

Original Research Article

Knowledge and attitude towards organ donation: a study among medical and nursing students of a medical college

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ABSTRACT

Background: Organ transplantation is one such field of modern medical sciences which has progressed over the years and has given hope for those suffering with end stage organ diseases. There are lot of advancement in technology to preserve and transplant of organs but with this technological advancement also there are still gaps in awareness regarding the subjects. To find the gaps this study was carried out in medical college students.

Methods: A cross-sectional analytical study was conducted in medical college of Pune. 400 students were included in study with keeping 50% of prevalence about awareness in mind. Tool of data collection was a pre-structured questionnaire. Frequency, percentage, and chi square test Chi-square test for linear trend and was used to find association

Results: The 308 (77%) MBBS students and 92 (23%). Nursing students of all batches were included in the study. The 49.3% were aware about brain death, 68% students had fair knowledge and 10% had good knowledge about organ donation issues. The 82% students were positive, 94.5% students opined positively on policy on promotion of organ donation. The 52% students were ready to donate to anyone, while 30% students preferred to donate their organs to family members, 16% were ready to donate to their friends.

Conclusions: Encouraging level of knowledge regarding organ donation, its legislative implications were present in medical and nursing students which was brought in this study.

Keywords: Awareness, Organ donation, Medical student

INTRODUCTION

Organ transplantation is the moving of an organ from one body to another or from a donor site on the patient's own body, for the purpose of replacing the recipient's damaged or absent organ. Organ transplantation is one such field of modern medical sciences which has progressed over the years and has given hope for those suffering with end stage organ diseases. Organ transplantation saves thousands of lives worldwide. According to WHO, kidney transplants are carried out in 91 countries. Around

66,000 kidney donations, 21,000 liver donations and 6000 heart donations were transplanted globally in 2005.¹

The concept of organ donation documented in history has been as old as 4th century BC. Old Chinese texts describe a surgeon named Tsin Yue-Jen who switched the heart of two soldiers. Roman Catholic accounts report the 3rd-century saints Damian and Cosmas as replacing the gangrenous leg of the Roman deacon Justinian with the leg of a recently deceased Ethiopian.²

A living person can donate organs, after natural death or after 'brain death'. After natural death only a few tissues can be donated (like cornea, bone, skin and blood vessels) whereas after brain death almost 37 different organs and tissues can be donated including critical organs such as kidneys, heart, liver and lungs.

Transplantation raises a number of bioethical issues, including the definition of death, when and how consent should be given for an organ to be transplanted. Other ethical issues which need to be addressed are organ trafficking, organ harvesting and transplantation tourism flourishing in economically backward countries. The transplantation of human organ act (THOA) was passed by the Government of India namely in 1994 to streamline various organ donations and transplant activities in the country. Under the provisions of this act organ donation can take place from living or deceased person who are genetically related.³

Worldwide, the demand for organs is growing, as the supply of organs and tissues for transplantation has not kept pace with demand. There are several reasons for the shortage of organs. Perhaps the most common reason is people are hesitant to donate organs. Moreover, awareness towards organ donation is poor and non-living donation rate is a dismal 0.05 per million populations as compared to 20 to 30 per million in developed countries with Spain having highest rates of 35.1 donors per million populations.^{4,5}

In 2012 the Indian society of organ transplantation has launched the Indian transplant registry which is a web-based registry where anybody doing transplants in India (kidney, heart, liver, pancreas, lungs), may register on the website. The purpose of national transplant registry is to collect transplant related data from various centres in the country and to be able to collate the data from time to time which would help in doing a national audit to understand short- and long-term outcomes in the complicated field of transplants.⁶ In 2008, the Government of Tamil Nadu through a pioneering effort put together government orders laying down systems and procedures for deceased organ donation and transplantation in the state. Many states are following the suit like DONATE (Delhi organ procurement network and transplant education) in Delhi, Jeevandan program in Andhra Pradesh, Mrithasanjeevani in Kerala government and so on.⁷

The shortage of organs is virtually a universal problem. In some countries, the development of a deceased organ donation program is hampered by socio-cultural, legal and other factors. Even in developed countries, where rates of deceased organ donation tend to be higher than in other countries, organs from this source fail to meet the increasing demand. The use of live donors for kidney and liver transplantation is also practiced, but the purchase and sale of transplant organs from live donors are prohibited in many countries.⁸

Overall, globally the prevalence of knowledge for organ donation ranges from 60 to 85% using different knowledge variables.⁹ This trend has been reported to vary with the development status of the country. Motivation to donate has been shown to have an association with knowledge and awareness of organ donation.¹⁰ Most of the research evidence on this subject is from the more developed countries. In a study from USA that included 278 respondents, 69.1% knew that blood-type made a difference in donation ($p=0.000$), 61.6% knew that transplant survival rates were high ($p=0.000$), and 75.9% knew that transplants could come from living donors ($p=0.000$).¹¹ Another study done in European Union determined that more educated, younger age, and expressing some sort of political affiliation determined willingness to donate one's own organs and consent to the donation of those of a relative.¹² From the developing world, a study conducted in Filipinos using qualitative theme analysis identified major themes related to organ donation as: awareness of organ donation, family beliefs, religion/spirituality, attitude/emotions, personal experience with organ donation, health profession, and cultural issues.¹³

In India very fewer studies have been carried out to find out the general population perception about the organ donation. To determine the awareness and attitude towards the organ donation this study was carried among medical and nursing students.

The main aim was to study knowledge and attitude towards organ donation among medical and nursing students with objectives to determine level of awareness about death criteria and need for organ donation and also to determine the attitude towards the same.

METHODS

This cross-sectional study was carried out on medical and nursing students of a medical college of Pune between January 2013 to January 2014. As there were very few studies had been carried out in the past on this subject so keeping in mind a proportion of 50 % level of awareness was kept the basis for calculation of the sample size, which came out to be 386 and therefore 400 students were selected for study. Sampling method was population proportionate to size was selected. Medical and nursing students were included in the study. Those who were unwilling were excluded from the study. A pre-structured questionnaire was designed which included socio demographic details, questions to assess knowledge and attitude was used as data collection tool.

There were a total of 14 questions for which scores were awarded for knowledge. Five questions were on general knowledge 5 questions related to the THOA shown in Tables 3 and 5 and four questions on brain death, religion, risks and legislation shown earlier. A score of 1 was awarded for all the correct responses and zero for the incorrect responses. Thus highest "knowledge score" one

could obtain in this section was 14. They were categorized into 3 groups (Table 7), i) Inadequate [score 0-5], ii) Fair [score 6-10] and iii) Good [score≥11].

The question which was of paramount importance being one of the objectives of the study was to determine the attitude towards the possibility of own organs being used for donation. Response choices consisted of four graded options from negative to strongly positive given in Table 8. Score awarded accordingly ranged from 0 to 3.

All 400 students were categorized in two groups; (Figure 2) based on scores as, i) Unfavorable [score≤7] and ii) favorable [score≥8].

Practice related to organ donation was assessed by asking two questions. One, regarding if they knew anybody who had donated an organ and secondly, how frequently have they themselves had donated blood.

Data was collected from self-administered questionnaire, collated and analyzed using SPSS. Statistical tests were used were Chi-square, Chi-square test for linear trend and odds ratio to determine the association. Ethical clearance was obtained from institutional ethics committee before start of study.

RESULTS

The 308 (77%) MBBS students and 92 (23%) nursing students of all batches were included in the study. The age distribution of all 400 study subjects ranged from 17 to 25 years. The mean age was 20.82 with SD 1.37. Among MBBS students 84.7% were males and 15.3% were females.

Overall, there were 34.8% were females while 65.2% were males among study subject. Among medical students 15.3% were female. All 92 nursing students were female.

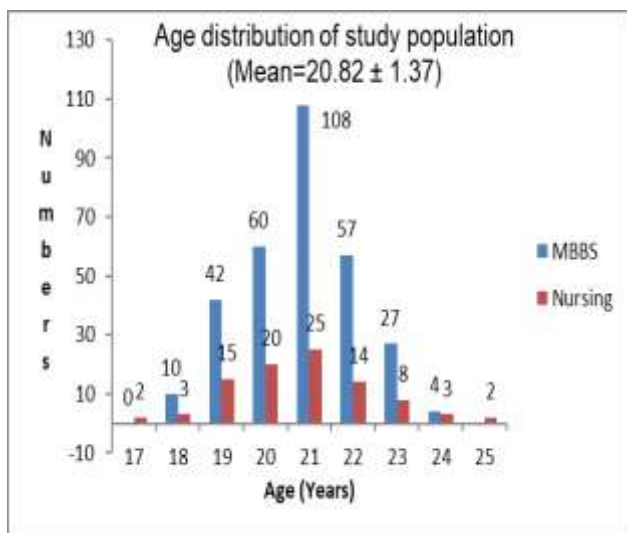


Figure 1: Age distribution of study subjects.

Table 1: Education status of parents.

Education status	Fathers (%)	Mothers (%)
Non-matriculate	5 (1.3)	75 (18.8)
Higher secondary	89 (22.3)	111 (27.8)
Graduate	169 (42.3)	128 (32.0)
Post graduate	137 (34.3)	86 (21.5)
Total	400 (100)	400 (100)

Educational status of parents is mentioned in the Table 1.

Table 2: Correct responses about organ donation.

Questions	Correct response (%)
Meaning of organ donation	38
Organs that can be donated	42.5
Consent after death	86.8
Consent for unclaimed bodies	28.5

Table 2 shows the correct knowledge about the understanding of organ donation. But there was wide variation in understanding the term brain dead person, 49.3% answered correctly, while 16.8 considered flat EEG and 8.3% considered comatose as the marker of bread dead. The 55% students had heard of THOA ('Transplantation of human organs act 1994') and almost half of them correctly knew the provisions under the act.

Internet came out to be most common source (71%) of information followed by TV (68%).

Figure 2 shows the general belief about the utilization of donated organ.

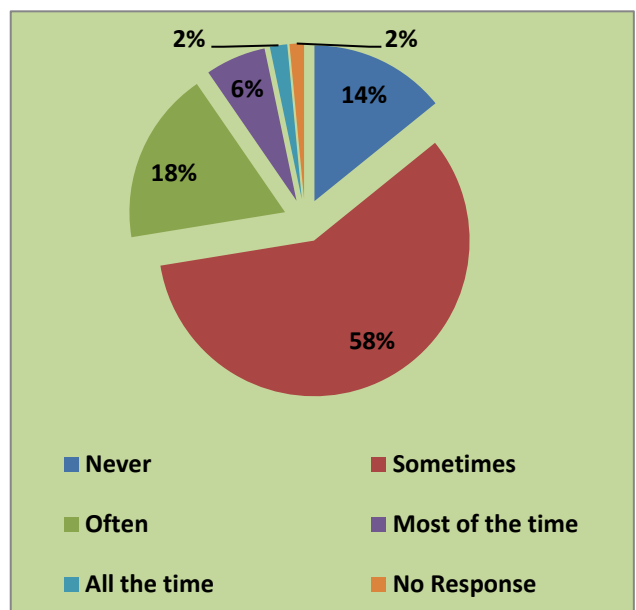


Figure 2: Beliefs on misuse of donated organs.

Pertaining to risk involved with transplantation 77% students were of opinion that there were risks associated with organ donation, among those who felt there was some risk involved in organ donation considered infection (50%), pain (15%), weakness (6%), depression (6%), bleeding (1%) while 22% felt that all complications can occur.

The 68% students had fair knowledge and 10% had good knowledge about organ donation issues while 22% were found to have inadequate knowledge.

Figure 3 shows the knowledge score histogram. A majority of 66 (16.5%) students had attained a score of 9.

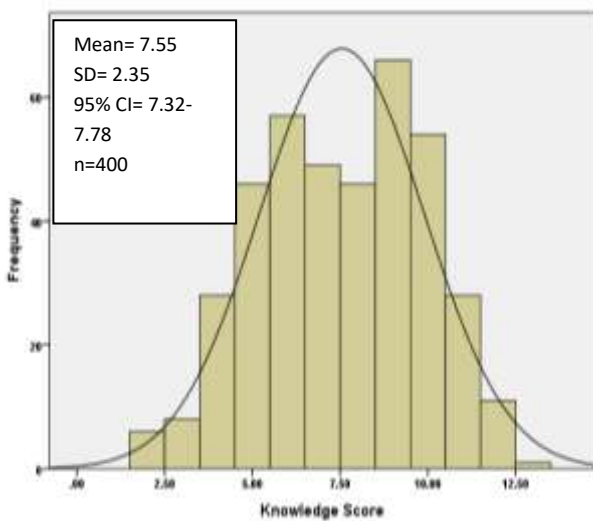


Figure 3: Distribution of knowledge score.

The 82% of study subjects shown positive favorable attitude about organ donation and only 18% were not positive towards issues of organ donation.

The 52% students were ready to donate to anyone, while 30% students preferred to donate their organs to family members, 16% were ready to donate to their friends 2% children.

The 53% and 55% students did not give any preference to smoking status or drinking habit respectively, while 44% and 38% students would consider donating only to non-smokers and non-drinkers. Majority of students (46%) did not give any preference to age of recipients, while 142 (36%) students would consider donating only to young persons.

With regard to mental and physical status of the patients 297 (74%) students did not give any preference to mental status and 84% to physical status of the recipient.

Table 4 and 5 shows most preferred choices of recipient and factors perceived most important for donation respectively.

Table 3: Most preferred choice of recipient in each group.

Groups	Most preferred choice of recipient	Percentage (%)
A	Irrespective of relation status	52.3
B	Irrespective of smoking status	52.8
C	Irrespective of drinking status	54.5
D	Irrespective of age status	45.5
E	Irrespective of mental status	74
F	Irrespective of physical status	83.3
G	Irrespective of religious status	96.8

Table 4: Factor considered most important for donation.

Responses	Frequency	Percentage (%)
Relation to the person	89	22.3
Age of recipient	14	3.5
Religion of recipient	1	.3
Health status of recipient	105	26.3
Non-addiction in recipient	9	2.3
Assurance of the respectful treatment of the organ	174	43.5
No response	8	2.0
Total	400	100

With regard to policy on promotion of organ donation 94.5% students opined were in favour of promotion, only 19 (4.5%) were not in favour of doing so.

The 247 (62%) students did not know anyone who had donated, whereas 75 (19%) students said they know of a family member who has donated. Regarding blood donation, reveals 268 (67%) had never donated whereas 33% students had donated blood at least once.

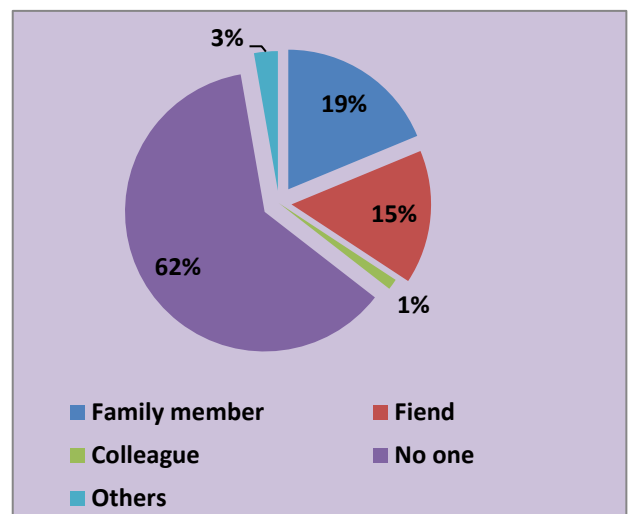


Figure 4: Distribution of known person who has donated blood.

When we compared awareness level with various socio demographic variables, we found that there were significant association between awareness of organ donation and level of education among parents (p: Mother-0.005, Father-0.001), but same was not associated with attitude. We also found that fourth year students were more aware and more positive about organ donation this is probably mainly due to more exposure but same was not with attitude.

We did not find any significant associations between sex, income and awareness level there was also no difference found between nursing and medical students.

DISCUSSION

The findings of the present study regarding understanding of organ donation and knowledge regarding various aspect of organ donation corroborates with previous studies in especially with neighboring country.^{14,15} All these studies also indicated level of awareness were associated with years of exposure in medical college. Study carried out by Bapat in Bangalore on post graduate students found that 93% understand brain dead patient whereas in our study it is 49.3% this is probably due to higher knowledge and exposure to post graduate students.¹⁶ Awareness regarding legislative aspect of organ donation in our study (55%) was at par similar studies carried out by Chung et al in Hong Kong (57%) but was higher compared to study finding of Dardavessis et al in Greece (55-56%).^{15,17} Internet is one of the most important sources of information which came out in this study (71%) followed by electronic media (68%) these findings were consistent with study by study of Bapat in Bangalore and Taimur et al in Pakistan.^{14,16} Apprehension of risk of organ transplantation among medical students is a cause of concern as 77% students in our study feared it is associated with some risk which was consistent with findings of previous studies carried out in Pakistan. Major cause of concern was infection, pain and weakness. On the subject of attitude 81% students showed a favorable attitude towards donation in our study which was higher than other studies. In this study majority of students (52%) were ready to donate their organ to anyone whereas study done in China by Zhang et al and by El-Shoubaki and Bener in Qatar brought that they were inclined towards their family members and close relatives.^{18,19} The 82% students in our study showed a favorable attitude towards organ donation which was similar as study done in Hong Kong (85%) and Pakistan (62%) and were in favour that campaign for organ donation is to be promoted.

Promotion of organ donation was unanimously supported by 95% students, while 4% were not sure and only 1% were against organ donation. The study done in Greece among medical students also showed 94% students supporting organ donation.¹⁷ In the Pak study 56.8% people opined that organ donation should be promoted.¹⁴ Likely reasons for this difference could be because the

study populations being different with respect to education, age and culture. Moreover, it was conducted much earlier in 2008 when awareness regarding organ donation was much less than it is now.

In this study though only 4 (1%) students were against promoting organ donation others who were neither in favour or against it could have possibly felt the above reasons. In the study by Bapat in Bangalore 25% students felt that body should be cremated without disfigurement.¹⁶ The study by Taimur et al in Pakistan revealed that out of 31% respondents who were not in favor of donation, religious belief to be the most prominent reason (45%) for non-donation followed by fear that organs could be wasted/mistreated (23%).¹⁴ A similar study done in China by Zhang et al showed, attitudes regarding the value of life, relationship between body integrity and health as well as body integrity and conventional culture were factors that impacted an individual's decision.¹⁸ Removal of organs after death commonly brings the picture of disfigurement or mutilation to our mind and thus it could be understood as one of the commonest reasons for non-donation.

To find out practice of organ donation it was asked if they knew anybody who had donated an organ and secondly how frequently have, they themselves donated blood. It was found that 19% students knew of a family member who had donated an organ and 20% had donated blood more than once. In the study by Taimur et al in Pakistan out of 408 people it was found that 3.5% had themselves donated an organ with only one person having donated a kidney and the remaining ten reported donating blood on one or more occasions.¹⁴ In a study done in Turkey by Goz et al of those willing to donate 6% students reported carrying signed donor card.²⁰ In current study percentage of blood donors who had donated more than once was a positive indicator that quite a good number of them may possibly be motivated to donate an organ in future.

When we compared the awareness level with various socio demographic variables, we found that there were significant association between awareness of organ donation and level of education among parents (p: Mother- 0.005, Father-0.001), and years of exposure as medical students which was similar to other studies carried out in Hong Kong by Chung et al. Contrary to this it was not associated in study carried out in Pakistan.^{14,15}

Limitations

Study sample included in the study is already exposed to medical knowledge therefore extrapolation in gen population is difficult. A wider study required to assess the awareness among general population.

CONCLUSION

There is encouraging level of knowledge regarding organ donation, its legislative implications were present in

medical and nursing students which was brought in this study.

Nearly 85% students showed positive attitude towards organ donation among them 37% of students would definitely donate their own organs and 36% considered giving it a thought. The 52% students would be willing to donate to anyone irrespective of relation religion and cast while 30% students would prefer donating their organs to family members only, 44% to non-smokers, 38% to non-drinkers, 36% only to young person below 30 years of age, 24% only to mentally sound people, 10% only to physically fit, and 97% students did not give any preference to religious status of recipient.

There was mix of apprehension regarding risk of organ transplantation which needs to be addressed. Educational level of students and their parents have positive be waring on the awareness regarding organ donation.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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