Original Research Article

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Knowledge and attitude regarding organ donation and transplantation among medical students of a medical college in South India

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ABSTRACT

Background: The shortage of organ donors is the key rate-limiting factor for organ transplantation in India. Many strategies have been proposed. One of the strategy is by improving awareness of organ donation and transplantation in the population. This study seeks to assess the knowledge and attitude of the medical students toward organ donation and transplantation. The objective of the study was to assess the knowledge and attitude regarding organ donation and transplantation among medical students.

Methods: A cross-sectional study was conducted among 510 undergraduate medical students of K.S Hegde Medical Academy. A tool with 30 questions was designed and administered to the students, in order to assess their knowledge and attitude regarding organ donation and transplantation. Data collected was analysed using SPSS software.

Results: The mean age of the students was (20.21 ± 1.32) . When compared to boys, girls reported higher mean scores in knowledge (9.22 ± 1.11) ; and attitude (7.32 ± 0.81) . The first year students had higher scores for their knowledge (9.46 ± 1.28) compared to other years. The third year students showed a higher mean attitude score (1.61 ± 1.07) (p=0.02). Hindus scored significantly higher mean knowledge, and attitude as compared to Christians and Muslims (p=0.03). There was a positive correlation between mean knowledge, and attitude of students regarding organ donation and transplantation.

Conclusions: There was adequate knowledge in students but their attitude was poor. The study throws light on their inadequacies of knowledge and attitude of medical students, necessitating the inclusion of the topic in their curriculum.

Keywords: Organ donation, Organ transplantation, Medical students, Knowledge, Awareness

INTRODUCTION

Knowledge and beliefs regarding organ donation and transplantation are some of the most important factors influencing individual donation preferences. Of a total of 9.5 million deaths annually in India, nearly 100,000 are due to organ failure. To save and extend lives, organ donation and organ transplantation have become the only hope. Organ transplantation is the transfer (engraftment) of human cells, tissues or organs from a donor to a

recipient with the aim of restoring function(s) in the body.³ It can be related to a deceased donor or a living donor.

Organ transplantation is often the only treatment for end state organ failure, such as liver and heart. Although end stage renal disease patients can be treated through other renal replacement therapies, kidney transplantation is generally accepted as the best treatment both for quality of life and cost effectiveness. Kidney transplantation is by far the most frequently carried out transplantation globally.⁴

Frankenstein's monster was put together from body parts of the dead and infused with life by electricity from lightening in the sky. Though Frankenstein is a fantasy story by Mary Shelley, the use of body parts of others has become possible in the contemporary age. The idea of transplanting animal or human parts dates back many centuries, though the first successful transplant of human-to-human tissue (cornea) was achieved on 7th December 1905. Organ donation and transplantation got legalized in India, under the "Transplantation of Organ Act, 1994".

Students have a huge responsibility in the community. Organ donation number can be increased by improving their knowledge and developing more positive attitudes toward organ donation and transplantation. Medical students have different opinions which are governed by socio cultural factors such as traditional customs, the practice of preservation of intact body after death, uneasiness in discussing death related issues and family objections. As future doctors, medical students have to take up the role of promoting organ donations which is the need of the day.

While a majority of healthcare professionals support organ donations, only a small proportion donors. Knowledge and attitude of health care providers towards organ donation plays a major role in promoting the concept among population. The general population and the student population in particular, need to be educated about transplantation and the need to accept the commitment to donate organs. Therefore, the present study was designed to assess and compare the knowledge, attitude and practice regarding organ donation and transplantation, among medical students, based on gender, year of the course and religion.

METHODS

A cross-sectional questionnaire-based study conducted between May 2016 and August 2016 to assess the knowledge and positive attitude regarding organ donation and transplantation among undergraduate medical students of a medical college in South India. After receiving approval from the institution's ethical committee, the cross-sectional study was carried out among the medical students of the institution. With each academic year having an average of 100 students, the total number of students came to around 510 students. Convenient sampling method was used to obtain a total sample size of 510. All the students who were present on the day when the questionnaire was given were included in the study. Those who were not willing to participate or not giving the consent were excluded. Anonymity and confidentiality of respondents were maintained and participation was voluntary.

A self-administered questionnaire containing 30 questions was developed comprising of three parts. The first part of the questionnaire gathered the demographic details from the students, which included age, gender, religion and year of study. The second and third parts assessed the levels of knowledge and attitude regarding organ donation, respectively. The responses were recorded on a dichotomous scale (Yes/No). For each "Yes" response, it was scored '1' and for each "No" response '0' was given. Reverse scoring was done where the correct responses were "No." The total scores obtained were summed up. The higher scores indicated good knowledge and positive attitude regarding organ donation.

The questionnaire was distributed to undergraduate medical students during college hours in the classroom after taking informed consent. The participants were instructed not to discuss the questions/answers among themselves. Only completed questionnaires were utilized for the study.

Statistical analysis

The data obtained were entered into excel sheet and analysed using SPSS version 22. Descriptive data were analysed using frequency, percentage and proportion. Chi-square and One-way ANOVA were used for comparing means of normally distributed continuous variables.

RESULTS

Out of a study population of 510 participants, 180 (35%) were boys and 330 (65%) were girls, with a mean age of 20.2 ± 1.32 years.

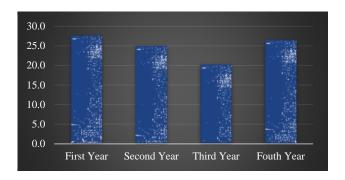


Figure 1: Year wise distribution of the study population, first year medical students (27.8%), followed by final year medical students (26.7%), second year medical students (25.1%) and third year medical students (20.4%).

Majority of the study population were first year medical students (n=142, 27.8%), followed by final year medical students (n=136, 26.7%), second year medical students (n=128, 25.1%) and third year medical students (n=104, 20.4%) (Figure 1).

Table 1: Assessment of knowledge regarding organ donation among medical students.

Assessment of knowledge		P value	
	Gender	Year of study	Religion
Organ donation	0.612	0.001	0.005
Transplantation of human organs act	0.030	0.001	0.500
Place of issue of organ donation cards	0.430	0.001	0.000
Cadaveric organ donation	0.090	0.020	0.001
Brain dead organ donor being disconnected from ventilator	0.010	0.640	0.820
Human leucocyte antigen (HLA)	0.055	0.001	0.490
Hepatitis B and c carriers being organ donors	0.110	0.001	0.050
Malignancy being a contraindication to organ donation	0.510	0.050	0.001
Premature termination of treatment for registered organ donors	0.650	0.820	0.250

^{*}Chi-square test.

Table 2: Assessment of attitude regarding organ donation among medical students.

Assessment of attitude		P value	
	Gender	Year of Study	Religion
Being comfortable to think or talk about organ donation	0.720	0.140	0.130
Willingness to be an organ donor	0.049	0.050	0.140
Belief on donation of body if body parts are not kept intact after death	0.025	0.060	0.050
Fear of donation that one's body will be disfigured after organ donation	0.00	0.950	0.060
Feeling that one's family will donate their organs	0.120	0.280	0.950
Willingness to motivate family to donate organs	0.010	0.020	0.280

^{*}Chi-square test.

Table 3: Comparison of levels of knowledge and attitude of medical students.

	Knowledge				Attitude			
Variables	Poor n (%)	Average n (%)	Good n (%)	P value	Low n (%)	Average n (%)	High n (%)	P value
Gender								
Males	31 (17.2)	117 (65)	32 (17.7)	0.33	168 (93)	12 (6)	0	0.24
Females	34 (11)	217 (65)	79 (24)		327 (99)	3 (1)	0	
Year of study								
First year	18 (12.5)	95 (67)	29 (20.5)	0.08	140 (99)	2(1)	0	0.81
Second year	5 (4)	78 (61)	45 (35)		123 (96)	5 (4)	0	
Third year	17 (16)	70 (68)	17 (16)		101 (99)	3 (1)	0	
Fourth year	16 (11)	90 (66)	30 (23)		136 (100)	0	0	
Religion								
Hindus	43 (13)	220 (68)	61 (19)	0.03*	324 (100)	0	0	0.04*
Christians	12 (11)	64 (59)	33 (30)		109 (100)	0	0	
Muslims	2 (2)	44 (58)	31 (40)		63 (81)	14 (19)	0	

^{*}One-way ANOVA test.

As per their religion, majority were Hindus (64%), followed by Christians (21%), and Muslims (15%) (Figure 2).

On comparison of correct knowledge among students, the girls had a better knowledge as compared to boys, however a significant difference was noted for questions related to awareness of transplantation act, organ donation in a brain-dead person and HLA antigen, where

the boys had better knowledge than the girls (p<0.05). Even though majority of the first year students had correctly responded to the questions assessing knowledge on organ donation and transplantation when compared to the other year students, low knowledge was observed for questions related to knowledge of organ donation cards and cadaveric organ donation between them and others, where first year's fared poorly and it was statistically significant (p<0.05). Regarding donor's and recipient's

blood matching, it was seen that fourth year students had significantly higher knowledge as compared to other students (p<0.05). Knowledge on donor's and recipient's HLA matching was better in third year students as compared to others (p<0.05). Amongst the religions, Hindus had correct knowledge with regard to organ donation on questions related to cadaveric organ donation and HLA antigen, this was found to be statistically significant (p<0.05) (Table 1).

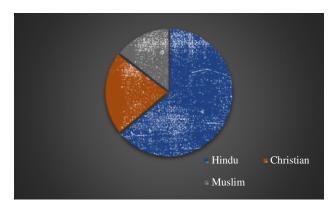


Figure 2: Showing religion wise distribution of students, Hindus (64%), followed by Christians (21%), and Muslims (15%).

Comparison of positive attitude responses revealed that girls had more positive attitude as compared to boys. However, there was a negative attitude by the girls as compared to boys on questions related to keeping the body intact after death, disfigurement of the body after death, willingness of the family for organ donation and religious laws that may stop them from organ donation and it was statistically significant (p<0.05). On questions regarding willingness to be an organ donor and their willingness to motivate their family members, first-year students had a poor attitude towards it as compared to other years students. A low positive attitude was seen towards cadaveric organ donation from the third-year students. Hindus reported higher positive attitude on organ donation and transplantation as compared to Muslims and Christians. However, Christians had a positive attitude towards organ donation adding meaning to one's life. Their attitude towards live organ donation was more positive as compared to Hindus and Muslims which was found to be statistically significant (p<0.05) (Table 2).

When knowledge regarding organ donation and transplantation was assessed, 22.4% of the students had good knowledge (>75%), 65.4% had average knowledge (50-75%) and 11.74% had poor knowledge (<50%). Hindus were found to have average to high level of knowledge (p<0.05) as compared to Christians and Muslims regarding organ donation and transplantation, which was found to be statistically significant. Comparison of attitude based on gender and year of study did not reveal any significant difference between them (p=0.24, p=0.81) (Table 3).

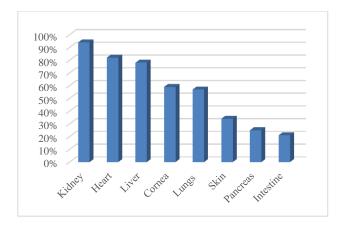


Figure 3: Knowledge of kidney donation was the highest (94%), followed by heart (82%), liver (78%), cornea (59%), lungs (57%), and skin (34%).

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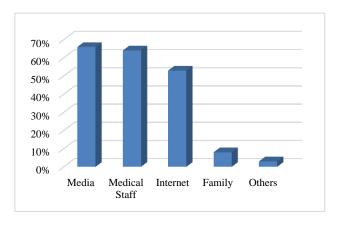


Figure 4: Sources of knowledge regarding organ donation, from media being the highest (66%), followed by medical staff (64%), internet (53%), family (8%) and others (2%).

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DISCUSSION

Despite all advances in organ and tissue transplantation over the past decades, there are many patients waiting for an organ to become available for transplantation and the gap between available organs and patients awaiting transplantation is widening. A study by Bapat et al on organ donation, awareness, attitudes and beliefs among post graduate medical students showed that majority (97%) of the medical students were aware of organ donation and transplantation. Similar results were seen in this study, where irrespective of the year of study,

majority (84%) of the students were in knowledge of organ donation and transplantation.

In a study by Figueroa et al regarding the knowledge and changing attitude and beliefs towards organ donation, it was found that the media, i.e. newspapers (52%) was the most common source of information, followed by television (38%), medical staff (30%) and internet (24%). Similarly, in our study, print form of media (66%) was the most common source of information, followed by medical staff (64%), internet (53%), and family (8%). In a study conducted by Ali et al on the knowledge and ethical perception regarding organ donation among medical students, it was found that kidney was the most commonly donated organ, followed by blood, cornea and heart. 11 A similar finding was seen in our study with the knowledge on kidney donation (94%) being the highest, followed by heart (82%), liver (78%), cornea (59%), lungs (57%), skin (34%) and pancreas (25%).

In our study, we took a step ahead, by comparing variables like gender, year of study and religion with responses related to organ donation. When gender comparison was done for knowledge scores, a higher mean score was observed among females as compared to males. Also, when correct knowledge was taken into account, more females (65.5%) had average knowledge when compared to males (60%). These findings do not concur with the results reported by Marques et al, on medical students attending university of Puerto Rico school of medicine where almost half (49.6%) of the male participants had adequate knowledge (>50%) compared to females (41.9%). This difference could be due to variation in the country of study and higher female to male ratio in our study.

In our study, females had significantly (p<0.001) higher mean attitude scores than males. This finding is similar with the studies by Burra et al and Mekahli et al, on European medical students where females had higher positive attitude, as they may have more emotional values compared to males. ^{13,14} When religion was taken into consideration, Hindus (68%) had higher average knowledge scores (50%–75%) (p=0.03) than others, which contradicted with the results of the study by Marques et al, where higher knowledge scores was noted for Christians, which can be because of difference in socio-demographic characteristics between the countries. ¹⁰

The present study showed poor attitude regarding organ donation amongst all religions, which is in contrast to the findings put forward by Kocaay et al.⁶ regarding brain death and organ donation where 68.6% of the students of all religions had positive attitude towards organ donation. Poor attitude could be due to culture and religious practices in our country, as they play an important part in determining the level of organ donation.

CONCLUSION

Transplantation is a unique area of medicine in which the treatment is dependent on the generosity of potential donors and their relatives. This study found that the current level of knowledge of medical students on Organ Donation and Transplantation was inadequate, hence focus should be on including organ donation and transplantation lectures in the curriculum. Students had necessary knowledge regarding the topic but their attitude was poor, hence motivation is necessary in medical colleges towards organ donation. Since medical students are the future doctors, if they are motivated, they in turn can create awareness and motivate the general population and promote organ donation in the community, which is the need of the day.

Limitations

The study population represents only a small fraction of the medical community. So, the results available from this cannot be generalized for the whole community.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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