



Original Research Article

Comparison of knowledge, attitude about organ donation among first year medical and engineering students

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ABSTRACT

Introduction: Organ transplantation is boon to medical profession. The lack of awareness and misconceptions towards organ donation is consistently observed as major factor for current shortage of organs in transplantation. Present study was done to know knowledge, attitude among first year medical and engineering graduates of rural Kanyakumari district.

Aim: To study knowledge, attitude and beliefs about organ donation among first year medical and engineering graduates.

Materials and Methods: 250 volunteers from medical and engineering first year students were studied using a pre structured questionnaire. Data analysed by SPSS software.

Results: Comparing the knowledge amongst medical and engineering students, almost both the groups had equal knowledge about the various parameters questioned. The knowledge was found to be least in both the groups regarding awareness of legislation involved. Attitude also was in similar lines between both the groups.

Conclusions: As per previous studies, understanding and attitude towards organ donation has progressed from first year MBBS to internship. This shows that including "Organ donation" as part of curriculum will enhance number of donors which is essential in today's scenario.

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1. Introduction

Organ transplantation is a boon to the medical profession, as it helps in saving the lives of many diseased people. It is enabling to enhance the quality of life of patients with end-stage organ failure.¹ Very often the best solution is to replace the damaged organ with the healthy one.² Organs that are damaged and non-functioning can now be replaced by using donated organs in a transplantation procedure that extends life and improves quality of lives.^{3,4} An estimated 50,000 people die each year due to end stage organ failure, 18,000 people a year go into end stage renal failure of which only 10% receive dialysis and only 4-5% have the good fortune to be transplanted at a rate of 5 per million population.^{4,5} However, all patients suffering from

end-stage organ failure do not have the equal opportunity for organ transplantation because of lack of donated organs.⁶ It has been estimated that only 2.5% of patients with end stage renal disease in India actually end up getting a transplant.⁷ Annual deaths are approximately 500,000 because of non-availability of organs. At least 150,000 people await a kidney transplant but only 5,000 get organs.⁸ It is always observed that the number of organ donations is significantly lower than the number of patients waiting for organ donations.⁹ The public's lack of action towards organ donation is consistently cited as the major factor for the current shortage of organs for transplantation.^{10,11} The discourse surrounding organ transplantation covers wide disciplines like sociology, anthropology, culture studies, public health, economics and politics.¹² Recent increase in cadaveric or deceased donation in India has been acclaimed by many in the lay media. In certain

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states it has also been argued that this has led to a reduction in commercial transplantation.¹³ A research done in Pakistan to assess the attitude of postgraduate medical students towards organ donation showed that 89% of them wished to donate their organs.¹⁴ If this level of knowledge and awareness is also imparted to the general public it would drastically enhance the number of people willing to donate. The best way to impart this knowledge is through doctors and thus it is essential to assess their attitude towards this topic.^{15–17} In 1994, the government of India promulgated the Transplantation of Human Organs Act (THOA). Unrelated donation was permitted on grounds of altruism but only with the sanction of an authorization committee.¹⁸ The state of Tamil Nadu has the pride of being role model for the country in promoting organ donation. The Central Registry for Organ Donation, formed in October 2008, has recorded more than 2000 transplants in Tamil Nadu till 2013, the highest in country till the mentioned time.¹⁹ Medical and nursing 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 or health care providers, medical knowledge, attitude and actions are interrelated and previous studies have shown that culture and religion were important external influences which affected the decision making process.²⁰

2. Materials and methods

Study was conducted at Sree Mookambika Institute of medical sciences, Kulasekharam to ascertain knowledge and perception regarding Organ Donation amongst first year medical and engineering students. After approval from the institutional ethical committee, a cross sectional survey was conducted during May & June 2019. Participation in the study was voluntary. Inclusion criteria for the study population were students enrolled in first year of MBBS (125 subjects), and first year students from different branches of nearby engineering colleges (125 subjects). Exclusion criteria was those who were not present on the day of interview or not willing to participate. A sample size of 246 was calculated assuming a prevalence of 28.9%, a 95% confidence interval and a sample error of 6%, bringing the total sample size to 250.²¹ Participants were assured about the confidentiality and explained about the background and purpose of study before the questionnaires were distributed. They were interviewed after getting oral consent. The schedule was pilot tested on a sample of medical interns for clarity of questions and the time taken to respond. All the students were asked to answer pre-structured questions to test their knowledge, attitude and beliefs regarding organ donations. This was followed by an interactive sessions being held on organ donation. An intended questionnaire was prepared

from available pretested proforma.^{3,5,22} Data entry was made in excel software and analysis was done by SPSS software. Association with the knowledge factors between both groups was tested for significance using chi-square test and $p < 0.05$ was considered statistically significant.

3. Observations

Table 1 shows the demographic characters like age, gender, type of family, religion, number of siblings, education of parents pertaining to 125 medical and 125 engineering students who participated in study.

Table 2 shows the knowledge towards organ donation assessed by certain questions. A score was given to some of the “knowledge” parameters and chi square analysis was done for comparison between medical and engineering students.

Table 3 shows statistically significant difference between the knowledge score of medical and engineering students. It was assessed by giving score of 1 to correct answers and score of zero to wrong answers and then applying chi square analysis. It was observed that medical students had obtained higher score as compared to their counterparts.

Table 4 shows attitude of both groups towards various social factors like religion, relationship, age of recipient, consent requirement in organ donation.

4. Discussion

The present cross sectional study was conducted on 125 undergraduate medical (M) and 125 engineering (E) students of rural Kanyakumari district to assess their knowledge, attitudes and beliefs towards organ donation. 89.6% percentage of medical and 84.8% percentage of engineering students supported organ donation, whereas 10.4% of medical & 15.2% of engineering students were not interested to comment. A majority of participants- 89.6% medical and 96% engineering students responded that organ donation should be promoted. Similar findings regarding positive attitudes represented by undergraduates were mentioned in studies.^{20,23–25} This figure was higher compared to the study done by Nisreen Feroz Ali et al in 2013 in which 158 Medical students participated and only 45% were willing to donate organ.²² Levels of awareness and effort to motivate others especially in medical graduates for organ donation is the need of the hour and same has been emphasized in few studies done earlier.^{26,27} But there existed discrepancy between higher rates of approval for organ donation (89.6% medical, 84.8% engineering) and actually pledging organs (24% medical, 40% engineering) for donation. About 8% medical students & 8% engineering student mentioned they would never consider donating organs whereas approximately 27.6% each of medical and engineering revealed hesitancy about organ donation. This is similar to a study conducted in French,²⁸ Turkey,²⁹ where

Table 1: Demographic characteristics of the study population

		Medical (n=125)	Engineering (n=125)
Age	18	96	97
	19	29	28
Gender	Male	58	57
	Female	67	68
Family	Joint	21	24
	Nuclear	94	90
	Separated parents	10	11
Religion	Hindu	71	58
	Christian	34	45
	Islam	20	22
Number of siblings	None	15	9
	One	85	90
	Two	25	26
Education of parents	Graduate and above	83	79
	Till 12 th class	21	23
	Informal education	21	23

9% were unwilling and 25.5% were hesitant.

Reasons for not pledging for organ donation could be perceived family refusal; fear for personal safety, mutilation of body and religion. In fact in our study, infection was considered as the major risk (63.2%M,41.6%E) associated with organ donation. It also points out that we must intervene and try to modify their attitudes at this receptive period of life.^{29–32} The reasons given for not willing to donate organs were "the organs could be wasted", "organs could be misused" or subjected for mutilation. Our results go along with H. Bilgel et al,³³ MMD Dutra et al¹⁶ and Usha Bapat et al.³⁴ When meaning of organ donation was questioned, 10.4% M & 17.6% E said it is removal from cadaver only but 89.6% M & 62.4% E said it is removal of human tissue for purpose of transplantation either from live donor or dead or brain dead donor, it is in contrary to the findings of study by Sree T Sucharita et al⁸ where as low as only 11.3% responded that donation can be done when alive or when dead or brain dead. Poor levels of knowledge about term organ donation among study participants was also identified in other studies.^{20,23,24,35,36} A huge majority of participants from both study groups were aware of the national level legislation involved with organ donation which is in contrary to the poor percentage (Twenty seven percentage)⁸ & (Twenty one percentage).³⁷ Similar observations were made by different authors. This may be due to the lack of information and difficulty in understanding the legal terminologies.²⁶

Regarding the payment towards organ donation, 28%M, 32.8%E opined that some payment has to be made to donor or next of his kin whereas 39.2%M & 48.8%E were not sure of it. These findings can be compared to 76.5% mentioning it to be unethical for donating organs as a source of obtaining money and WHO's standing to ban compensated organ transplanting.³⁸

A very low 27.2% M & 4% E were aware that organs can be harvested from cadavers of pediatric age too. Amongst kidneys; heart; liver; cornea; lungs & bone it was observed that majority thought lungs and bone can't be used for organ donation. Awareness about donation of cornea, kidney and liver soon after death was good in our study which is similar to a study done among medical college students in Northeast Brazil.³⁵ Our results also go along with the study done by B.S Payghan et al.³⁹ But knowledge regarding other organs like lungs and pancreas which can be transplanted after death was less (less than 60%) in both the above said studies.^{35,39} This misconception could be due to absence of any formal teaching as students of both streams (76.8% M & 76% E had media) and (16% M & 20% E had friends/family) as their major source of information but not any education. Even in another study,⁴⁰ majority (55.2%) said media as source of information, while only 22.4% regarded health professionals as their source of information. This highlights the point that medical curriculum is lacking on aspects related to organ donation. This observation was similar a study conducted in Pakistan.⁴⁰ Utilization of such key factors is the need of the day, so that behavioral changes can be brought among these young ones, without difficulty.⁴¹ In our study, only 21.6% M & 8% E were aware of donor card & 28% M & 32.8% E said that people who wish to donate organs end up paying extra money towards medical bills as compared to a study by where 65% were aware that they need not pay to be come an organ donor & 95.7% correctly understood that the cost of organ donation are not charged to the donors family.⁴² Majority felt they would like to donate their organs to people in need, irrespective of age of recipient, relationship with recipient or religion of recipient. However 16% M and 15.2% E felt they would donate to recipients of their own religion. In a study done by Donal McGlade et al,⁴³ 82% responded

Table 2: Knowledge towards organ donation

		Medical (n=125)		Engineering (n=125)	
Aware of the term “organ donation”	Yes	125		125	
	No	0		0	
Source of information	Media	96		95	
	Books	9		5	
	Friends /family	20		25	
Is risk involved in live organ donation	Yes	91		91	
	No	34		34	
	To save someone’s life	102		79	
Why is organ donation done	Out of compassion	4		0	
	For money	3		12	
	As a responsibility	12		22	
	Others	4		12	
Awareness of legislation in organ donation	Yes	73		25	
	No	52		100	
Meaning of organ donation	Removal of human tissue from cadaver only	13		22	
	Removal of tissue of human body for the purpose of transplantation	112		78	
	Infection	79		52	
Most important risk of organ donation	Pain	1		16	
	Body weakness	23		31	
	Others	22		26	
Awareness of donor card	Yes	27		10	
	No	98		115	
Is organ donation legal in India?	Yes	102		124	
	No	23		1	
	Don’t know	0		0	
ONLY ONE organ can be donated by one donor after death?	Yes	21		57	
	No	104		68	
Can organs be harvested from cadavers of pediatric age	Yes	34		5	
	No	91		120	
	Don’t know	0		0	
Should donor and recipient be related	Yes	44		29	
	No	81		96	
Should donor and recipient have same blood group	Yes	98		51	
	No	27		74	
Can this organ be harvested from cadaveric donor?	Organ	Yes	No	Yes	No
	Kidney	124	1	124	1
	Heart	121	4	75	50
	Liver	116	9	69	31
	Cornea	118	7	107	18
	Lungs	81	44	8	117
	Bone	46	79	6	119

Table 3: Comparison of Knowledge towards organ donation between medical and engineering students

Group	Better knowledge	Lesser knowledge	p value
Engineering	56% (n=70)	44% (n=55)	
Medical	92.8% (n=116)	7.2% (n=9)	0.00004*
	74.4% (n=186)	25.6% (n=64)	

*statistically significant

Table 4: Attitude towards organ donation

		Medical	Engineering
Attitude towards the possibility of your own organ being used for donation	Never consider	10	10
	Will think about it	43	26
	Donate under special circumstances	42	39
Danger that organ donated may be misused or abused	Definitely want to	30	50
	Never	10	16
	Sometimes	60	64
People who choose to donate end up paying extra medical bills	Often	24	21
	Don't know	31	24
	Yes	7	11
Whom would you like to donate your organs	No	35	20
	Don't know	83	94
	Family/friends	38	43
Age group you like to donate	Stranger	4	2
	Anyone	80	79
	none	3	1
	<30	17	36
Which religion would you like to donate your organs	30-50	6	21
	>50	4	5
	Irrespective of age	98	63
Most important factor for you while donating an organ	Same religion	20	19
	Any religion	99	101
	none	6	5
Increase in awareness will promote organ donation	Relationship with recipient	2	6
	Age of recipient	10	25
	Health of recipient	23	58
	Assurance of proper use of the organ	70	17
Do you support organ donation?	Religion	20	19
	Yes	112	120
	No	5	0
Will motivate people to register as donors?	Don't know	8	5
	Yes	112	106
	No	0	0
Payment to the donor or relatives is a must	No comments	13	19
	Yes	111	119
	No	14	6
Should consent of Relatives or next of kin for cadaveric donation be mandatory?	Yes	35	41
	No	41	23
	Don't know	49	61
	Yes	72	93
	No	53	32

that if their religion allows organ donation and that organs can be donated only with approval of religion. In study by umesh,²⁶ only 4.3% of the students said that their religions would allow organ donations. This revealed the impact of the religious beliefs which were associated with every individual and the difficulty which was faced in changing those blind beliefs.^{21,44,45} This observation was similar to a study done in India but quite different from the one done in Pakistan.²⁷ In contrast, study done in Italy by P Burra et al⁴⁶ concluded that religious beliefs had no influence on students' attitudes to organ donation.⁴⁷ It has been shown

in previous studies that health professionals can positively influence the opinions and attitudes of patients and their relatives, leading to higher rates of organ procurement. This can be related to higher level of exposure of medical students to conditions and patients requiring organ donation. Prior studies have shown that classroom interventions could increase knowledge and influence the intentions of students to donate their organs.^{48,49} Trevor Bardell, in his study observed that there was slight increase in knowledge from first to fourth year of medical students which supports this conclusion.⁴⁴

5. Conclusion

The goal of this study was to test intervention of making organ donation aware among the newly admitted medical students, who are future promoters of organ donation and to find out the overall attitude of medical and engineering students towards organ donation. Most of the students had positive attitude towards organ donation. However, Knowledge was found to be more amongst medical students as compared to engineering students.

Perhaps the students who have more knowledge about organ donation are more comfortable discussing the subject because of their better knowledge.⁵⁰ Moreover when discussed with families, it will help to foster.⁵¹ Nevertheless, undergraduate medical education committees at universities should consider curriculum review as time and resources for undergraduate teaching are limited and organ donation is not a topic reserved only for neurosurgeons and intensive care specialists.

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8. Conflict of interest

None.

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