

Awareness and Attitudes about Organ Donation amongst MBBS Students before Starting their First-Year Professional Regular Classes

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ABSTRACT

Introduction: The awareness about organ donation amongst students in medical school has been assessed and known to be reasonably good. However, assessing the same at their point of entry to the medical course is not well attempted. Current study aimed to know the knowledge, attitude and practice of medical students with regard to organ donation at their entry point into the medical profession during the foundation course.

Material and Methods: It was a Cross-sectional questionnaire-based survey among First-year medical students in a medical college in Southern India. Main outcome measures were to observe and assess Knowledge and its source on organ donation, key determinants influencing the attitude and practice of organ donation using a printed questionnaire. All the responses were entered in the Microsoft Excel sheets, and statistical analysis was carried out using Statistical Package for Social Sciences [SPSS] version 20, IBM Corp, USA.

Results: 98% of participants had heard the term “organ donation”, and 97 % knew what it means. 68 % of the participants knew who should give consent. 67% of the participants expressed fear that the donated organ can be misused or abused, and necessary to have effective laws to ease and govern the donation process. The majority of the participants preferred to donate to a family member, non-drinker, non-smoker and a younger recipient

Conclusion: The knowledge of the MBBS students’ right at their entry is reasonably good and comparable to the ones pursuing their course. The shortage of available organs for donation and their implications must be emphasized to the medical students in their medical curriculum and can begin as early as in the foundation course.

Key-words: Organ Donation, Medical Students, Knowledge, Attitude

INTRODUCTION

Large numbers of patients die every year from diseases like the failure of kidneys, liver, heart and blood cancer. They could have survived to lead a productive life if they had a donor who could donate organs for them. For many of these patients, organs from eligible relatives are not available for several reasons. The option left for them is to receive organs from a deceased donor.¹

India's current deceased donor rate is 0.8 per million, which is low compared to developed countries like the United States, 26 per million, Spain 36 per million, Croatia 32 per million.^{2,3} Many reasons are given for this low deceased donor rate. A few donor-related causes are the family members refusing consent for organ donation of their close relatives due to religious beliefs, superstitions, lack of awareness and lack

of faith in the healthcare system and few procedural factors such as lack of institutional mechanisms, organizational support, and legal and ethical issues.^{4,5}

In 2016 India ‘s deceased donor rate was 0.34 per million, which has improved significantly to 0.8 per million due to better awareness, the intervention of donation physicians and transplant coordinators. Currently, Tamil Nadu state is best in organ donation and is leading in terms of numbers. Tamil Nadu took many initiatives like the mandatory declaration of brain death, set up green corridors for shipping, implemented transplant guidelines to centralized waiting lists.^{5,6}

There is a considerable gap between the organs available and the number of organs required. About two lakh people are awaiting a kidney transplant, but only 10,000 get one that, i.e. 5 %. Nearly 50,000 individuals await heart, whereas, in 2017, only 339 deceased heart donations were witnessed. Furthermore, India has an Opt-in system [consent for donation is required] instead of an Opt-out system [implied consent]. Refusal of donation by the next of kin after brain death diagnosis is often the biggest hindrance for deceased donor organ donation.⁷

Various studies have shown gaps in knowledge, attitude, and practice toward organ donation among medical students worldwide and India.^{6,8,9} Assessing the awareness among the medical and Paramedical personnel would help us planning strategies to promulgate these ideas in this population. There are studies wherein the same is assessed in students in various stages/phases of their course. Not many have tried to assess

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it right at their entry into the course. So this assessment at an early stage paves the way to adopt strategies based on the results to increase awareness in this group of population to create a positive impact on deceased donor donation rate as they are the first point of contact for the potential donor family many times when they start attending their clinical posting.

The objective of the study was to assess the knowledge, practices and attitude of first-year medical students regarding organ donation at the entry phase, i.e. during their orientation/foundation course to MBBS in a Medical College in southern India.

MATERIAL AND METHODS

The survey was conducted among the first-year medical students during the foundation course as part of a pretest evaluation before a class on organ donation. These students come from various places across the country with diverse cultural, religious, and socioeconomic backgrounds.

The study was a cross-sectional study conducted using a questionnaire-based survey method where most questions were provided with yes/ no/do not know; few questions were also provided with an additional option of others to be specified. One hundred seven medical students who included both males and females who agreed to participate in the study were included. Data collection was done using a semi-structured questionnaire. The questionnaire utilized was the one used by Taimur et al. from Pakistan.¹⁰ These were anonymized questionnaires with no personal identifiers. The Institutional ethics committee had approved the survey.

The questionnaire was divided into three sections. Section 1 & 2 was to understand the general information of the

respondents, including socio-demographic profile. Section 3 was divided into parts A, B, and C to understand the respondents' knowledge, attitude, and practices toward organ donation.

In the questionnaire, other than questions on personal and socio-demographic profile, there were 13 questions on the respondents' knowledge regarding organ donation, which included questions like what is organ donation, who should give consent for organ donation etc. Nine questions were designed to assess the attitude and practices that included questions like willingness to donate organs in the future and persons to whom they are willing to donate their organs. It was a printed questionnaire wherein the participants needed to fill by circling the answer and mention in words in some places.

Data analysis

All the responses were entered in the Microsoft Excel sheets, and statistical analysis was carried out using Statistical Package for Social Sciences [SPSS] version 20, IBM Corp, USA. Categorical variables such as gender, occupation, religion, socioeconomic class, awareness regarding organ donation, source of information, knowledge, attitude, and practice regarding organ donation were summarized as frequency [percentages]. The Chi-square test was applied to see if there was a difference between knowledge, attitude and practice among male and female students. A p-value of < 0.05 was considered statistically significant.

RESULTS

Socio-demographic characters of participants

There were a total of 107 participants who completed the

Character	Category	Frequency (%)		
		Total (n=107)	Males (n=60)	Females (n=47)
Marital Status	Single	105 (98.1)	58 (96.7)	47
	Engaged to be married	2 (1.9)	2 (3.3)	0
Religion	Hinduism	80 (74.7)	48 (80)	32 (68.1)
	Islam	20 (18.7)	7 (11.7)	13 (27.7)
	Christianity	5 (4.7)	3 (5)	2 (4.3)
	Others	2 (1.9)	2 (3.3)	0
Cumulative monthly income	< 5000	4 (3.7)	1 (1.7)	3 (6.4)
	5000 - 20,000	19 (17.7)	9 (15)	10 (21.3)
	20,000 - 50,000	34 (31.7)	23 (38.3)	11 (23.4)
	50,000-80,000	23 (21.4)	10 (16.7)	13 (27.7)
	80,000 -100,000	10 (9.3)	7 (11.7)	3 (6.4)
	>100,000	17 (15.9)	10 (16.7)	7 (14.9)
Number of dependent family members	< 2	41 (38.3)	23 (38.3)	18 (38.3)
	3	28 (26.2)	17 (28.3)	11 (23.4)
	4	17 (15.9)	8 (13.3)	9 (19.1)
	5	10 (9.3)	7 (11.7)	3 (6.4)
	6	5 (4.7)	3 (5)	2 (4.3)
	≥7	6 (5.6)	2 (3.3)	4 (8.5)
	Means of Transport	Public transport	51 (47.7)	23 (38.3)
Personal bicycle		10 (9.3)	8 (13.3)	2 (4.3)
Personal motorbike		30 (28)	20 (33.3)	10 (21.3)
Personal car		16 (15)	9 (15)	7 (14.9)

Table-1: Socio-demographic characters of the participants

Knowledge questions	Options	Total n (%)	Male n(%)	Female n(%)
Have you heard of the term organ donation?	Yes	105(98.1)	58(96.7)	47(100.0)
	No	1(0.9)	1(1.7)	0
	Don't know	1(0.9)	1(1.7)	0
Does your religion allow organ donation?	Yes	58 (54.2)	24(40.0)	21(44.7)
	No	10(9.3)	22(36.7)	14(29.8)
	Don't know	39(36.4)	14(23.3)	12(25.5)
For living donation, who should give consent? (n=112)	Donor	66(61.6)	33(55.0)	33(70.2)
	His family	36(33.6)	26(43.3)	10(21.3)
	His spouse	3(2.8)	2(3.3)	1(2.1)
	His friends	1(0.9)	1(1.7)	0
	His doctor	8(7.5)	5(8.3)	3(6.4)
	Others	3(2.8)	2(3.3)	1(2.1)
For donation after death, who should give consent? (n=116)	No one	12(10.3)	6(8.8)	6(12.8)
	Family	73(62.9)	42(61.8)	31(66.0)
	Spouse		9(13.2)	7(14.9)
	Doctor	10(8.6)	7(10.3)	3(6.4)
	Friend	2(1.7)	2(2.9)	0
	Others	3(2.6)	2(2.9)	1(2.1)
Who should make such decisions about organ donation in case of unclaimed dead bodies? (n=109)	Charitable organization	18(16.8)	9(15.0)	9(19.1)
	Medical colleges/ doctors	52(48.5)	31(51.7)	21(44.7)
	Police	9(8.4)	5(8.3)	4(8.5)
	A judge	17(16.8)	10(16.7)	7(14.9)
	No one	13(12.1)	7(11.7)	6(12.8)
Can parents/guardian make substitute decision making for mentally disabled persons in regard of organ donation?	Yes	60(56)	34(56.7)	26(55.3)
	No	20(18.6)	10(16.7)	10(21.3)
	Don't know	27(25.2)	16(26.7)	11(23.4)
The term organ donation means? (n=110) *percentage calculated after adding all the responses	The removal of tissues of the human body from a cadaver	1(30.8)*	1(1.7)	0
	The removal of tissues of the human body from a living donor	4(33.6)*	4(6.7)	0
	The removal of tissues of the human body for the purpose of transplantation to another person	72(97.1)*	34(56.7)	38(80.9)
	Can include transfer of cells/ ova/fetus/sperm	0	0	0
	All of the above	32(29.9)	23(38.3)	9(19.1)
	Others	1(0.9)	1(1.7)	0
You heard about organ donation through which of the following sources? (n=291)	Heard from a doctor	37(25.2)	24(40.0)	13(27.7)
	Internet/ online sources	59(55.1)	36(60.0)	23(48.9)
	TV	72(67.2)	44(44.1)	28(58.9)
	Radio	27(15.8)	17(28.3)	10(21.3)
	Newspaper / magazines	65(60.7)	35(58.3)	30(63.8)
	Friends or colleague	31(28.9)	12(20.0)	19(40.4)
Why is organ donation done? (n=116)	To save someone's life	94(87.8)	52(77.6)	42(85.7)
	Out of compassion/sympathy	4(3.7)	2(3.0)	2(4.1)
	As a responsibility	18(16.8)	13(19.4)	5(10.2)
What organs can be donated?	Kidney	77 (72.0) *	38(63.3)	39(36.5)
	Heart	62 (57.9)	30(45.0)	32(59.6)
	Eyes	55 (51.4)	27(25.2)	28(26.16)
	Liver	66(48.6)	35(58.3)	31(66.0)
	Skin	20 (18.7)	26(43.3)	26(55.3)
	Bone marrow	49 (45.8)	9(8.41)	11(10.3)
	Lungs	21 (19.6)	10(9.34)	11(10.3)
	All of the above	40 (37.4)	24(40)	16(34)

Knowledge questions	Options	Total n (%)	Male n(%)	Female n(%)
Does organ donation involve any risks?	Yes	49(45.7)	28(46.7)	21(44.7)
	No	14(13)	8(13.3)	6(12.8)
	Don't know	44(41.1)	24(40.0)	20(42.6)
If you answered yes to the previous question, then which is the most important risk in organ donation, in your opinion? (n= 49)	Infection	20(40.8)	9(30)	11(57.9)
	Bodily weakness	12(24.5)	8(26.7)	4(21.1)
	Anxiety and depression	4(8.2)	4(13.3)	1(5.3)
	Pain	8(16.3)	7(23.3)	1(5.3)
	Bleeding	4(8.2)	1(3.3)	2(10.6)
	Others	1(2)	1(3.3)	0
Are you aware of any local or international legislation with regards to organ donation? (n=110)	Local legislation	12 (10.9)	6(9.5)	6(12.8)
	International legislation	11 (10)	5(7.9)	6(12.8)
	Both	13 (11.8)	8(12.7)	5(10.6)
	None of the above	74(67.2)	44(69.8)	30(63.8)

Table-2: Responses to questions that test the knowledge

questionnaire. Sixty of them were males, and 47 females. The Socio-demographic characters of the participants are summarized in table 1. The mean age of the participants was 18.6 years (SD: 1.92) and comparable in both males and females. The minimum age in both the sex was 17 years. The maximum age was 30 yrs in males and 21 yrs in females.

Knowledge and awareness regarding organ donation

The responses to questions regarding knowledge on organ donation were summarized in table 2. The knowledge regarding consent regarding mentally ill person was drastically poor, with only about 18% of participants knowing about it. About one-third of participants did not know about the consenting with regard to living and cadaveric donors. All the respondents knew that kidney could be donated. There was no statistically significant difference between males and females with regard to knowledge, attitude or practices when considered significant at a p-value less than 0.05. Though both males and females came to know about organ donation from multiple sources, females came to know about it mainly from mass media like newspapers (64%) and television (59%), whereas males got it from health care workers (40%) or self-searched online sources (60%). None of them responded to monetary benefits as a reason for organ donation

Attitudes and practices towards organ donation

The responses to questions regarding attitude and practices towards organ donation were summarized in table 3. None of the participants mentioned religion as a primary factor of importance while donating an organ. However, some differences were noted in response to which factor holds the most significant importance when donating an organ. Relation to the recipient was mentioned as a more common factor by males (27% vs 20%), whereas the recipient's health status was mentioned as a more critical factor by females (43% vs 23%). Females were also more considerate towards the physical and mental disability of the recipients when compared to males (40% vs 27%) and (23% vs 15%). Males' preferred middle-aged recipients (30-50yrs) to receive their organs (17% vs 4%) compared to females.

DISCUSSION

The study aimed to assess the knowledge, attitude and practice of organ donation among first-year medical students of a tertiary level care medical college in southern India. Health care professionals play a crucial role in imparting knowledge and creating awareness about organ donation in a community. In our study population of 107 participants, 60(56.0%) were male students, and 47 were female (43.9). The majority of students were Hindus (74.7), with Cumulative monthly income in the range of 50,000-80,000. 98.1 % (n=105) of participants responded positively to the question "Have you heard of the term organ donation" which is similar to the study findings of Coad *et al.* on young adults in the UK, wherein 95% of participants were aware of "organ donation".¹¹

61.6% of the participant's responded that "donor" should consent to live donation, while 68.2% of respondents said the family should consent to organ donation after death. For the question on "Who should make such decisions about organ donation in case of unclaimed dead bodies?" 48.5 % participants opined it to be Medical colleges and or doctors. Similar responses have observed in a study wherein 76 % of respondents thought that the donor should be the one who can give consent for living donation, and 53% of the respondents that family should give consent for deceased organ donation.¹⁰

In this study, we found that mass media communication tools like television, newspaper and online resources are the primary sources of information regarding organ donation. Similar findings showing the role of media in propagating organ donation were reported by Adithyan GS and Agarwal (2015) on medical students.^{12,13} Though the students are imbibing the knowledge and awareness through various means, it would be beneficial to introduce organ donation topics that include facts, data, need, way, and process early in their curriculum as early as the foundation of the first-year MBBS course. Many studies have pressed the importance of introducing organ donation early in the medical curriculum.¹⁴ A study in the United States said that students with some organ donation training before or during medical school were

Attitude And Practice questions	Options	Total n(%)	Male n(%)	Female n(%)
Your attitude towards the possibility of your own organs being used for donation	Would never consider	0	0	0
	Will think about it	45 (42)	24(40.0)	21(44.7)
	Only under special circumstances	36(33.6)	22(36.7)	14(29.8)
	Would definitely want to	26(24.3)	14(23.3)	12(25.5)
Do you believe that there is a danger to the donated organs could be misused, abused or misappropriated?	Never	17(15.9)	9(15.0)	8(17.0)
	Sometimes	72(67.3)	38(63.3)	34(72.3)
	Often	13(12.1)	10(16.7)	3(6.4)
	Most of the time	3(2.8)	2(3.3)	1(2.1)
	All the time	2(1.9)	1(1.7)	1(2.1)
Whom would you like to donate to (responses=109)	Family member	39(36.4)	24(40.0)	15(31.9)
	Stranger	3(2.9)	3(5.0)	0
	Friend	2 (1.9)	2(3.3)	0
	Can be anyone	60 (56.0)	30(48.3)	30(63.8)
	Others	5 (4.7)	3(5.0)	2(4.3)
	Smoker	5 (4.7)	4(6.7)	1(2.1)
	Non-smoker	55 (51.4)	30(50.0)	25(53.2)
	Don't know	47 (43.9)	26(43.3)	21(44.7)
	Drinker	6 (5.6)	5(8.3)	1(2.1)
	Non-drinker	54 (50.5)	29(48.3)	25(53.2)
	Don't know	47 (43.9)	26(43.3)	21(44.7)
(responses=111)	Young person (<30 yrs)	59 (21.2)	31(51.7)	28(59.6)
	Middle aged (30-50)	12 (13.6)	10(16.7)	2(4.3)
	Elderly person (>50)	2 (5.4)	1(1.7)	1(2.1)
	Don't know	38(34.2)	22(36.7)	16(34.0)
(responses=109)	Mentally retarded	20(38.6)	9(15.0)	11(23.4)
	Mentally sound	28(61.4)	20(33.3)	8(17.0)
	Don't know	61(14.7)	33(55.0)	28(59.6)
(responses=109)	Physically disabled	35(32.1)	16(26.6)	19(40.4)
	Not Physically disabled	16(14.7)	12(20.0)	4(8.5)
	Don't know	58(53.2)	34(56.7)	24(51.1)
(responses=109)	Same religion	4(3.7)	3(1.7)	1(2.1)
	Different religion	33(30.3)	19(31.6)	14(29.8)
	Don't know	72(66)	40(66.7)	32(68.1)
Which of the following factors holds the greatest importance near you when donating an organ?	Relation to the person	21(19.6)	16(26.7)	5(10.6)
	Age of recipient	14(13.1)	8(17)	8(17)
	Health status of the recipient	34(31.8)	14 (23.3)	20(42.6)
	Substance abuse of body	3(2.8)	2(3.4)	1(2.1)
	Assurance of respectful treatment of the organ	30(28)	20(33.3)	10(21.3)
	None of the above	5(4.7)	2(3.4)	3(6.3)
	Should organ donation be promoted?	Yes	100(93.4)	54(90.0)
	No	1(0.9)	0	1(2.1%)
	Don't know	6(5.6)	6(10.0)	0
Do you know of anyone who has donated an organ	Family member	20(18.7)	10(16.7)	11(23.4)
	Friend	4(3.8)	2(3.4)	2(4.3)
	Colleague	2(1.9)	1(1.7)	1(2.1)
	No one	81(75.7)	48(80.0)	33(70.2)
Have you ever donated an organ? * blood donation	Yes	2*(1.9)	1(1.7)	1(2.1)
	No	105(98.1)	59(98.3)	46(97.9)
Is there any need for having effective laws to govern the process of organ donation?	Yes	85 (79.4)	49(81.7)	36(76.6)
	No	3 (2.8)	2(3.3)	1(2.1)
	Don't know	19 (17.8)	9(15.0)	10(21.3)

Table-3: Responses to questions related to attitude and practices regarding organ donation

better knowledgeable and comfortable obtaining information and answering patients' donation questions.¹⁵

For the questions on "Does, organ donation involve any risks?" 45.7% said yes, and 41.1 % reported do not know. The leading answers were infection (86%), followed by bodily weakness (69.4). 15% of participants were aware that organ donation could be associated with infections, bodily weakness, pain, bleeding, anxiety and depression, which is similar to the finding reported by the study where 55.8% of people were aware of the fact that organ donation is associated with some risk for the donor.¹⁰ Bodily weakness (34.1%) and infections (22.3 %) led to answers to the risks associated with organ donation.

Only 24.3 per cent of the participants exhibited the highest level of motivation towards the possibility of their organ being used for organ donation. These observations were similar to the study done in Nigeria, where only 30% were willing to donate.¹⁶ While in contrast, a study on Pakistani adults showed that 62.3% showed the highest motivation towards organ donation. Since our study population was 18-year-olds, awareness about donor registry is very little, and many would-be hesitant to register. They might find difficulty registering themselves in donor registry due to paucity of exposure and understanding about the transplantation process and lack of large-scale organ donation awareness campaigns for the public in the community.¹⁷

In response to the question on "who would you like to donate your organs to?" participants reported that they would like to donate their organs to a family member (36.4), non-smoker(51.4), non-drinker (50.5) and younger age person (21.2) which is similar to the finding is reported in Saleem .T et al. wherein they surveyed knowledge attitude and practise on organ donation among adults in Pakistan and reported that they would donate their organs to a family member (51.1%), non-smoker(46.8%), non-drinker (55%) and younger age person (<30 years).¹⁰

In a study by Adithyan GS et al., the students expressed willingness to donate to a known recipient in comparison to an unknown one even though the National Organ and Tissue Transplant Organization (NOTTO) laid that the factors such as caste, gender, age, income, and celebrity status are never considered when determining organ recipients.^{12,18}

Interestingly, despite India being a land of diversity with the amalgamation of various religion and culture, very few participants expressed willingness to donate to the same religion (3.7%). A similar observation was noted in a study where 95.3 % of respondents expressed no religious preference regarding organ donation.¹²

The majority of participants (93.4 %) felt that organ donation should be promoted, but some participants (67.3 %) also expressed concern that sometimes the organ donated can be misused or abused. It has been observed that the health status of the recipient (32%) and assurance of respectful treatment of the organ (28%) were the key determinants that hold great importance to a donor while donating an organ. Relation to the recipient and his age have shown varied

responses in studies such as 31.5% and 36%, respectively in Kaur et al. and 9.1% and 18.8% by Naveen et al. while one study reported that health status of the recipient (83.1%) impacting the decision of the donation.^{19,20,21}

On questions about the practice of organ donation, only two participants (1.9 %) have donated blood, and a majority of the participants (76%) did not know anybody who donated an organ among their family, friends and colleagues. A large number of participants (79.4 %) expressed the necessity of having effective laws to govern the process of organ donation. Similar reports regarding poor awareness about national and international law are observed in many studies like Kaur et al., Shah et al., Ramdurg et al.^{19,22,23}

The strength of this study is that we are tapping the knowledge, attitude, and practice of the medical students at their entry into medical education during the foundation course. Since most participants would have learnt about organ donation, knowledge can be imparted throughout their MBBS through a special value-added course on organ donation and transplantation. These future health care professionals can create knowledge and awareness about organ donation among peers, family and community. A counselling desk can be incorporated in the campus to promote organ donation, ease the process of filling the organ donation card and clear doubts of the potential donor via pamphlets and videos.

Since the questionnaire was administered simultaneously to all the participants, despite specific instructions of not indulging in any discussion while filling the questionnaire, it is possible that some communication among students could have led to bias in responses. We could not ensure enrollment of donors into donor registry via donor registration card during the present study. However, we would like to incorporate this practice in the coming years by enrolling themselves and genuinely committing to organ donation; they can serve as "role models " to their peers, relatives, patients and community.

We would like to conclude that medical students possess knowledge regarding organ donation, including consent, risk of organ donation. Nevertheless, most of the knowledge is acquired from mass media tools like the internet, newspaper etc. Hence, organ donation and transplantation classes need to be incorporated into the MBBS curriculum as early as the foundation course and continued throughout the course. More emphasis should be on enhancing students' motivation to donate and clearing myths and beliefs on misuse of donated organs, preference for donation to the same family member, to younger recipients, same gender, and religion.

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