## **Original Research Article**

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20181230

# A study on knowledge, attitude and practice regarding organ donation and transplantation among final year health science students in Bengaluru, Karnataka, India

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Received: 23 January 2018 Accepted: 05 March 2018

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### **ABSTRACT**

**Background:** Organ transplantation is the most preferred modality for all end-stage organ diseases. Pre-requisites for the success of transplantation program include awareness, positive attitude of people towards the practice of organ donation. This study was carried out to assess the knowledge of organ donation among the final year medical, dental, nursing students and to study the attitude, religious beliefs of the health care professionals regarding organ donation and transplantation, to find out the effect of motivation, towards organ donation.

**Methods:** A comparative, cross-Sectional study was conducted on 150 final year Medical, Dental and Nursing students of Vydehi Institute of Medical Sciences and Research Centre, Bengaluru over a period of 2 months. A questionnaire containing 3 sections of multiple choice questions was prepared and the knowledge, religious beliefs, attitude and practice on organ donation and transplantation was assessed. The data obtained was entered into SPSS Version 21.0. The qualitative variables were expressed as frequencies and percentages; quantitative variables as mean and standard deviation.

**Results:** Out of the 150 participants, the mean knowledge score of Medical students was higher than that of Dental and Nursing students (p<0.01) and so was the mean belief score (p<0.05). The study motivated 34 (22.6%) students in total, who pledged their organs with the Zonal Co-ordination Committee of Karnataka.

**Conclusions:** 33 (66%) of medical students who have significantly better knowledge have pledged their organs. This highlights importance of educating the society to bring a positive change in their thoughts, beliefs and practices towards organ donation and transplantation.

Keywords: Organ donation, Transplantation, Knowledge, Attitude, Religious practices

## INTRODUCTION

India is ranked second to China in prevalence of Diabetes and Coronary heart disease. Experts say that it is soon going to be the liver disease capital of the world. These diseases have increased so much in their incidence over the last 20 years that there is a huge demand for organs

like kidney, liver and heart. The only way to tackle this situation and reduce the rising toll of mortality due to organ failure is organ donation and transplantation.<sup>1,2</sup>

Organ transplantation is defined as the engraftment of human cells, tissues or organs from a donor to recipient with an aim of restoring function(s) in the body and is the

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most preferred treatment modality for all the end-stage organ diseases.<sup>3</sup> The ability to enhance and extend life using this procedure has advanced from clinical trials to that of a standard practice ever since the first ever successful kidney transplant surgery from Ronald Herrick into his identical twin, Richard, performed on December 23, 1954 by Dr. Joseph Murray and Dr. David.<sup>4</sup> Prerequisites for the success of transplantation program include awareness, positive attitude of the citizens towards the practice of organ donation as the demand for organs for transplantation continues to vastly exceed the limited supply capacity all over the world.<sup>5,6</sup>

As stated by the World Health Organization (WHO), only about 0.01% Indian population donates their organs after death, while 70-80% of the Western country people pledge their organs.

In an interview with the doctors of Mohan foundation (a not-for-profit, registered non-government organization in India that works in the field of deceased organ donation) it was highlighted that nearly 1,00,000 out of 9.5 million deaths reported annually in India, are believed to be potential donors, out of which only 200 of them actually become donors. At any point of given time, 8-10 brain dead patients have been reported in various ICU's in our country and their conversion into donors would end the long waitlist. When the Indian science minister, Vilasrao Deshmukh, passed away in August 2012, the head of the Chennai Hospital where he was treated, said, he may have survived had he had a liver transplant. The truth that a government minister failed to secure a liver transplant on time throws light on the flaws in India's organ-donation system.

However, the issue of organ donation is complex and multi-factorial involving ethical, legal, medical, organizational, and societal factors. It has been reported globally that people's attitudes toward organ donation are influenced by factors such as knowledge, education, and religion. 9

The most important causative factor is the lack of information on legal and procedural details of organ donation in the population even among healthcare professionals. Lack of knowledge and understanding about organ donations, religious attitudes and superstitious beliefs have generated fear and mistrust in the minds of common man and, especially the terminally ill patients. [10,11]

Theoretically, health care professionals should be the most educated group in the field of live and cadaveric organ donation. This group is the most decisive link in the organ procurement process because they are the first persons to set up a relationship with the potential living or cadaveric donor family and should have the ability to trigger the option of organ donation.<sup>5</sup>

Religion is the next most influencing factor governing the attitude and practice of the public towards organ donation. No religion formally forbids donation or receipt of organs or is against transplantation from living or deceased donors. Only some orthodox Jews may have religious objections to it. However, a few communities like the Native Americans, Roma Gypsies, Confucians, Shintosis, and some Orthodox rabbis discourage the practice of harvesting organs from deceased donors.

The reason for the lower score among Hindus could probably be because of, their firm belief in life after death with a continuous cycle of birth and rebirth.

Some of the South-Asian Muslim scholars (ulemas) and jurists (muftis) however, oppose the idea and practice of organ donation from both, living and deceased donors because of their belief of human body as an "amanat" (trusteeship) from God and thus, must not be desecrated following death.

Literature review reveals that several studies have been done worldwide though there are hardly any studies in India on knowledge, attitude, beliefs and practices on organ donation. Therefore, the present study was taken up with the objectives of assessing the knowledge on organ donation among final year medical, dental, nursing students and studying the religious beliefs and attitude and iii) finding out the effect of motivation for organ donation.

## **METHODS**

This was a comparative, cross sectional research study conducted in Vydehi Institute of Medical Sciences and Research Centre, Bangalore, India. A random sample of 150 final year Medical, Dental and Nursing students (50 from each group) were included in the study which was conducted over a two months period from August to September 2016. Students who were chronically absent were excluded from the study.

After obtaining the Institutional Ethical Committee approval for the study, a pretested semi-structured questionnaire was distributed to the participants. Informed consent was taken from each individual. The questionnaire contained multiple choices under 3 sections. The sections were designed to test the awareness on organ donation (living and cadaver); religious beliefs; attitude and practice towards organ donation and transplantation. The willingness of the participants to donate their organs or that of their family members was also evaluated.

An information, education and communication program was conducted for the participants. They were informed about organ donations and on the magnitude and need to increase organ donation among the public in order to decrease the morbidity and mortality of patients with end stage diseases. They were made aware of the importance

of actively enrolling in organ donation as that would make a significant contribution in saving someone's life in the years to come.

At the end of the sessions, organ donation (Zonal Coordination Committee of Karnataka-ZCCK) forms were distributed and collected from the participants who were willing to donate their organs.

The data was entered in excel and analyzed using SPSS Version 21.0. All qualitative variables were expressed as frequencies and percentages. Quantitative variables were expressed as Mean and Standard deviation. Comparison of the medical, dental and nursing groups regarding

knowledge, beliefs and practice scores was done using Kruskal Wallis test (p<0.05 has been taken as statistically significant).

## **RESULTS**

Table 1 shows the knowledge of the participants on organ donation and transplantation among the medical, dental and nursing students.

It reveals that the awareness and knowledge regarding organ donation is relatively higher in the Medical students with respect to all the questions answered as compared with the dental and nursing students.

Table 1: Knowledge of participants on organ donation.

Item	Medical		Dental		Nursing	
	Present	Absent	Present	Absent	Present	Absent
	No. (%)					
Awareness on organ donation	43 (86)	7 (14)	30 (60)	20 (40)	31 (62)	19 (38)
Knowledge that there is no age limit to pledge organs	30 (60)	20 (40)	22 (44)	28 (56)	32 (64)	18 (36)
Knowledge regarding consenting for organ donation in deceased donors	38 (74)	12 (26)	27 (54)	23 (46)	22 (44)	28 (56)
Knowledge regarding conditions in which organs can be harvested	41 (82)	9 (18)	27 (54)	23 (46)	25 (50)	25 (50)
Knowledge on authority concerned with organ harvesting	36 (72)	14 (28)	40 (80)	10 (20)	38 (76)	12 (24)
Knowledge on ability to change decision after pledging organs	34 (68)	16 (32)	22 (44)	27 (54)	21 (42)	29 (58)
Knowledge on certified brain-dead donor ventilation support protocol	37 (74)	13 (26)	36 (72)	14 (28)	42 (84)	8 (16)
Knowledge on legislation that prohibits buying and selling of organs	29 (58)	21 (42)	10 (20)	40 (80)	14 (28)	36 (72)
Knowledge on government body governing the organ transplantation process	44 (88)	6 (12)	28 (56)	22 (44)	21 (42)	29 (58)

Table 2: Beliefs of participants on organ donation.

	Medical		Dental		Nursing	
Item	Yes No. (%)	No No. (%)	Yes No. (%)	No No. (%)	Yes No. (%)	No No. (%)
Organ harvesting is inhumane and a sign of disrespect	4 (8)	46 (92)	6 (12)	44 (88)	7 (14)	43 (86)
Organ donation interferes with attaining moksha	9 (18)	41 (82)	14 (28)	36 (72)	20 (40)	30 (60)
Organ donation affects life after death	18 (36)	32 (64)	20 (40)	30 (60)	19 (38)	31 (62)
Donating organs among people of same religion	12 (24)	38 (76)	18 (36)	32 (64)	20 (40)	30 (60)
Fear of premature termination of treatment before death on signing up for organ donation	6 (12)	44 (88)	22 (44)	28 (56)	15 (30)	35 (70)
Fear of disapproval of society on enrolling for organ donation	10 (20)	40 (80)	13 (26)	37 (74)	18 (36)	32 (64)
Concept of jinxing death	5 (10)	45 (90)	11 (22)	39 (78)	8 (16)	42 (84)

**Table 3: Practice regarding organ donation.** 

	Medical		Dental		Nursing	
Item	Yes No. (%)	No No. (%)	Yes No. (%)	No No. (%)	Yes No. (%)	No No. (%)
Discussing on organ donation with family members	34 (68)	12 (24)	24 (58)	21 (42)	25 (50)	25 (50)
Participants willing to donate their organs	38 (76)	12 (24)	24 (48)	26 (52)	27 (54)	23 (46)
Participants willing to donate organs of family members	37 (74)	13 (26)	23 (46)	27 (54)	26 (52)	24 (48)
Participants who have become donors after IEC	16 (32)	34 (68)	6 (12)	44 (88)	3 (6)	47 (94)

Table 4: Knowledge scores on organ donation.

Items	Medical	Dental	Nursing	P value
Mean	6.62	5.14	4.46	<0.01
Standard deviation (SD)	0.967	1.443	1.586	<0.01

Mean knowledge score was higher in medical (6.6) students compared with that of dental (5.14) and nursing (4.46) students as shown in Table 4.

Table 5: Belief scores on organ donation.

Items	Medical	Dental	Nursing	P value
Mean	3.14	2.84	2.66	۰,005
Standard deviation (SD)	0.783	1.017	0.798	<0.05

Mean belief score was higher in medical (3.14) students in comparison to that of dental (2.84) and nursing (2.66) students as shown in Table 5.

Table 2 reveals that there were more negative beliefs such as organ harvesting being an inhumane act and a sign of disrespect more among the nursing and dental students than the medical students.

Table 3 reveals that more medical students than dental or nursing students discussed regarding organ donation with family members and were willing to donate their organs & that of their family members.

Table 4 depicts the mean and standard deviation scores regarding the knowledge of the health science students on Organ donation.

Table 5 depicts the mean and standard deviation scores of the beliefs of the health science students towards the concept of organ donation and its transplantation.

After the information, education and communication program that was conducted by the authors, it was noted that the medical students with significantly higher mean knowledge and mean belief scores enrolled in higher numbers [33 (66%)] among the total 34 (22.6%) students who have voluntarily enrolled with the Zonal Coordination Committee of Karnataka for their organ donation.

### DISCUSSION

Out of 150 students who participated in the study, 88 (58.6%) were males and 62 (41.3%) were females. They were final year students of Medical, Dental and Nursing departments of Vydehi Institute of Medical College and Research Centre.

Most 92 (61%) of them were familiar with the basic rules and regulations of organ donation. It was noted that 40 (64.5%) of the female students had better knowledge than the 45 (51.1%) males with regard to organ donation and transplantation.

As depicted in Table 1, knowledge that cadavers as well as living persons are potential donors was known to 43 (86%) of medical students, 30 (60%) of dental students and 31 (62%) of nursing students. Knowledge that anyone of any age, can donate organs was well known to 32 (64%) nursing students as compared to the other branches 30 (60%) of medical and 22 (44%) of dental students.

The study revealed a significant dearth of knowledge regarding the status of an organ donor, the "Dead Donor Rule". According to the study a higher number of medical students 38 (74%), believed brain death to be an important criterion for accepting organ donation as

opposed to some studies where medical students were unaware of the "Dead Donor Rule". 13

Anybody can pledge their organs by registering with various national organizations working in order to promote the awareness of organ donation in India (e.g. NOTTO, ZCCK). A person can also register with local hospitals that provide this facility voluntarily before death [e.g. NIMHANS in Bangalore which works in coordination with Zonal Co-ordination Committee of Karnataka (ZCCK). Legislation was passed in India in the year 1994 and was called the Transplantation of Human organ act [THO]. It was passed in order to ensure well organized and efficient practices of organ donation and transplantation activities and mainly aims at regulation of removal, storage and transplantation of human organs for therapeutic purposes and for prevention of commercial dealings in human organs.

The Zonal Co-ordination Committee of Karnataka [ZCCK] for transplantation has been constituted by the Government of Karnataka. ZCCK is the body appointed to oversee the implementation of the Transplantation of Human Organs. It also aims to co-ordinate the cadaveric transplantation activities and also takes an active initiative on educating the public about organ donation. The present study showed that medical students 36 (72%)] had a very good understanding of these governing bodies and their functions.

Religion is the most influencing factor governing the attitude and practice of the public towards organ donation. No religion formally forbids donation or receipt of organs.

Among the 150 subjects of this study, 90 (60%) were Hindus, 45 (30%) were Muslims and 15 (10%) from other religions. The present study showed that there was a more positive attitude among the 50 (55.5%) of Hindus on organ donation as compared to 19 (42.2%) of Muslim students and was in accordance to other studies.<sup>14</sup>

It was also noted that the opinion about organ donation by family and fellow religious members influenced the positive attitudes (like willingness to donate, convince and counsel their respective family members to donate independent of their beliefs.<sup>15,16</sup>

Information, education and communication (IEC) on organ donation and transplantation was given by the authors to all the participants in the study. They were informed about the Zonal Co-ordination Committee of Karnataka (ZCCK). A higher number of medical 38 (76%)] students showed willingness to donate their or a family member's organs followed closely by 27 (54%) of nursing students.

Following the information, education and communication (IEC) Program by the authors 25 (32%) Medical students,

6 (12%) Dental and 3 (6%) Nursing students have signed up as donors and have received their donor cards from ZCCK. Thus it is evident that from this study and also a study conducted by Ramadurg et al, that better knowledge about organ donation will be more likely to motivate a person to donate his/her organs, as it makes one aware of the need for it and brings about the necessary changes in the perceptions and intentions of the students regarding organ donation.<sup>17</sup>

The mean knowledge score of medical students was higher than that of dental and nursing students which was statistically significant (p<0.01). The study also showed that the mean belief score among the Medical students was higher than Dental and Nursing students which was statistically significant (p<0.05).

In a study by Chakradhar et al it was concluded that there is an average level of knowledge and low levels of positive attitude and practice habits among the studied dental students towards organ donation and transplantation which is in accordance to our study.<sup>18</sup>

It also revealed a positive correlation between the mean knowledge scores with attitude and practice habits. This throws light on the importance of empowering the society with the knowledge of importance and process of organ donation and transplantation.

There are hardly any studies on organ donation and transplantation therefore more studies need to be conducted regarding this in Karnataka and other states in India.

### **CONCLUSION**

Medical students have a better knowledge and attitude regarding organ donation and transplantation than dental and nursing students.

Following the Information, Education and Communication (IEC) program, 34 (22.6%) students have pledged their organs to ZCCK. This highlights the importance of educating the society to bring a positive change in their thoughts, beliefs and practices towards organ donation and transplantation.

Thus, IEC programs should be carried out on a large scale to motivate health science students as well as students in other streams and their family members to become donors

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee at Vydehi Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India before the start of the study

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Cite this article as: Meghana SG, Subramanian M, Atmakuri SA, Tarun S, Bera P, Nelson J. A study on knowledge, attitude and practice regarding organ donation and transplantation among final year health science students in Bengaluru, Karnataka, India. Int J Community Med Public Health 2018;5:1529-34.