

*Original article*

## Organ Donation: from Point of View of Students Doing Medical Internship in India

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### Abstract

**Introduction.** To study the knowledge and attitude of a medical student doing internship with regards to organ donation.

**Methods.** A total of 50 specially designed questionnaires were distributed among medical students doing internship at a medical college. Those who gave their consent to participate in the study were asked to fill out the questionnaire.

**Results.** 86% gave their consent to participate in the study. 100% were aware of the concept of organ donation. 68% had obtained this knowledge from newspapers. 4% had obtained knowledge from the Medical College. 48%, 48% and 34% believed that an organ donor was live, brain dead and cardiac dead, respectively. Awareness regarding kidney, eye, liver, heart and skin donation was found to be 82%, 80%, 80%, 62% and 64%, respectively. 54% were aware of Law pertaining to organ donation. 90% were either positive or willing to consider organ donation themselves. 10% felt that the donated organ might be misused.

**Conclusion.** Health care professionals are the first to establish relationship with the potential donor's family and are a crucial link in the organ procurement process. Their attitude and level of knowledge regarding organ donation would reflect directly on the organ donation activity of any region. The interns in the present study had positive attitude towards organ donation but were lacking in knowledge about some key aspects such as brain death and legality involved in organ donation. Majority of the medical professionals had obtained their knowledge from newspapers and very few were taught about organ donation in the medical college. If education on organ donation and its various aspects was included in medical curriculum, it could empower the future medical care professionals with knowledge to further study the cause of organ donation and serve the society better.

**Keywords:** organ donation, medical interns, kidney

transplant, eye donation, brain death

### Introduction

All over the world the demand for organs for transplantation exceeds the availability of donated organs [1]. In India, organ donation rate is a dismal 0.34 per million persons per year [2]. Organ donation here is influenced by factors such as education, economic status, religion, superstitions and awareness regarding organ donation. The attitudes of the health care personnel who closely interact with the family of the deceased potential donor often directly influence the process of organ donation. The low conversion rate of the potential organ donors in India could perhaps be due to the indifferent attitude of some of the health care professionals working in the critical care areas [3].

One of the strategies to increase organ donation rates could be the use of health care professionals for propagating knowledge at the community level [1]. Hence, this study was undertaken to understand the knowledge and attitude of the medical interns regarding organ donation. A discussion session arranged after the research activity also gave opportunity to the Hospital authorities to address any doubts raised by the participating interns.

### Objectives

The objectives of the present study included the following:

- The understand the awareness among medical interns about organ donation.
- To study their attitude with regards organ donation.
- To clarify doubts raised by participant interns.
- To further plan sensitization programs among health care professionals.

### Materials and methods

The present study was conducted at our Medical College. All medical interns in one batch (50) were included in the study. A specially designed self-administered ques-

tionnaire covering demographic data, knowledge and attitude of the interns, was prepared and distributed among the interns.

Inclusion criteria for the study: the participants had to be medical interns who had just passed their final year of undergraduate medical examinations and were serving their internship at our Medical College, Hospital and Research Center. The exclusion criteria: those who refused to participate in the study. The respondents were assured that their confidentiality would be maintained and the study would follow all ethical principles.

The questionnaire was administered after obtaining consent from the participants who were then given 15 minutes to complete the questionnaire. The methodology for filling out the questionnaire was explained to the interns. It was explained to them that the questionnaire was to be filled in privacy without discussing with the other participants. The questionnaires were later collected and data analyzed. This was followed by a discussion session on the topic of organ donation wherein the doubts expressed by the interns were clarified.

## Results

Out of the total of 50 medical interns approached for participation in the study, 43(86%) gave their consent to participate in the study.

All respondents were medical interns who had just completed their final year undergraduate medical education in India. They belonged to different states within India and were in the age group between 22 to 26 years old. None of the participants was married. 80% of the participants were followers of Hinduism, and 2% each were followers of Islam and Christianity respectively. About 16% of the respondents were followers of faiths other than those mentioned.

A hundred percent of the participants were aware of organ donation. While 84% were aware of the pressing need to promote organ donation in India, 2% did not believe there was any need to do so and 12% were unsure of the state of organ donation necessity in India.

Newspapers, TV, radio, internet and family members were stated as the sources of knowledge about organ donation by 68%, 16%, 6%, 34% and 18% respondents, respectively. 4% stated medical college education as their source of knowledge.

Regarding categories of organ donors, 48% and 34% believed that an organ donor had to be a living individual or a cardiac dead individual, respectively. Another 48% believed that an organ donor could be a brain-dead individual. Six percent stated that they did know who could be an organ donor.

Investigation into the knowledge of the interns regarding brain death revealed that 58% understood that a person who has been declared as brain-dead has irreversible loss of brain functioning. 12% stated that a brain-dead person was legally dead while 8% stated that the

body of a brain-dead person may feel warm. 22% stated that the heart of the brain-dead person would beat. While these 22% were willing to accept the brain-dead person as legally dead, 54% refused to do so and 24% were undecided about whether to consider a brain-dead patient as dead or alive.

Table 1 depicts the awareness of the interns regarding organs that can be donated.

**Table 1.** Depicts the awareness among the participant interns regarding organs that can be donated in the present study and in studies by another author

	Present study	N F Ali <sup>6</sup> , 2013
Kidney	82%	96%
Eye tissue	80%	82%
Liver	80%	72%
Skin	64%	46%
Heart	62%	84%
Lungs	40%	42%
Bone	28%	28%
Heart valves	24%	32%
Pancreas	18%	18%
Entire body	8%	--
Intestine	8%	10%
Ligament	6%	10%

40% of the interns were aware that if the brain-dead donor had not signed a donor card or otherwise expressed his wishes to be a donor, his family members can pledge his/her organs if they believe this could have been his/her wish. 46% of the interns felt that this was not true and 16% were not sure of the answer. 82% of the interns were aware that one single donor could donate to multiple recipients while 18% did not think this as possible. 40% of the interns were willing to be donors, 28% wanted to discuss with their families and 22% were undecided about their willingness to be donors. 58% were willing to sign the donor card. 10% of the interns were clearly unwilling to be donors. 54% and 22% of the interns were positive towards organ donation as it would help others live longer healthier lives and wanted something positive to come out of their death respectively. Eight percent felt that organ donation would help them to continue to live even after their death. 64% of those willing to be organ donors wanted to donate to an unknown individual, 62% to family members, 58% to a friend and 28% to Medical College. The reasons given by 10% of the interns for unwillingness to be organ donors are given in Table 2.

Forty percent of the interns believed that committing to organ donation after brain death or cardiac death was every person's social responsibility. 54% were aware of existence of a Law governing all organ donation and transplant activities in India. 52% supported India following opt-out policy of organ donation; 36% themselves were willing to accept an organ donated by a death row prisoner and 30% supported financial aid to family of the donor if they were needy.

**Table 2.** Depicts the different reasons provided by the participant medical care professionals for refusal to be organ donors (in present study and in studies by other authors)

<b>Present Study</b>	
I fear that the organs may be misused	10%
I do not wish to be cut open or otherwise mutilated	10%
I do not believe in the ability of the system to support the donated organs till they reach a suitable donor	8%
I couldn't be bothered to do all this	6%
I do not believe in organ donation	4%
I live very far away from the closest center of organ donation	2%
It is against my religious beliefs	0%
<b>Bilgel et al. [1], 2006</b>	
Organs could be wasted	11.8%
Felt threat to own life (in case of live organ donation)	41.2%
Fear of being cut during surgery (in case of live as well as cadaver organ donation)	17.6%
<b>Lauri and Adami [4], 2010</b>	
Agreeing to organ donation of a family member could be interpreted as showing disrespect to the dead person	
Lack of understanding about the processes involved in organ donation	
Disfigurement of the body of a loved person	
Fear that the brain-dead person may not be actually dead (considering that the heart continues to beat)	

66% of the interns were willing to be a part of organ donation awareness group and promote organ donation activity in society.

### Discussion

Organ donation is the most preferred treatment modality for organ failure cases [5]. However, demands for organs for transplantation continues to overwhelmingly exceed the limited supply of organs via organ donation [6]. This extreme shortage of donor organs is especially seen in India where the organ donation rate is a dismal 0.34 persons per million [2].

Research into the poor organ donation rate has revealed one of the causes as lack of awareness among doctors about the criteria for cadaver organ donation and about guidelines for declaration of brain death [5]. The health care professionals occupy a unique position between the lay person and the transplant professional. There is a great need to increase awareness about organ donation among the health care professionals who in turn can then motivate the public and propagate knowledge at the community level. The present study was undertaken with this view in mind. The study explores the attitude and knowledge of young interns, who have just passed their undergraduate medical examinations in India,

towards organ donation. A discussion session arranged after the research activity also gave opportunity to the Hospital authorities to address any doubts raised by the participating interns.

Forty-three out of the 50 interns approached, gave their consent to participate in the study (86%). In a study by Chung *et al.* in Hong Kong overall 94% consent to participate in the study was observed, while a 70% response rate by the fourth year medical students was reported by Bardell *et al.* in a study conducted in a medical school in Canada [7,8]. Consent to participate in any study could be considered as indicative of the level of interest in the set topic.

All the participating interns (100%) had awareness about the concept of organ and cadaver donation. Bapat *et al.* also reported that majority of the postgraduate medical students participating in their study had awareness about body and organ donation [5]. 14% of interns were either unaware or unsure of the need to promote organ donation in India. These health care professionals could therefore miss an opportunity to promote organ donation that came their way during their practice. India is severely lacking in organ donors and often missing of an opportunity to convert a donor could mean loss of life to all those who could have received the donated organs such as 2 kidneys, liver, lungs, heart etc.

**Table 3.** Depicts the sources of knowledge of organ donation as stated by participants in present study and in studies by other authors

	<b>Newspaper</b>	<b>TV</b>	<b>Radio</b>	<b>Internet</b>	<b>Family members</b>	<b>Medical teachers</b>	<b>Others</b>
Present study	68%	16%	6%	34%	18%	4%	
U Bapat <i>et al.</i> [5] 2009	60%	61%	31%	-	-	-	26% from magazines, brochures
B Priyadarshini <i>et al.</i> [9] 2003		79%		-	-	-	Neighbours, Publicity campaigns
Bilgel <i>et al.</i> [1] 2006		72.1%		-	-	22.7%	-
NF Ali <i>et al.</i> [6] 2013	42.4%		64.6%	-	50%	27.8%	Neighbours

Table 3 depicts the sources of knowledge of organ donation as stated by participants in the present study com-

pared to other authors. All studies including our study report media as the most important source of knowled-

ge regarding organ donation. Only 4% of the interns in the present study reported medical education as a source of their knowledge. Bardell *et al.* in their study about the knowledge of medical students regarding organ donation found their knowledge to be limited and stated that this could be due to the paucity of teaching on the topic of organ donation in the undergraduate medical curriculum [8]. They stated that there was no formal teaching on aspects such as identification of potential donor or approaching a potential donor family. While it cannot be denied that media is doing a bit to promote organ donation among the general population, organ donation and subsequent transplantation remains a complicated and highly sensitive medical issue. This needs to be taught at medical schools by experienced medical professionals who will give the future doctors an insight into the subject and its social, medical as well as ethical challenges. Chung *et al.* reported low levels of confidence among medical students in Hong Kong while approaching potential donors and their families [7]. Most students believed their medical curriculum was inadequate in providing transplant-related knowledge.

The interns in the present study were aware of live organ donations (48%) as well as donation following cardiac death (34%). Ali *et al.* in a study carried out in Karachi, Pakistan reported that 59.2% of medical professionals participating in the study believed that ideal organ donor was a cardiac-dead person and 36.1% believed it was a living person [6]. 17.7% believed that a donor is a brain-dead person. A comparatively higher, 48%, in present study were aware of brain dead category of donors and 6% were totally unaware of the required health status of a potential donor. While a live organ donor can donate one or two organs and a cardiac dead donor can donate few tissues or body donation for dissection purposes, the brain-dead donor has ability to make a difference in lives of about 50 individuals through the organs and tissues he/she donates. Lack of knowledge about the brain-dead category of donor in a medical health professional will affect the organ donation rate of that nation adversely [10,11].

The knowledge of the interns regarding brain death was further explored in this study. 58% of the interns were aware that brain death meant irreversible loss of brain functioning and 22% accepted that heart would continue to beat, yet only 22% were ready to accept such a heart beating brain-dead person as legally dead. 54% refused to accept a heart beating person as dead. In a study by Sheerani *et al.* involving health care professionals, 44% accepted a brain-dead person with a beating heart was dead and an equal 44% refused to accept this form of death [12]. Bardell *et al.* reported that 64% of the medical students participating in their study believed that the brain-dead patient was dead while 36% were unable to differentiate between brain death and coma [8]. Komolafe *et al.* state that every physician should be able to recognize brain death because patients who are

dead should not be treated as though they were alive. This results in loss of precious medical resources and facilities and a missed opportunity of organ donation [13]. A medical care professional who does not accept a brain-dead person as dead would never approach the family of the patient to consider organ donation. Thus, awareness among medical care professionals about brain death and its importance in organ donation activity is essential to raise organ donation rates in any country.

Regarding organs that can be donated, high awareness was observed regarding kidney, eye and liver donations (Table 1). In comparison to our study, higher percentage of the final year medical students was aware about most of the organs being donated in the study by Ali *et al.* [6]. In a similar study by Karini *et al.* 26% of the participating medical students were aware of the organs that can be donated [14]. In all, high levels of awareness were noted about commonly donated organs such as kidney, liver, eyes, heart etc. while awareness about other organs and tissue donation was poor. Poor awareness was observed also about body donation. Knowledge about the specific organs and tissues being donated is not only necessary from the point of view of organ donation but also from the point of view of advising further treatment to the patients suffering from organ failure or severe irreversible tissue damage.

Only 40% were aware of the legal right of the family member of the deceased donor to allow organ donation from the donor in case he/she had not signed the donor card or otherwise expressed their wish to be a donor. The rest were either not aware or unsure of the legality in this situation. Bardell *et al.* reported that in all 41% of the participating medical students were aware of the importance of the wishes of the family of the deceased donor in case of potential organ donation [8]. The findings in both studies are similar and indicate necessity to educate health care professionals about legal rights of family of the potential organ donor. If the deceased person had not written or expressed his/her will to be a donor, the person lawfully in possession of the body may allow organ donation unless he believes that the deceased had objection to organ donation [15]. 54% of the interns were aware of the THO Act, which is the national transplant of human organs and tissues act that governs all organ donation activities in India. This awareness needs to be raised to 100%. India has a history of organ trade and "legal transplant activity" here is trying to raise its head through this murky history. Clear ideas regarding legal aspects in the mind of the treating medical professional go a long way in assuring the public that all is above board [16].

90% of the participating interns were positive towards organ donation, out of which 40% were willing to be donors, 22% were unsure and 28% wished to discuss with their family before taking a decision. Only 10% of the participating interns in the present study clearly refused to be organ donors. Despite 90% being positive,

only 58% of participants in the present study were willing to sign the donor card. This is similar to the study by Oluyombo *et al.* where only one out of every 4 persons who were willing to be donors, signed the donor card [17]. Symvoulakis in a study conducted with medical care professionals, reported that 8.7% carried a do-

nor card [18]. Figueroa reported that while 80% of the medical students were willing to be donors, 59% were actually registered and signed the donor card [19]. 49.3% of the doctors participating in the study of Hu D and Huang H showed willingness to be donors themselves [20].

**Table 4.** Depicts the various reasons cited by participant medical professionals for refusal to be donors in present study and in studies by other authors

<b>Present Study</b>	
Doubt that the system cannot support donated organs	8%
I don't believe in organ donation	4%
I don't want to be cut open	10%
Fear of misuse of organs	10%
No facility for organ donation nearby	2%
Can't be bothered	6%
<b>Symvoulakis et al. [18] 2014</b>	
Worried that the donated organs might be misused	53.8%
<b>Hu D and Huang H [20] 2015</b>	
Afraid that organs would be picked up inhumanly and body would be disfigured	49.2%
<b>Oluyombo et al. [17] 2016</b>	
Held back by socio-cultural beliefs and traditions	
Fear of mutilation of body after death which is a taboo and against religious belief	
Inexperience and inadequate information	

Table 4 states the various reasons cited by participating medical care professionals for refusal to be donors, in our study and in studies by other authors. Fear of mutilation, disrespectful handling and misuse of donated organs were common reasons cited by the medical care professionals

for having reservations about becoming organ donors. Oluyombo *et al.* stated that considering the high percentage of medical care professionals who had reservations about organ donation, it is important to educate them [17].

**Table 5.** Depicts the motivation behind medical care professionals agreeing to be organ donors in present study compared to another author

<b>Present Study</b>	
It would help others live longer healthier lives	54%
They wanted something positive to come out of their death	22%
Organ donation would help them to continue to live even after their death	8%
<b>Oluyombo et al. [17] 2016</b>	
Had permission of their religion to become organ donors	
Knew a previous organ donor	
Had good knowledge about organ donation	

Table 5 depicts the motivation behind medical care professionals who agree to be organ donors in our study compared with another author. It is natural for a medical care professional to wish to help others live longer and healthier lives. However, the effect of the religion is illustrated in the study by Oluyombo wherein mere permission by the religious faith being followed by the medical care professionals encouraged them to want to be donors [17]. Thus, positive effect of a religious faith that is pro-organ donation could be utilized to promote organ donation. Also, "recipients" who benefited by receiving an organ and the "donors" who have carried out the act of organ donation either live or through a family member after brain death are people who can have a powerful effect on the population to promote organ donation. Thus, the points raised by both studies shown in Table 5, can be utilized to encourage more people to become organ donors.

52% of the interns were in favor of India following the opt-out policy of organ donation as is followed by many countries in Europe. Lauri and Adami state that there are 2 main legislations on organ donation, namely opting-in and opting-out [4]. In the opting-in system, organs can be retrieved from the deceased donor, only if permission to organ donation has been given by the family of the donor. The opt-out system is being practiced in countries such as Spain, Austria etc. Here the law allows the doctors to take out organs from the deceased person's body, if they can be used for transplantation purposes without necessarily having to get permission from the family of the deceased donor. Here, a person unwilling to be a donor needs to opt-out of organ donation if he/she does not wish to be an organ donor. The advantage of the opting-out system is that there is no wastage of organs and the number of people on the waiting list is smaller. The disadvantage is that it may be traumatic to the family members who may not be com-

pletely prepared for organ donation. There is also the ethical issue raised by many, especially when the donor is very young, when he/she may not have got the opportunity to opt-out due to sudden trauma resulting in brain death. It is also not prudent to assume that all those who failed to opt-out had no objection to becoming donors, because of apathy or disorganization preventing them from withdrawing [21].

The willingness displayed by the young interns (66%) to promote organ donation activity in the region was heartened and bode well for future of organ donation in this region. However, the present article proves the necessity of arming the medical professionals with correct knowledge as regards organ donation so as to concentrate this positive energy in the right direction, which will result in a raised number of organ donors in India.

*Conflict of interest statement.* None declared.

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