

Original Research Article

Gender based perspectives about organ donation among students in a medical school in North India

Rajiv Kumar Gupta^{1*}, Parveen Singh¹, Najma Akhtar¹, Rashmi Kumari¹,
Chandini Gupta², Riya Gupta²

¹Department of Community Medicine, Government Medical College, Jammu, Jammu and Kashmir, India

²Department of Community Medicine, Acharya Shri Chander College of Medical Sciences and Hospital, Sidhra, Jammu, Jammu and Kashmir, India

Received: 27 February 2018

Accepted: 29 March 2018

*Correspondence:

Dr. Rajiv Kumar Gupta,

E-mail: rajivguptagmc@rediffmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Deaths due to organ failure are reaching alarming numbers mainly due to paucity of organ donation. The medical students who are the future doctors hold promise to alleviate this paucity by willing to register as a donor themselves as well as facilitating cadaver organ donation process. Objective was to assess the perspectives (awareness and attitudes) of medical students regarding organ donation.

Methods: The present cross sectional descriptive study was conducted among 280 undergraduates' students of Government Medical College Jammu, J and K, India. A pretested and self administered 22 item questionnaire was used to collect information on socio-demographic characteristics (5), to assess awareness (11) and attitude (6) about organ donation.

Results: Higher proportion of female students were aware about transplantation of human organ act ($p < 0.05$). Awareness about organ donation card was very poor among both the sexes. Only 77.50% of the respondents were aware of the legal age for organ donation. Higher proportion of male students considered themselves to be future organ donor ($p < 0.05$) although both the sexes wanted to be informed more on organ donation. Organ could be wasted (47.14%) was the main barrier among respondents for organ donation.

Conclusions: The awareness and attitude among the respondents were found to be non-desirable on many parameters. Authors suggest introduction of a teaching module which should include all aspects of organ donation in medical schools starting from first profession onwards.

Keywords: Medical students, Organ transplantation, Perspectives

INTRODUCTION

Medical science has made great strides in the last few decades and amongst them, organ transplantation has been a major advancement which has resulted in a new lease of life for a large number of patients. Organ transplantation is defined as an act of giving one or more organs, without compensation, for transplantation to another person.¹ For the end stage organ disease and organ failures, it is the most preferred treatment modality

which is developing into a major treatment protocol all over the world.² In India, the transplantation of Human Organ act (THOA) was enacted in 1994.³ The act defines brainstem death as "the stage at which all functions of the brainstem have permanently and irreversibly ceased".

Organs that can be donated and transplanted include kidney, liver, pancreas, intestine, lungs, skin, bone marrow, cornea etc.⁴ The continuous demand for organ

transplantation outstrips the limited supply across the world as >20% of patients on waiting list (mainly for liver and heart) die every year because of shortage of donor organs. This demand and supply gap is the main obstacle to transplantation especially in the developing countries. Also lack of awareness and correct knowledge among public besides misconceptions surrounding organ donation due to religious and cultural barriers also adds to the hesitancy in the human organ donation.

In the western world, 90% of the organ donations are from brain dead donors while only 10% are from living donors. On the other hand, in India, about 95% of all the transplants are from living donations and just 5% are from brain dead or deceased organ donors.⁵ As per estimates, 8-10 brain dead patients have been recorded in various ICUs at any point of time in India and their conversion into donors can go a long way in ending the long waiting list of the recipients.⁶ Organ donation is a complex process as it involves ethical, legal, medical, organizational and societal factors.⁷ Research has proved that people's attitude towards organ donation are influenced by factors like knowledge, literacy and religion⁸.

In order to achieve high rates of cadaver organ donation, it is important that both the general public and the health care providers are made aware of the current situation in context of organ donation and transplantation. It is pertinent to add that both these groups need to be educated and prepared for being a committed organ donor. Further, the undergraduate medical/dental/nursing curriculum should provide the requisite information on procedures and ethical issues concerning organ donation and transplantation so that they can become future torch bearers for the society.⁹ Healthcare providers act as critical link in organ procurement process because they are the first individual to contact potential donor's family. The medical students who have to take the mantle of acting as physicians in future have critical role in promoting organ donation.

Although there have been a few studies conducted in India regarding knowledge and attitude about organ donation but there was paucity of studies in this part of country. So, it was in this context that the present study was carried out among Prefinal and final year MBBS students to assess their perspectives (knowledge and attitude) about organ donation and transplantation.

METHODS

The present cross-sectional study was conducted among students of Government Medical College Jammu, J and K, India. The sample for the study comprised of students of prefinal and final year MB. All the study participants were explained the purpose of the study and were ensured about the anonymity and confidentiality of the responses.

The questionnaire for the current study was developed by public health experts working in community medicine department of Government Medical College Jammu with the help of review of the literature. A 22 item self administered questionnaire was prepared comprising of three sections. The first section of the questionnaire was in context of socio demographic data of the respondents. The second and third sections of the questionnaire assessed the awareness and attitude of the respondents regarding organ donation and transplantation. The questionnaire was pilot tested on a group of 20 medical students who weren't part of the eventual study sample. The feedback so obtained necessitated certain modifications in the questionnaire before it was finally put into use. Informed verbal consent was obtained before the administration of the questionnaire. The respondents were told that the participation in the study was voluntary and for uniformity and high compliance, a time period of 15 minutes was set to complete the questionnaire. The questionnaire was handed out to the students in class lectures and was duly collected after completion of stipulated time.

The data thus collected was tabulated and analysed using SPSS 20v. The test of significance used was Chi square and p value <0.05 was considered statistically significant.

RESULTS

During the administration of the questionnaire, a total of 280 students from pre-final and final year MBBS participated. Majority of the respondents were in 22-24-year age group and majority of them belonged to Hindu religion. 63.92% were residing in urban areas and 85.00% of them had family income more than Rs. 50,000 per month. 80.00% of the respondents were living in nuclear family (Table 1).

Table 1: Socio-demographic profile of respondents (n=280).

Socio demographic variable	Male (n=128)	Female (n=152)	
Age group	<21 years	12 (9.38)	09 (5.92)
	22-24 yrs.	108 (84.37)	139 (91.45)
	≥24 years	08 (6.25)	04 (2.63)
Religion	Hindu	72 (56.25)	104 (68.42)
	Muslim	48 (37.50)	136 (89.48)
	Others	08 (6.25)	12 (7.89)
Residence	Urban	72 (56.25)	107 (70.39)
	Rural	56 (43.75)	45 (29.61)
Monthly income (in INR)	<50000	15 (11.72)	27 (17.76)
	>50000	113 (88.28)	125 (82.24)
Type of family	Nuclear	97 (75.78)	127 (83.55)
	Joint	31 (24.22)	25 (16.45)

The results revealed that female students were more aware about transplantation of human organ act than the male students and this difference was found to be statistically significant ($p < 0.005$). Majority of the students didn't know from where to procure organ donation card and its substitution as an emergency card. Majority of male and female students knew that it was illegal to sell organs in India and about the consent to be given by a living donor himself/herself ($p > 0.05$). The results further revealed that the definition of organ donation and age cut off for the organ donation was

known to 97.86% and 77.50% of the respondents respectively. Also, majority of the respondents were aware that cancer, HIV, Hepatitis B and C and active / untreated TB were contraindication for organ donation. Brain death being a medical diagnosis was also known to 93.57% of the respondents. Awareness about single donor donating to multiple recipients and family of deceased able to pledge his organs after death was found to be higher in female medical students and this difference between the two sexes was found to be statistically significant ($p < 0.05$) (Table 2).

Table 2: Attitude and perception of respondents towards organ donation (n= 280).

Question	Response	Males (n=128)	Females (n=152)	Total (n=280)	P value
Are you aware about transplantation of human organ act	Yes	97 (75.78)	130 (85.53)	227 (81.07)	0.03
	No	31 (24.22)	22 (14.47)	53 (18.93)	
Do you know where to obtain organ donation card	Yes	23 (17.97)	31 (20.39)	54 (19.29)	0.6
	No	105 (82.03)	121 (79.61)	226 (80.71)	
Can donor card be substituted as an emergency card	Yes	27 (21.09)	27 (17.76)	54 (19.29)	0.48
	No	101 (78.91)	125 (82.24)	226 (80.71)	
It is illegal to sell organs in India	Yes	120 (93.75)	137 (90.13)	257 (91.79)	0.27
	No	8 (6.25)	15 (9.87)	23 (8.21)	
Consent given by donor himself/herself in case of living donor	Yes	126 (98.44)	148 (97.37)	274 (97.86)	0.85
	No	2 (1.56)	04 (2.63)	06 (2.14)	
Organ donation means removal of human body tissues for purpose of transplantation to another person	Yes	125 (97.66)	149 (98.03)	274 (97.86)	0.99
	No	3 (2.34)	3 (1.97)	06 (2.14)	
Age for organ donation should be not less than 18 years	Yes	96 (75.00)	121 (79.61)	217 (77.50)	0.35
	No	32 (25.00)	31 (20.39)	63 (22.50)	
Cancer, HIV, Hepatitis B and C < TB active and untreated are all contraindications for organ donation	Yes	126 (98.44)	150 (98.68)	276 (98.57)	0.99
	No	2 (1.56)	2 (1.32)	04 (1.43)	
Can a single donor donate multiple recipients	Yes	99 (77.34)	139 (91.45)	238 (85.00)	0.00
	No	29 (22.66)	13 (8.55)	42 (15.00)	
Family of deceased can pledge his organs in case he hadn't sign donor card during his life time	Yes	87 (67.97)	131 (86.18)	218 (77.86)	0.00
	No	41 (32.03)	21 (13.82)	62 (22.14)	
Brain death is a medical diagnosis	Yes	121 (94.53)	141 (92.76)	262 (93.57)	0.54
	No	7 (5.47)	11 (7.24)	18 (6.43)	

The results about attitudes revealed that higher proportion of male students considered themselves to be a future organ donor than their female counterparts and this difference was found to be statistically significant ($p < 0.05$). 96.43% of the respondents replied that they would seek more information about organ donation. More male students felt that organ donation was an individual social commitment ($p < 0.05$). However, higher proportion of female students would like to be a part of organ donation group to motivate others for organ donation ($p < 0.05$). Higher proportion of male students thought relation was more important than their female counterparts while female respondents in higher

proportion reported age of the recipient to be the most important factor in organ donation ($p < 0.05$). Among the possible barriers for organ donation, 47.14% respondents reported that organ could be wasted, 28.57% reported lack of family support while 17.14% didn't want to get disfigurement (Table 3).

DISCUSSION

Poor rates of organ donations make the waiting list for transplantation very long and many patients die due to lack of availability of donor organs.¹⁰ In India, the organ donation rate is very low (0.16 donor per million

population) in comparison to countries like Spain (35 donors per million population).¹¹ A positive attitude of health care professionals to organ donation can favourably influence the decision of potential donor families and hence educating medical students early in their careers for organ donation is likely to yield results in this context.¹²

The present study assessed the awareness and attitudes of undergraduate medical students towards organ donation. Awareness about transplantation of human organ act was reported by 81.07% of the respondents. However, Bharambe VK et al, reported a lower awareness about existing laws to the tune of 57.6%.¹³ Every nation has its

own laws to regulate organ donation and transplantation. In this context the results are not in agreement with those reported by Hamed H et al, from Egypt where 83% of the respondents thought there was no law regulating organ donation or didn't hear or read about the law.¹⁴ Further the information about organ donation card was found to be very dismal as only 19.29% of the respondents knew where to obtain this card. Also 80.71% of them didn't know that organ donation card can be substituted as an emergency card. Bigel H et al, reported that only 1.2% of the respondents had an organ donation card.¹⁵ In contrast, studies from England, Germany and Italy reported higher rates of 43%, 58.3% and 63% respectively.^{16,17,12}

Table 3: Awareness of the respondents regarding organ donation (n= 280).

Question	Response	Males (n=128)	Females (n=152)	Total (n=280)	P value
Do you consider yourself to be an organ donor in future	Yes	103 (80.47)	92 (60.53)	195 (69.64)	0.00
	No	25 (19.53)	60 (39.47)	85 (30.36)	
Would require more information and knowledge about organ donation	Yes	120 (93.75)	150 (98.68)	270 (96.43)	0.05
	No	08 (6.25)	02 (1.32)	10 (3.57)	
Do you think that organ donation is an individual's social commitment	Yes	106 (82.81)	102 (67.11)	208 (74.29)	0.00
	No	22 (17.19)	50 (32.89)	72 (25.71)	
Would you be a part of organ donation group to motivate others for organ donation	Yes	72 (56.25)	109 (71.71)	181 (64.64)	0.00
	No	56 (43.75)	43 (28.29)	99 (35.36)	
Most important factor for organ donation	Age of recipient	70 (54.68)	104 (68.42)	174 (62.14)	0.00
	Religion of recipient	06 (4.69)	16 (10.53)	22 (7.86)	
	Relation of recipient No	52 (40.63)	32 (21.05)	84 (30.00)	
Possible barriers for organ donation	Religion	08 (6.25)	12(7.89)	20 (7.14)	0.15
	Lack of family support	42 (32.81)	38 (25.00)	80 (28.57)	
	Organ could be wasted	52 (40.63)	80 (52.63)	132 (47.14)	
	Don't want disfigurement	26 (20.31)	22 (14.47)	48 (17.14)	

Majority of the respondents were aware that it is illegal to sell organs in India and regarding consent to be given by donor himself in case he is alive. The results are similar to those reported by Bharambe VK et al, where 87% of the respondents were aware of need for legal supervision.¹³ As far as awareness about legal age for organ donation is concerned, more than three fourth (77.50%) of the respondents had correct knowledge. In a study by Kaur S et al, only half of the respondents were aware about legal age of the organ donation in India.¹⁸ Majority of the respondents in the current study were aware that brain death was a medical diagnosis. In contrast to the results of the present study, Bharambe VK et al, reported that 46.7% of final year MBBS students

believed that a person can recover from brain death.¹³ A future health care professional who believes a patient can recover from brain death would never discuss organ donation with relatives of potential donor. Bapat U et al, and Palanivelu ET et al, also reported a lack of adequate knowledge regarding 'deceased organ donors' among medical students.^{2,19}

The results on attitude towards organ donation were found to be better among the male students as 80.47% of them considered themselves to be a future organ donor. However, both the male as well as female respondents felt the need for more information and knowledge regarding organ donation. In this regard, Bharambe VK et

al, reported that most of the respondents replied that medical curriculum is inadequate in providing transplant related knowledge and few of them feel sufficiently prepared to approach relatives of potential organ donors.¹³ It would be pertinent to hold more educational sessions on organ donation to raise knowledge levels of medical professionals so that they can confidentially approach family members of potential donors to raise the topic of organ donation and allay their apprehensions, if any.

The results about attitudes of the present study are congruent with those reported by Chakradhar K et al, where higher attitude scores were from male respondents.²⁰ But in contrast, many authors concluded that female gender was significantly associated with positive attitude towards organ donation.^{12,15,21} Willingness to donate organ was to the tune of 58.4% in the study concluded by Bigel H et al.¹⁵ Among the possible barriers for organ donation, organ could be wasted, lack of family support and disfigurement of body were cited by 47.14%, 28.57% and 17.14% of the respondents respectively. A 74.29% of the respondents thought that organ donation was an individual social commitment and 64.64% of the total would like to motivate others for organ donation. Tontus et al, reported that 85.3% of the medical students believed that organ donation is important and honourable for humanity and about an equal proportion were willing to participate in any organ donation promotional activity.²²

The main limitation of the study is that it being conducted in a single medical school, thus lacks generalizability. Another limitation is that authors didn't relate organ donation with area of residence of respondents.

CONCLUSION

The perspectives of the respondents were fairly good on certain parameters while it was poor to satisfactory on the other parameters. The authors suggest including a teaching module covering various aspects of organ donation starting from first year MBBS in all the medical schools. The teaching module should be carried through all the years till final year when medical/surgical and social/ethical aspects are covered. Legal issues and how to approach the family members of a potential donor also needs to be a part of this teaching module.

Funding: No funding sources

Conflict of interest: None declared

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

REFERENCES

1. Gruessner R. Organ donation. Available at: <https://www.britannica.com/topic/organ-donation>. Accessed on 11 February 2018.
2. Bapat U, Kedlaya PG, Gokulnath. Organ donation, awareness, attitudes and beliefs among post graduate medical students. *Saudi J Kidney Dis Transpl.* 2009;20(1):174-180.
3. Shroff S. Legal and ethical aspects of organ donation and transplantation. *Indian J Urol.* 2009;25:348-55.
4. Organ Donation: Medlineplus. Available at: <https://medlineplus.gov/organdonation.html?PHPSESSID=acbbc427bed0eff2d9555e2f5caa4524>. Accessed 13 February 2018.
5. Shroff S, Navin S, Abraham G, Rajan P, Suresh S, Rao S, et al. Cadaver organ donation and transplantation-an Indian Perspective. *Transplant Proc.* 2003;35(1):15-17.
6. Sahi M. Myths and misconceptions and reality on organ donation. *Transplantation Research.* 2014.
7. Dardavessis T, Xenohontos P, Haidich AB, Kristi M. Knowledge, attitude and proposals of medical student concerning transplantations in Greece. *Int J Prev Med.* 2011;2:164-9.
8. Akgün HS, Bilgin N, Tokalak I, Kut A, Haberal M. Organ donation: A cross sectional survey of the knowledge and personal views of Turkish health care professionals. *Transplant pro.* 2003;35:1273-5.
9. Lima CX, Lima MV, Cerqueira RG, Cerqueira TG, Ramos TS, Nascimento M, et al. Organ donation: Cross sectional survey of knowledge and personal views of Brazilian medical students and physicians. *Transplant pro.* 2010;42:1466-71.
10. Jansen NE, Van Leiden H, Hasse-Kromwijk B, Hoitsma A. Organ donation performance in the Netherlands 2005-08; medical record review in 64 hospitals. *Dutch Transplant Foundation and Department of Nephrology, University Hospital Nijmegen.* 2010;(25):1992-7.
11. Centre for Transplant. Organ donation. Available at: http://www.kokilabenhospital.com/departments/centreforexcellence/centrefor_transplant/organdonation.html. Accessed 16 February 2018.
12. Burra P, De Bona M, Canova D, d'Aloiso MC, Germani G, Rumiati R, et al. Changing attitude to organ donation and transplantation in University students during the years of Medical School in Italy. *Transplantation proceedings.* 2005;37(2):547-50.
13. Bharambe VK, Rathod H, Angadi K. Knowledge and Attitude Regarding Organ Donation among Medical Students. *BANTAO J.* 2016;14(1):34-40
14. Hamed H, Awad ME, Youssef KN, Fouda B, Nakeeb AE. Knowledge and Attitudes about Organ Donation among Medical Students in Egypt: A Questionnaire. *J Transplant Technol Res.* 2016;6:155.
15. Bilgel H, Sadikoglu G, Bilgel N. Knowledge and Attitude about Organ Donation among Medical Students. *Tx Med.* 2006;8:91-6.
16. Cantwell BN, Clifford C. English nursing and medical students' attitudes towards organ donation. *J Adv Nurs.* 2000;32:961-8.

17. Schaeffner E, Windisch W, Freidel K, Breitenfeldt K, Winkelmayr W. Knowledge and attitude regarding organ donation among medical students and physicians. *Transplantation.* 2004;77:1714-8.
18. Kaur S, Ghai S, Krishnan N, Rana D, Kathania D, Kaur G, et al. Knowledge, Attitude and Perception Regarding Organ Donation among the Nursing Students. *J Postgraduate Medicine, Edu Res.* 2015;49(3):105-10.
19. Palanivelu ET, Sundaramurthi S, Dasarathan S, Shamana SG, Kate V. Knowledge and attitude of medical students on brain death and organ donation. *Inter J emergency Med.* 2014;7(S1):O5.
20. Chakradhar K, Doshi D, Reddy SB, Kulkarni S, Reddy PM, Reddy SS. Knowledge, Attitude and Practice Regarding Organ Donation among Indian Dental Students. *Int J Org Transplant Med.* 2016;7 (1).
21. Sanner MA. A Swedish survey of young people's views on organ donation and transplantation. *Transplant Int.* 2000;15:641-8.
22. Tontus H, Karabey M, Gurdal N. Survey of Medical students' attitudes, religious beliefs, and knowledge of organ Donation. *Organs, tissues and cells.* 2011;14:203-6.

Cite this article as: Gupta RK, Singh P, Akhtar N, Kumari R, Gupta C, Gupta R. Based perspectives about organ donation among students in a medical school in North India. *Int J Res Med Sci* 2018;6:1710-5.