



Knowledge, Attitude and Practice towards Organ Donation and Its Influencing Factors among The Relatives of Intensive Care Patients in A Tertiary Care Hospital at Ahmedabad City

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ABSTRACT

Background: Organ donation provides a lifesaving opportunity to individuals with organ failure. A significant number of deaths due to organ failure can be prevented by timely donation and transplantation of organs. **Objective:** To assess knowledge, attitude, and practice among relatives of the admitted Intensive care unit (ICU) patients toward organ donation and to determine the factors influencing impending organ donation. **Methods:** A cross-sectional study on 150 first degree relatives of the admitted ICU patients above 18 years of age visiting Gujarat Cancer Society (GCS) Medical College (spouse, son, daughter, father, mother) was conducted. The sample size was calculated using Open Epi. Data was collected through a pretested & predesigned questionnaire including information: demography, knowledge, attitude, and practice regarding organ donation. **Results:** Out of total 150 participants, there were 54% male. Mean age of participants was 39.1 ± 12.6 years. Only 8% of the participants had good knowledge regarding organ donation. 6.7% of the participants had signed up for organ donation. 73.3% of the participants agreed to donate organ if experienced brain death while only 49.3% participants agreed to donate their family member's organs. The most common reasons for refusing organ donations were lack of awareness (59.3%) and cultural belief (26.6%). Only 2.6% participants or their family members had donated any organ in last 5 years. **Conclusions:** Very few participants had knowledge regarding organ donation and the majority have not signed up for organ donation due to fears and misconception.

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knowledge, organ donation, cultural belief, family members, misconception

INTRODUCTION

Organ donation is the transfer of biological tissue or an organ from a living or deceased donor to a recipient who is still alive and in need of a transplant.¹ Transplantation of human cells, tissues or organs saves many lives and restores essential functions where no alternatives of comparable effectiveness exist. transplantation has become a successful worldwide practice in last 50 years. However, there are large differences between countries in access to suitable transplantation and in the level of safety, quality, efficacy of donation and transplantation of human cells, tissues and organs.

The ethical aspects of transplantation are at the forefront. In particular, the unmet patients' needs and the shortage of transplants lead to the temptation of trafficking in human body components for transplantation.²

On any given day, there are more than one hundred thousand people on active waiting lists for organs. In 2022, there were approximately 15,000 deceased organ donors. On average, they donated 2.5 organs each. Living donors donate approximately 6,000 organs on average per year. Surgeons perform about

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3.3 million tissue grafts each year and transplant approximately 2.5 million tissue grafts.³

Patients who require transplants and the organs that are available in India are far apart. Although it is projected that one hundred thousand or more people experience renal failure every year, only 6000 kidney transplants are carried out. A timely liver transplant could save roughly 10-15% of the two hundred thousand individuals who die in India each year from liver disease or cancer. Thus, India needs between 25 and 30 thousand liver transplants each year, but only approximately 1500 are carried out. Like this, over 50,000 people experience heart failure each year, yet only 10 to 15 heart transplants are carried out in India annually. Approximately 25000 Cornea transplants are performed annually despite a need of one hundred thousand.⁴

The Transplantation of Human Organs Act, which has transformed the idea of organ donation after death in many other nations, recognizes brain stem death as a legal death in India. Only a few organs/tissues, such as cornea, bone, skin, and blood vessels, can be donated after natural cardiac death, while over 37 different organs and tissues, including important organs like the kidneys, heart, liver, and lungs, can be donated following natural brain stem death. Despite being a personal matter, organ donation has medical, legal, ethical, organizational, and social ramifications.^{5,6} The viability of organ transplantation has increased thanks to technological advancements in recent decades, which has increased demand for organs. As a result, organ shortage has become a global issue.⁷

An intensive care unit (ICU) is a system to provide care to critically ill patients that provides intensive and specialized medical and nursing care, an enhanced capacity for observing, and numerous modalities of physiologic organ support to sustain life during a period of acute organ system failure.⁸ Intensive Care Unit (ICU) might provide a more ideal environment for organ donation tasks and it will be first point of contact for donor families in the initial process of organ donation.⁹ Ethical, cultural, legal, and religious issues as well as age, gender, and education are reported to be the main barriers to donating organs.¹⁰

It is important to recognize right away that a sizable section of India's population who needs transplant benefits still cannot access them. Many end-stage renal disease patients have a very low quality of life since they are dependent on long-term dialysis. Even dialysis facilities are scarce, pricey, and

inconvenient. Because they cannot afford therapy, more than 90% of patients in South Asia pass away within months of receiving a diagnosis. Only 2.5% of patients in India with end-stage renal illness receive a transplant, according to estimates. This percentage would represent an even smaller minority for the liver. Little significant progress has been made in the transplantation of other organs, such as the heart and lungs.¹¹

The Government of Telangana State, India has cleared a new comprehensive scheme "Jeevandan" proposed by the Cadaver Transplantation Advisory Committee (CTAC) to give a fillip to organ transplantation. Majority of patients suffering from permanent organ failure involving heart, liver, pancreas and kidney could lead a healthful life if they had the chance to undergo transplantation. Considering the ethical issues surrounding live and deceased donor organ donation, committee constituted by the government came out with proposals for streamlining processes for cadaver transplantation in registered hospitals.¹²

Healthcare Professionals play a key role in identifying potential donor and if they do not identify then the process of organ donation will not progress unless family member knows about patient's wish of organ donation.⁹ Despite a facilitatory law, organ donation from deceased persons continues to be very poor. In India there is a need to promote deceased organ donation as donation from living persons cannot take care of the organ requirement of the country. Therefore, the study is aimed to assess the knowledge, attitude and practices about organ donation among the relatives of the critical patients who can be helpful to make a decision for organ donation in case of brain stem death of a patient. Additionally, to determine factors influencing impending organ donation

METHODS

A Cross-Sectional study was conducted among relatives of the admitted ICU patients in a tertiary care hospital at Ahmedabad City, Gujarat, India.

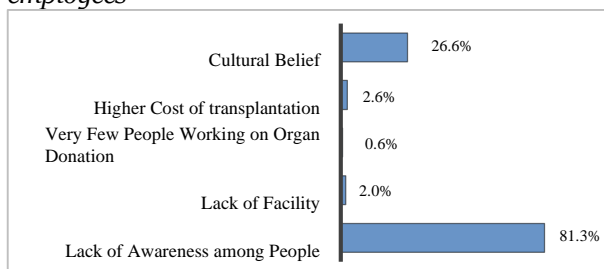
A total 150 relatives of the admitted ICU patients who were 18 years or above who were willing to participate in study were selected in the study through simple random sampling method during January to March 2023 till the desired sample size achieved. People who did not give consent were not excluded from the study.

Sample size was calculated using Open Epi (v 3.01 updated on 2013, USA)⁸. Assuming awareness

Table 1: Socio-demographic characteristic of participants (n=150)

Variable	Frequency (%)
Age group (in years)	
18-30	52 (34.7)
30-40	36 (24.0)
40-50	36 (24.0)
>50	26 (17.3)
Gender	
Male	81 (54.0)
Female	69 (46.0)
Residence	
Urban	138 (92.0)
Rural	12 (8.0)
Education	
Primary	08 (5.4)
Secondary and Higher secondary	71 (47.3)
Graduate and above	71 (47.3)
Occupation	
Employee*	50 (33.3)
Business	24 (16.0)
Housewife	44 (29.3)
Labourer	03 (2.0)
Retired	09 (6.0)
Others	20 (13.4)

*Government schoolteachers and private company employees

**Figure 1: Reasons for low rates of organ donation**

regarding organ donation as 50%, with 90% confidence level (CI), absolute precision of 7% and assuming 5% non-response rate, the minimum required sample size was calculated to be 146. For convenience, 150 samples were taken.

Data collection: After obtaining participants' informed consent, data was gathered using a face-to-face interview based on a pre-tested, structured questionnaire. Structured questions with distinct sections made up the proforma. Demographic details such as age, gender, occupation, education were included in the first section. The participants' knowledge, attitudes, and practices towards organ

donation were covered in the other sections. Questions about organ donation, which organs can be donated, the method of organ donation, and awareness of the act of organ donation were used to gauge the respondents' knowledge. The questionnaire was adapted through the pilot testing and reviewing the literature.

Through inquiries on the best organ for donation, religious views on organ donation, future desire to donate organs, and factors contributing to low rates of organ donation, the respondent's attitude was ascertained. The respondent's practice was assessed using questions on whether they had ever registered for organ donation, received an organ, or donated one.

Data was collected over a period of 3 months during January 2023 to March 2023. 11 questions were related to knowledge and a score between 0 to 11 were given based on the level of knowledge. Each true answer was given score 1. Those with score 8 and above were considered as a "good knowledge", score between 4 to 8 were "average knowledge" and score less than 4 were "poor knowledge".

A Pilot study was completed to validate the scoring system for the current study. The questionnaire was validated by Community Medicine Experts and tested on 10 relatives of the ICU patients admitted at ICU of GCS Hospital before the start of the study to evaluate the precision and correctness of the questions. Reliability was confirmed by assessing Cronbach's alpha (>0.7).

Statistical analysis: Statistical analysis was done using Microsoft excel 2021 and Epi Info™. Qualitative data were defined as numbers and percentages (%). Chi-Square test were used for comparison between qualitative variables as appropriate. Chi - square test was performed to assess the relation between Socio-demographic variable and Knowledge score of the participants. Quantitative data were tested for normality by KS test (Kolmogorov-Smirnov test). Normal distribution of variables was described as mean and standard deviation (SD). P value ≤0.05 was considered to be statistically significant.

RESULTS

Table 1 displays the socio-demographic information about the participants. There were 150 participants in the current study, which involved first degree relatives of ICU patients. There were 54% male and Mean age of participants was 39.1 ± 12.6 years. The

majority of participants (47.3%) were secondary, higher secondary, and graduate.

Table 2: Knowledge regarding organ donation (n=150)

Knowledge towards organ donation	Yes	No
Aware about organ donation	107 (71.3%)	43 (28.7%)
Know people in India die every year due to non-availability of organs.	100(66.7%)	50 (33.3%)
Have information about Brain death	60 (40.0%)	90 (60.0%)
Think that brain -dead is a certain method of determine death.	59 (39.3%)	91 (60.7%)
Have knowledge regarding process of organ donation.	31 (20.7%)	119 (79.3%)
Think that age of organ donor and receiver is important.	96 (64%)	54 (36.0%)
Think organ donation is a treatment option.	139 (92.7%)	11 (7.3%)
There is any act regulating process of organ donation.	12 (8.0%)	138 (92.0%)
Identity of donor is revealed to the recipient.	48 (32.0%)	102 (68.0%)
Heard about Jeevan dan scheme	5 (3.3%)	145 (96.7%)
Thinking that accept money or any other benefit for organ donation is considered as offence	89 (59.3%)	61 (40.7%)

Out of 150 participants, majority were residing at Urban area (92%) and doing job (33.3%) followed by housewife (29.3%).

Table 2 described the information on people's knowledge regarding organ donation. Among all participants, 71.3% were aware about organ donation. Only 20% of participants were aware of the organ donation process and 40% were aware about brain dead. Out of total participants, majority were not aware regarding government law and scheme regulating organ donation process.

Table 3 is showing the relationship between knowledge and socio-demographic characteristics. Overall, 8% of participants reported having good knowledge regarding organ donation, while 40% were having information about brain dead. There was a significant association between socio-demographic variables (Education, Occupation) and Knowledge regarding organ donation.

Only 6.7% of the total participants had signed up for organ donation. Out of all participants, 11.3% were Muslim and all Muslim participants felt that no organs should be removed after death. Total 20% of the participants believed that it was impossible to have regular funeral service after organ donation.

Table 4 provides information on people's Attitude of organ donation. Among all participants (91.3%) braced organ donation while about 73.3% participants were agreed to donate an organ if they experience brain dead in future while only 49.3% participants agreed to donate for their family

members only. Out of 150 participants, 24.7% believed that body should be kept intact after death and 20.7% thought that there will be premature termination of medical treatment for registered organ donation.

The graph 1 displayed the common reasons for low rates of organ donation. The common reasons were found to be lack of awareness (81.3%) which was followed by cultural belief (26.6%). There were other reasons like lack of facilities.

Graph 2 showed that majority of the participants were aware regarding kidney transplant (84%) followed by heart (56.7%) followed by liver (44.7%) transplant. Among the participants, very few were aware about lung (2%) and pancreas transplant (4%).

DISCUSSION

This study was conducted with aim to assess knowledge, attitude and practice towards organ donation among relatives of the admitted ICU patients. The study found most participants had heard about organ donation and had a positive attitude towards organ donation (91.3%). These findings are similar to those of previous studies done by Petru Cotrău et al in Romania & Bukelwa Green et al in south africa.^{13,14} in another mixed method study by Shrivastav et al found that Knowledge was high regarding organ donation (90%) but lesser for brain death. Most of them had positive attitudes, but among them very few were registered donors.^{15,16}

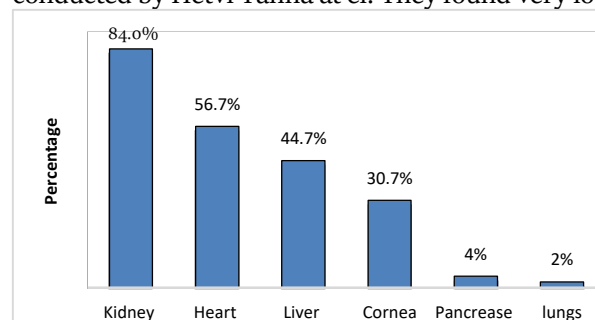
Table 3: Association of selected demographic variables with knowledge regarding organ donation among participants (n=150)

	Knowledge Score			p-values
	Poor (<4)	Average (4-8)	Good (>8)	
Gender				
Male	30	34	07	0.535
Female	28	46	05	
Total	58	80	12	
Age group				
18-30	14	29	09	0.065
31-40	17	18	01	
41-50	15	20	01	
>50	12	13	01	
Total	58	80	12	
Education				
Primary	04	04	00	<0.001
Secondary and higher secondary	42	29	00	
Graduate and above	12	47	12	
Total	58	80	12	
Occupation				
Employee	13	28	09	0.032
Business	09	14	01	
Housewife	23	20	01	
Labourer	00	03	00	
Retired	06	03	00	
Others	07	12	01	
Total	58	80	12	

A significant proportion (71.3%) of participants was aware of organ donation, but only 20% were familiar with the organ donation process. Other study by Nayak V et al. in India revealed that there is a general awareness regarding organ and tissue donation, but they lack clarity on certain specific issues.¹⁷ In study conducted at Saudi Arabia by Abdullah Alghamdi et al., reported a positive attitude and belief about organ donation but awareness regarding the organ donation was suboptimal.¹⁸ Other study also observed similar finding of lacked adequate knowledge about the process of organ donation and the various aspects related to it.¹⁹

A significant association was found between education, occupation, and knowledge regarding organ donation. Participants with higher education levels and certain occupations (e.g., job holders) showed better knowledge scores. Other study conducted at King Faisal University, Al-Ahsa, Saudi Arabia showed Positive association was found between awareness on the position of Islam on organ donation (OR=2.7023, $p < 0.0001$).²⁰

THOA (Transplantation of Human Organ Act) was enacted in 1995, yet only 8% of the participants were aware about legislation related to organ donation. These findings were comparable to the studies conducted by Hetvi Tanna et al. They found very low

**Figure 2: Knowledge regarding different Organ transplantation done after death (n=150)**

knowledge regarding the Organ Donation Act. Only 30.6% of total residents and 19.8% of intern doctors were aware of the Transplantation of Human Organs Act, 1994 of India.²¹

In this Study only 40% participants had information about brain death which was less than the other comparable studies conducted at Firat

University.²² The study showed that only 6.7% participants had signed up for organ donation.

In the current study, all Muslim participants (11.3% of all participants) were felt that no organs should be removed after death. In other study conducted in turkey observed Islamic religion was a key obstacle

for organ donation in nations with Muslim majorities like Turkey.²³ In the study Majority of participants (80%) religion agreed with organ donation, while in similar study found that nearly 10% of participants thought that various religions opposed organ and tissue donation.²⁴ The identified

Table 4: Attitude regarding organ donation (n=150)

Attitude towards organ donation	Yes	No
Support organ donation	137 (91.3%)	13 (8.7%)
There is any need to create awareness in public to promote organ donation.	138 (92%)	12 (8%)
Feel comfortable to think or talk about organ donation	125 (83.3%)	25 (16.7%)
Agree to donate when die	109 (72.7%)	41 (27.3%)
Agree to donate if experience brain dead.	110 (73.3%)	40 (26.7%)
Agree to donate family member organs.	74 (49.3%)	76 (50.7%)
Think that donating organs add meaning of life.	137 (91.3%)	13 (8.7%)
Religion agrees with organ donation or transplantation	121 (80.3%)	29 (19.7%)
Belief that body should be kept intact after death	37 (24.7%)	113 (75.3%)
Fear that body will be disfigured after donating organs.	15 (10%)	135 (90%)
Think that there will be premature termination of medical treatment for registered organ donors.	31 (20.7%)	119 (79.3%)

results align with existing literature, indicating that religious belief serve as a significant obstacle to organ donation.^{25,26}

In this study, it was observed that 40% of participants were aware of brain death, which was less than the study on organ donation conducted by Jinan M et al. in in Eastern Province, Saudi Arabia which showed 42.4% awareness.²⁷

The most frequent causes of a decline in organ donation in India, according to the analysis, were People's lack of knowledge (59.3%), followed by cultural belief (26.6%). Comparable outcome was observed in research from northern India done by Rajesh P et al.²⁸

In the current study, the common reasons for low rates of organ donation were lack of awareness followed by cultural belief. In similar studies published in "The Lancet", 76% participants had a positive attitude toward organ donation. Willingness to support a family member was the most common motive for organ donation. 13% confessed that they would donate organs for money.²⁹

CONCLUSIONS

Most participants express support for organ donation due to its potential to save lives, yet only a small minority have registered as donors. Many participants lacked sufficient knowledge about organ donation, and their concerns and

misconceptions about the process are preventing them from taking action.

Strengths and limitations: The strengths of this study include that people who contributed, come from different profession including nursing, engineering, law, art, science, economics, agriculture, and education, which eliminates bias among the participants. This study was conducted only among one single tertiary care hospital so it is difficult to generalize the study findings and also the sample size can be increased to represent the large geographic area. Similar research should be conducted in a community setting to gather additional data from different population groups. Further, demographic variables that may affect attitude towards organ donation should be studied to find other related factors that may influence organ donation willingness.

Recommendations: ICU patients, who are potential organ donors and integral members of the decision-making process, should be provided with information about the significance of organ donation. There is a necessity for Information, Education, and Communication (IEC) initiatives, such as awareness programs, aimed at enhancing public knowledge and positively influencing attitudes and behaviours regarding organ donation.

Ethical Approval

The study obtained all required approvals from Institutional Ethics committee, GCS Medical College, Hospital and Research Centre (DCGI Reg. No. ECR/339/Inst/ GJ/2013/RR-16). The Study was approved by IEC GCSMCH&RC (No. GCSMC/EC/Project/APPROVE/2022/450 dated 19/11/2022)

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