A significant majority of the participants, specifically 942%, demonstrated awareness regarding both living and posthumous organ donations. A significant proportion of the participants (74%) held the belief that organ donation can be carried out without any restrictions or limitations. In relation to the acceptance of financial or non-financial incentives for the act of donating organs, it was found that 70% of respondents held the belief that monetary compensation should not be received in exchange for organ donations. A majority of the participants, specifically 79.4%, demonstrated awareness of the legal prohibition surrounding the acceptance of monetary or other forms of compensation in exchange for organ donation. However, a minority of the participants (n = 147, 29.3%) demonstrated awareness of the Transplantation of Human Organs Act, the legislation in India that governs the processes of organ donation and transplantation. This study encompasses a restricted range of inquiries carried out in a developing country, specifically India, that have explored the attitudes towards organ donation among the populace, as well as the components that influence these attitudes.

## INTRODUCTION

Organ transplantation is often regarded as the most favoured therapeutic approach for individuals suffering from end-stage organ disease and organ failures<sup>[1]</sup>. Various organs, including the cornea, kidney and liver, are frequently subjected to transplantation procedures to be transplanted into human recipients. Nevertheless, there is a significant demand for organ transplants and the disparity between the supply of viable organs and the growing number of individuals in need of a transplant is increasing globally. In line with the circumstances observed in affluent nations, India also faces a persistent scarcity of organs suitable for transplantation<sup>[2]</sup>. The primary cause of this shortage can be linked to a scarcity of organ donors within our nation<sup>[3]</sup>. A study conducted in India within the past decade has revealed that most individuals, specifically less than 50%, expressed a lack of willingness to contemplate organ donation<sup>[4]</sup>. According to a study by Smith, individuals receiving palliative care have the potential to serve as viable sources for organ and tissue donation. Nevertheless, there is a shortage of adequate systems and prerequisites for effectively facilitating organ donation within this context. The user's text is academic and does not need to be rewritten<sup>[5]</sup>.

The essential factors contributing to the success of a transplantation programme encompass the presence of public knowledge, a favourable attitude of the general population towards organ donation and the agreement obtained from family for organ donation in cases of brain death<sup>[4]</sup>. Insufficient awareness and comprehension regarding organ donations, religious perspectives and superstitious convictions have engendered apprehension and scepticism among the general populace, particularly among individuals facing terminal illnesses<sup>[3,5]</sup>. Several studies have been conducted to investigate the perceptions and attitudes of Medical and Nursing students on organ donation, as well as to explore strategies aimed at increasing their motivation in this regard<sup>[4]</sup>. Nonetheless, a shortage of research exists concerning the perspectives and attitudes of terminally ill patients and the broader population about organ donation. The primary objective of this study was to gain a comprehensive understanding of the level of awareness and attitudes towards organ donation among individuals seeking healthcare services in tertiary care centres in Bihar. Additionally, the study aimed to assess the many factors connected with these attitudes and awareness levels.

## MATERIALS AND METHODS

The present cross-sectional study was done inside three tertiary care centres in the Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar. The individuals included in the study were not identified as

having any preexisting chronic or significant medical conditions. They sought medical care at the health centres primarily for respiratory, gastrointestinal and miscellaneous general symptoms. The estimated sample size for the study was 450. This estimation was based on several factors, including the presumed awareness about organ donation among those attending tertiary care centres, which was set at 50%. Additionally, a relative precision of 7%, a confidence interval of 95% and a non-response error of 10% were considered.

Individuals were selected by using Simple Random Sampling, specifically employing the lottery approach. Following the acquisition of clearance from the Institutional Ethics Committee (IEC) of Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar, the designated tertiary care centres were visited to gather data. The data collection period was two months, specifically from August to September 2022. The participants were recruited using convenience sampling and their informed agreement was obtained before participating in the study. A face-to-face interview was conducted utilising a pretested interview schedule. The interview schedule was established through collaboration with professionals specialising in palliative care and afterwards underwent pretesting and validation. The interviews were carried out during the designated operating hours of the Outpatient Department at the chosen healthcare facilities. The classification of socio-economic status was conducted using the Modified Kuppuswamy scale. The socioeconomic classes were consolidated into two categories, namely Upper and Lower, for analytical examination. The interview protocol consisted of inquiries designed to evaluate the participants' knowledge of organ donation, relevant legislation, their inclination to donate organs posthumously and their reasons for not being willing to donate and possessing an organ donor card. The data was analysed using the Statistical Package for Social Sciences (SPSS) version 11.5. To assess and compare the levels of awareness and attitudes among the various categories of research participants, a Chi-square ( $\chi^2$ ) test was conducted to determine the statistical significance of each group. A significance level of  $p < 0.05$  was deemed to indicate statistical significance.

## RESULTS

The study encompassed a cohort of 500 individuals. A significant proportion (62.2%) of the participants identified as males. The participants had a high overall literacy rate, with a majority (62.8%) belonging to higher socio-economic strata. All participants were familiar with the concept of organ donations. In relation to the participants' stance on organ donation, a majority of 59.6% ( $n = 514$ ) indicated their inclination to donate organs, whereas

349 participants exhibited no inclination towards any form of organ donation. Table 1 displays the socio-demographic characteristics of the participants and their inclination towards organ donation. The age group of individuals between 20 and 40 years exhibited the highest level of desire to give organs in general. The propensity to engage in organ donation was shown to be greater among female individuals compared to their male counterparts, with a percentage of 64.1% versus 56.8%. Similarly, participants belonging to higher socioeconomic strata had a higher inclination towards organ donation in comparison to those from lower socioeconomic backgrounds, with percentages of 62.7 and 54.2%, respectively. Statistically significant variations were observed among the various age groups ( $p < 0.001$ ), genders ( $p = 0.034$ ) and socio-economic statuses ( $p = 0.014$ ). The study revealed a notable disparity in the propensity to contribute organs between individuals of the Hindu and Christian faiths compared to those of the Muslim faith, with the observed distinction being statistically significant ( $p < 0.001$ ). There were no statistically significant disparities detected in the willingness to donate organs based on educational attainment.

According to the data presented in Table 2, a significant majority of the participants, specifically 942%, demonstrated awareness regarding both living and posthumous organ donations. A significant proportion of the participants (74%) held the belief that organ donation can be carried out without any restrictions or limitations. In relation to the acceptance of financial or non-financial incentives for the act of donating organs, it was found that 70% of respondents held the belief that monetary compensation should not be received in exchange for organ donations. A majority of the participants, specifically 79.4%, demonstrated awareness of the legal prohibition surrounding the acceptance of monetary or other forms of compensation in exchange for organ donation. However, a minority of the participants ( $n = 147$ , 29.3%) demonstrated awareness of the Transplantation of Human Organs Act, the legislation in India that governs the processes of organ donation and transplantation.

According to the data presented in Table 3, among the 500 individuals who possessed knowledge regarding living organ donation, a total of 200 individuals, accounting for 40% of the sample, held the

Table 1: General characteristics of participants and willingness for organ donation

Characteristics	Total number		Willingness to donate		Chi square	p-value
	No.	Percentage	No.	Percentage		
<b>Age groups</b>					18.23	<0.0010
>60 years	20	4.0	6	30.00		
50-60	79	15.8	38	48.10		
40-50	90	18.0	47	52.20		
30-40	73	14.6	51	69.80		
20-30	200	40.0	160	80.00		
<20	38	7.6	24	63.10		
<b>Gender</b>					4.80	0.0380
Male	305	61.0	165	54.09		
Female	195	39.0	125	64.10		
<b>Education</b>					1.80	0.1800
Less than high school	100	20.0	35	35.00		
More than high school	400	80.0	268	67.00		
<b>Socio-economic status</b>					6.23	0.0130
Low class	180		40	22.2		
Upper class	320		210	65.6		
<b>Religion</b>					30.86	<0.0001
Hindu	350		185	52.8		
Muslim	100		38	38.0		
Christians	50		32	64.0		

Table 2: Perception of general public regarding organ/tissue transplant

Characteristics	Total number	
	No.	Percentage
<b>The timing of organ donation</b>		
Only when alive	10	2
After death	30	6
Both	460	92
<b>To whom can individuals give organs? In accordance with the law</b>		
Only close relatives	110	22
Anybody at will	370	74
Don't know	20	4
<b>Is it ethically permissible to receive financial or other forms of compensation in exchange for the act of organ donation</b>		
Yes	150	30
No	350	70
Don't know	50	10
<b>Is the acceptance of monetary compensation for organ donation considered a legal offence</b>		
Yes	397	79.4
No	54	10.8
Don't know	49	9.8

Table 3: Attitude of general public regarding organ transplant

	No		Yes		Don't know	
	No.	Percentage	No.	Percentage	No.	Percentage
Organ donation is associated with health risks	237	47.4	200	40.0	63	12.6
Recipients of organ transplantation are susceptible to several risks	236	47.2	157	31.4	107	21.4
In case of need are you mentally ready for organ transplantation	15	3.0	423	84.6	53	10.6
Advocating for the kin in the event of their decision to become organ donors	36	7.2	416	83.2	48	9.6

belief that there exist inherent hazards linked with the act of organ donation. The most prevalent health concerns reported by participants were infection and weakness, accounting for 73.6% of responses. Kidney failure was the next most often mentioned danger, comprising 18.9% of responses. Psychological issues, infertility and discomfort were reported less frequently, accounting for 6.7, 1.8 and 0.87% of responses, respectively. The findings of this survey indicate that a significant proportion of the study population (84.6%) expressed their willingness to accept an organ from a donor in the event that it becomes necessary in the future. Furthermore, a substantial majority (83.2%) of the respondents stated their intention to provide support if a family member decides to become an organ donor. In relation to the level of awareness concerning posthumous organ donation, it was found that 98.7% of the participants (n = 494) possessed knowledge regarding corneal transplantations, while 97% (n = 485) were aware of kidney donations. A lower percentage of participants, namely 45.3% (n = 226), demonstrated understanding regarding liver donations, while 52.3% (n = 262) were knowledgeable about heart donations. Lastly, a somewhat smaller proportion of participants, specifically 22% (n = 110), exhibited awareness regarding lung transplantations.

The majority of participants in the study (n = 344 68.8%) indicated that their primary source of information on organ donation was derived from various media platforms, such as television, radio and print media. In the study population (n = 50), 10% of individuals relied on family and friends as their primary source of knowledge. Fifty individuals (5.67) in the sample reported acquiring knowledge about organ donation from books, while twenty participants (2.5%) indicated that doctors served as their source of information. Additionally, twelve respondents (1.6%) mentioned attending educational camps specifically designed to disseminate information about organ donation.

## DISCUSSIONS

The comparatively high literacy and education rate (82.2%) recorded in Bihar might be identified as a contributing factor to the awareness of organ donations among all survey participants<sup>[6]</sup>. The research conducted in Bangalore provides empirical evidence that highlights the substantial influence of media in serving as an informational conduit for organ

donation<sup>[7]</sup>. The results of our research reveal that a significant majority of participants, precisely 94.7%, exhibited knowledge regarding both living and cadaveric organ donations. The amount of awareness demonstrated is consistent with the findings reported in a prior study conducted in Bangalore<sup>[8]</sup>. The proliferation of information regarding posthumous corneal donation via media platforms and non-governmental organisations (NGOs) can enhance public awareness of the broader concept of cadaveric or deceased organ donation. In the Indian setting, there is a notable possibility for deceased organ donation, mostly due to the high prevalence of fatal road traffic accidents<sup>[4]</sup>.

Nevertheless, it is crucial to acknowledge that this prospective source for organ donations remains predominantly underutilised. This underscores the need to assess the degree of knowledge and willingness regarding organ donation among individuals in the advanced phases of a terminal disease. Regarding the attitude towards organ donation, a considerable fraction of the participants expressed their intention to participate in organ donation. The results of our study are consistent with those reported in a previous study, which found that 53% of participants displayed a positive attitude towards organ donation<sup>[9]</sup>. The current research investigated the disparities in the inclination to contribute organs among several religious communities, producing findings consistent with a study conducted in Chennai<sup>[10]</sup>. Most participants attributed the decline in readiness or lack of desire to donate organs within specific religious communities mostly to religious convictions. The results of our study are supported by previous research conducted in Pakistan, which found that religious beliefs have a substantial role in discouraging persons from expressing a willingness to donate<sup>[11]</sup>.

Among the 194 participants who expressed their unwillingness to consider living organ donation, 30.9% cited religious grounds as the primary rationale for their reluctance to engage in such a practice. Of the individuals who did not intend to donate their organs after death (n = 194), 39.8% cited their aversion to postmortem dissection and organ retrieval as the primary rationale. Other frequently reported factors were religious beliefs and familial resistance. This observation aligns with a study conducted in Saudi Arabia, which identified concerns about receiving insufficient healthcare post-donation, absence of

familial support and limited comprehension of organ donation as the primary factors contributing to the lack of readiness to donate<sup>[12]</sup>. Based on the data obtained from the current study, it is evident that there exists a notable level of concern regarding organ donation, especially among individuals who possess a higher level of education.

When examining the variation in educational attainment, it was revealed that those with higher levels of education displayed a greater awareness and inclination to donate organs. The observation above exhibits similarities to the findings reported in a study conducted in Pakistan, which revealed a positive association between education, socio-economic status and the level of knowledge regarding organ donation<sup>[11]</sup>. Moreover, it was discovered that the inclination to contribute organs was correlated with the extent of knowledge about organ donation. Research conducted in Turkey revealed that education and training significantly influenced persons' enthusiasm to participate in organ donation<sup>[13]</sup>.

Our survey participants exhibited less awareness regarding the Transplantation of Human Organs Act than a study conducted in Delhi. In the study above, it was observed that 51% of the respondents indicated awareness of the Act<sup>[9]</sup>. Hence, it is crucial to propagate knowledge about the laws that instituted the regulations governing organ transplantation in India within the designated research domain, intending to eliminate the unlawful trade of organs. Approximately one-third of the people who did not own a donor card demonstrated a willingness to register for one. The preceding study suggested that limited access to resources and insufficient knowledge may be barriers to acquiring the card. The individuals exhibited a higher level of acceptance towards eye donation, which is consistent with similar findings shown in earlier research<sup>[8]</sup>.

Nevertheless, it is crucial to acknowledge that the acceptance of donations for other organs has shown only modest growth. The lack of accessible data regarding the contributions made to organ donations for less commonly emphasised solid organs may be a factor contributing to the lower levels of acceptance observed in comparison to more widely discussed organ donations<sup>[3]</sup>. The participants who indicated their intention to donate their organs after death were included in the study based on the transplantation criteria set forth by the zonal coordination committee of Karnataka (ZCKK)<sup>[14]</sup>.

Therefore, it is crucial to recognise and address the concerns regarding the potential risks encountered by organ donors to encourage organ donation among those who are terminally ill or receiving palliative care. The available information about this problem is limited in scope. Based on a previous qualitative investigation

conducted in the United Kingdom<sup>[5]</sup>, it was determined that the incidence of organ donation among those receiving palliative care was reported to be rather low. This phenomenon may arise due to insufficient communication by healthcare workers, misinterpretations among patients, or the reluctance of family members. Therefore, it is crucial to guarantee that individuals receiving palliative care are well-educated regarding the significance of live and cadaveric organ donations. Moreover, it is imperative to engage them in the discussions and decision-making procedures on this issue.

## CONCLUSION

This study encompasses a restricted range of inquiries carried out in a developing country, specifically India, that have explored the attitudes towards organ donation among the populace, as well as the components that influence these attitudes. A considerable level of comprehension was observed regarding several aspects of organ donation, except for the medico-legal concerns. However, a notable proportion of the participants demonstrated undesirable attitudes regarding donating or receiving organs if such an occasion arises. The prevalent mistrust surrounding organ donation might be ascribed to religious beliefs and apprehensions regarding potential risks for the donor. It is crucial to conduct a comprehensive analysis and effectively address the fundamental reasons for hesitancy to augment the level of acceptance towards organ donation in our society. Hence, developing culturally relevant communication approaches is crucial for effectively addressing the existing ambiguities about organ donation and improving the accessibility of organ donation services. The present study seeks to examine the perspectives and attitudes of the broader population about organ donation. Nevertheless, it is imperative to thoroughly analyse the perspectives and dispositions of individuals who are facing a terminal illness about the act of organ donation. This is of utmost importance because these individuals constitute a substantial fraction of the possible donor population. In the future, it is imperative to conduct a comprehensive assessment to ascertain the extent of comprehension and attitudes of palliative care patients regarding organ donation.

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