

Content available at: <https://www.ipinnovative.com/open-access-journals>

Indian Journal of Clinical and Experimental Ophthalmology

Journal homepage: www.ijceo.org

Original Research Article

Awareness and attitude towards eye donation amongst first year postgraduate students in a medical college in Haryana, India

Jyoti Deswal^{1*}, Rajender Singh Chauhan², Ashok Rathi², Khushboo Sheoran², Nidhi Sharma²¹Regional Institute of Ophthalmology, PGIMS, Rohtak, Haryana, India²Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

ARTICLE INFO

Article history:

Received 22-09-2023

Accepted 14-06-2024

Available online 30-12-2024

Keywords:

Eye donation

Cornea transplant

Visual impairment

ABSTRACT

Aim: To assess the awareness and attitude regarding eye donation among first year postgraduate medical students who got admission in the year 2022 in a Medical College in Haryana.**Materials and Methods:** It was a cross-sectional questionnaire based study in which first year postgraduate medical students who got admission in the year 2022 in various departments of the medical college were given online questionnaire (Google Form) to fill and submit. The questionnaire had 20 questions pertaining to various aspects of eye donation.**Results:** Among 115 students who responded, mean age was 26.39 years (range 24 – 44 years), and 40.9% (47/115) were males and 59.1% (68/115) were females 449 (62.3%). 97.4% (112/115) students had knowledge that cornea is the part which is required for transplantation in eye donation and 77.4% (89/115) students were knowing the fact that optimal time of eye donation is within 6 hours after death. 72.2% (83/115) pledged to donate eyes.**Conclusion:** The knowledge about eye donation was good but further motivation will be required for pledging for eye donation. Emphasising more on eye donation awareness during MBBS and including more competencies related to eye and organ donation in MBBS curriculum are some of the strategies which can be adopted to increase awareness among medical students.This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.For reprints contact: reprint@ipinnovative.com

1. Introduction

Corneal diseases are responsible for a significant number of patients with visual impairment and blindness. It not only effects individual's quality of life but imposes a great social and economic burden on the family of patients and the society. According to World Health Organization (WHO), more than 2.2 billion people are visually impaired globally and out of which atleast 39 million people are blind. Among these 4% are because of corneal pathologies.^{1,2} In India, 18.7 million people have vision less than 6/60 in at least one eye due to corneal diseases and of these, about a million

have bilateral disease.³

National Programme for Control of Blindness and Vision Impairment (NPCB & VI) estimates 25,000- 30,000 corneal blind cases are being added annually in India.⁴ Corneal diseases are the major cause of blindness secondary to cataract in developing countries. Treatable causes of corneal blindness can be prevented if managed timely and promptly. Corneal transplantation helps in visual rehabilitation of many of those who are blind from corneal disease. This problem becomes more serious because of a low level of annual procurement of donor eyes which is 22,000 annually as per a report of the National Programme for Control of Blindness and Eye Awareness.⁵

* Corresponding author.

E-mail address: jyoti_deswal@yahoo.co.in (J. Deswal).

First eye bank in India was established by Dr. Muthiah and he performed the first corneal transplant successfully in 1948.⁶ Even after more than 75 years, patients are still waiting for corneal transplants and year by year it is constituting a considerable backlog.⁷ The need of the hour is to educate the people about eye donation so as to increase the rate of procurement of corneas. To find out the awareness and attitude regarding eye donation we conducted this study amongst first year postgraduate medical students who got admission in the year 2022 in our institute.

2. Materials and Methods

It was a cross sectional questionnaire based study which was conducted by the Regional Institute of Ophthalmology at a tertiary care hospital in Haryana among first year postgraduate medical students who got admission in the year 2022 in our institute. 115 students, who consented for the study, were enrolled for the study and asked to fill an online survey form (Google form). The form consisted of 3 sections of analysis i.e. Demographic attributes, Awareness about Eye Donation and Attitude towards Eye Donation.

The first section of the form asks about general demographic details. The second section contained twelve questions about knowledge of eye donation. The third section of the survey form had questions regarding the attitude of students related to the eye donation. The validity of the questionnaire was assessed by a team of cornea transplant surgeons of cornea unit of our institute and further got approval by the ethical committee.

2.1. Data collection and analysis

The format of the questionnaire was multiple choice questions type. The responses marked by the students were collected online and were analysed by the google form.

3. Results

Total of 115 students who gave the consent for the study were enrolled. The mean age of respondents was 26.39 years (range 24 – 44 years), and 40.9% (47/115) were males and 59.1% (68/115) were females. All the respondents were literate and 81.7% (94/115) were residents of urban areas. 91.3% (105/115) were Hindus and 89.5% (103/115) were unmarried. 72.2% (83/115) belonged to nuclear families and majority i.e., 72.2% (83/115) received schooling from private school.

3.1. Awareness regarding eye donation (Table 1)

97.4% (112/115) students were knowing that the eyes can be donated while 2.6% (3/115) students had never heard about it. When asked about which part of eye can be donated, 88.7% (102/115) students gave the answer that cornea is the only part which can be donated and 10 (8.7%) responded

that the whole eye can be donated. 97.4% (112/115) students had knowledge that cornea is the part required for transplantation in eye donation and 77.4% (89/115) students knew the fact that optimal time for eye donation is within 6 hours post death. 58.3% (67/115) students knew that a living person cannot donate his/ her eyes while 26.1% (30/115) thought that even a living individual can donate his/her eyes and rest had no idea whether a living person can donate his/her eyes. 88.7% (102/115) students knew that eye donation does not disfigure the face of the donor and 60.9% (70/115) had the knowledge that the eyes can be removed by the eye bank team even at the donor's house itself. 83.5% (96/115) students knew that donor's name and recipient's name remain confidential and 80.9% (93/115) responded that it takes 15-20 minutes for the removal of the eyes and rest thinks that it takes longer.

78.3% (90/115) students knew that the consent of the first degree relative of the dead person is required before eye donation. 74.8% (86/115) students responded that there is no age limit for eye donation. 87% (100/115) students had the knowledge that infectious diseases like HIV/Hep B, C are absolute contraindications of eye donation while 21.7% (25/115) believed that people suffering from systemic diseases like diabetes and hypertension cannot donate eyes. 64.3% (74/115) responded that people malignant tumour cannot donate eyes and 43.5% (74/115) responded that who died due to poisoning cannot donate eyes.

3.2. Attitude regarding eye donation (Table 2)

57.4% (66/115) responded that they gathered this much information about eye donation from seminars and lectures and 15.7% (18/115) through internet. Other sources included - radio/television (9.6%), Newspaper/Magazine and family /relative (8.7%). 24.3% (28/115) students were knowing someone who had donated eye and 17.4% (20/115) were knowing someone who had received the donated eye (Figure 1). 60% (69/115) students responded that they know whom to contact in case of eye donation. 17.4% (20/115) students had already pledged for eye donation. 72.2% (83/115) students expressed their willingness to pledge for eye donation while 6.1% (7/115) refused for eye donation and 21.7% (25/115) were confused whether to pledge or not. In 36.8% (11/32) students who refused or were not sure for pledging for eye donation reported family objection being the main reason for refusing and 26.3% (8/32) refused for eye donation due to their religious beliefs. Only 29.6% (34/115) students have heard about Eye donation Fortnight celebration.

4. Discussion

Corneal transplantation is a ray of hope of gaining sight to those who are blind from corneal diseases. The number of patients waiting for corneal transplantation is increasing

Table 1: Knowledge regarding eye donation

Responses	Number	Percentage (n=115)
Can eyes be donated?		
Yes	112	97.4%
No	3	2.6%
What is removed from the donor eye?		
Whole eye	10	8.7%
Cornea	102	88.7%
Lens		
Retina/Sclera		
Within how much time after death should the eyes be removed?		
Within 1 hour	14	12.2%
Within 6 hours	89	77.4%
Within 12 hours		
Within 24 hours		
Don't know		
What is transplanted to recipient eye?		
Whole eye	112	97.4%
Cornea		
Lens		
Retina/Sclera		
Can a living person donate his/ her eyes?		
Yes	30	26.1%
No	67	58.3%
Don't know	18	15.7%
Does eye donation disfigure the face of the donor?		
Yes	8	7%
No	102	88.7%
Don't know	5	4.3%
Can the eyes be removed at donor's house itself?		
Yes	70	60.9%
No	31	27%
Don't know	14	12.1%
Does the name of the donor and recipient remain anonymous?		
Yes	96	83.5%
No	9	7.8%
Don't know	10	8.7%
How much time does it take to remove the eyes by the eye bank team?		
15-20 minutes	93	80.9%
1-2 hours	8	7%
4-6 hours	4	3.4%
Don't know	10	8.7%
Is the consent of first degree relative of dead person required before removal of eyes?		
Yes	90	78.3%
No	19	16.5%
Don't know	6	5.2%
Is there any age limit for eye donation?		
Yes	18	15.7%
No	86	74.8%
Don't know	11	9.6%
What are the contraindications for eye donation? (Multiple answers)		
If the donor was using spectacles for refractive error	5	4.3%
If the donor had HIV/ Hepatitis B/ Hepatitis C infection	100	87%
If the donor was having a malignant tumour	74	64.3%
If the donor died due to poisoning	50	43.5%
If the donor was diabetic or hypertensive	25	21.7%
If the donor had previous history of any eye surgery	25	21.7%
Don't know	5	4.3%

Table 2: Attitude regarding eye donation

Responses	Number	Percentage (n=115)
What is the source of your awareness about eye donation?		
Seminars/ lectures	66	57.4%
Television	11	9.6%
Newspaper	18	15.7%
Internet	10	8.7%
Health exhibition		
Family/ friends		
Do you know a person who has donated his/ her eyes?		
Yes	28	24.3%
No	87	75.7%
Do you know anyone who has undergone transplantation of donated eye		
Yes	20	17.4%
No	95	82.6%
Do you know whom to contact for eye donation?		
Yes	69	60%
No	46	40%
Don't know		
Have you pledged your eyes for eye donation?		
Yes	20	17.4%
No	95	82.6%
Are you willing to donate your eyes after death?		
Yes	83	72.2%
No	7	6.1%
Not sure	25	21.7%
If no, then what is the possible reason for not donating your eyes? (n=32)		
Religious beliefs	8	26.3%
My family/ friends are also not willing	11	36.8%
Corneal transplantation results are not so good	3	10.5%
Eye donation process delays funeral and other religious rites		
Eye donation causes disfigurement of face		
I fear that body may not be treated with respect and dignity		
There is no shortage of eye donors in our country		
I am not a suitable candidate for eye donation because of my health problem		
I need more information before deciding about donation of my eyes		
Have you ever heard about Eye donation fortnight celebration?		
Yes	34	29.6%
No	81	70.4%

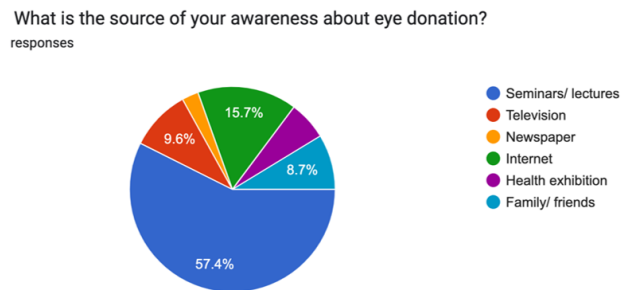


Figure 1: Source of awareness about eye donation

year by year due to insufficient number of eye donations in India. There is a large gap between demand and supply

because of low awareness. Eye donations are dependent on people willing to pledge their eyes for donation and on the first-degree relatives to honour that pledge upon death of the person. If the medical students are well informed, only then they can influence eye donation rates.

In this study 40.9% students were males and 59.1% were females belonging to the age group of 24-44 years. 97.4% (112/115) students were knowing that the eyes can be donated. 97.4% (112/115) students had knowledge that cornea is the part required for transplantation in eye donation and 77.4% (89/115) students knew the fact that optimal time of eye donation is within 6 hours after death. 88.7% (102/115) students knew that eye donation does not disfigure the face of the donor, 60.9% (70/115) knew that the eyes can be removed at the donor's house itself and

80.9% (93/115) responded that it takes 15-20 minutes for the removal of the eyes. More than 50% had knowledge about conditions in which eyes cannot be donated. In our study, 17.4% (20/115) students had already pledged for eye donation. 72.2% (83/115) students wanted to pledge for eye donation and this is consistent with other studies.^{8,9}

In a study by Chawla U et al.¹⁰, 99.44% had heard about eye donation. In our study, more than 50% had some knowledge about eye donation like the optimal time of removal of cornea after death, contraindications of eye donation, etc. and 77.31% students were interested in pledging to donate their cornea. The findings are consistent with our study.

In another study by Neelam et al.,¹¹ on knowledge and attitude regarding eye donation among health professionals and reported that out of population of 600 people 23% had excellent knowledge about corneal donation and only 6% were willing to pledge for donation. In our study, 72.2% were willing to pledge for eye donation.

In our study, 58.3% (67/115) students knew that eyes can be donated only after death which is comparable with study done by Kumar S et al.¹² in which 57.5% of medical students knew that eye can be donated only after death which is much less than 99% reported by Singh et al.¹³ among the medical students at Delhi and 96.8% among nursing students at Bangalore by Gupta A et al.¹⁴

In a study by Lal B et al.¹⁵ to assess the awareness and knowledge on eye donation among students of Allied Health Sciences, medical, and nursing, it was found that the awareness regarding eye donation was good among students but there was lack of willingness to donate eyes and that there is an urgent need to educate students to bridge the gap between eye bank demand and donors.

According to present study, the first-year postgraduate medical students were aware about eye donation but still a significant number of students were lacking the knowledge regarding eye donation. All these students had passed MBBS course, so we had to analyse the MBBS curriculum with respect to eye donation. In previous years, the curriculum of undergraduate medical education was not uniform all over the country. Teaching in most of the medical colleges in India was by didactic lectures and practical classes. Ophthalmology department used to teach the eye donation concept in classrooms devoting only one lecture to this topic. In 2019, National Medical Council launched Competency Based Medical Education (CBME) for Indian Medical Graduate Programme which got implemented from admission batch 2019 onwards. Competency based education has been defined as an outcome-based approach to the design, implementation, assessment and evaluation of a medical education program using an organizing framework of competencies. CBME gives emphasis on skilled based practical learning. The MBBS course, according to new pattern, starts with one

month foundation course. During foundation course the students get familiar with the concept of human organ donation and eye donation. Ophthalmology is being taught during third year and there are two competencies based on eye donation in the curriculum. First is based on knowledge domain which states that 'Describe and discuss the importance and protocols involved in eye donation and eye banking' while second works on attitude and communication domain – 'Counsel patients and family about eye donation in a simulated environment.' Human organ donation is being covered in surgery by surgery department using 3 competencies.^{16,17} So, we hope that this change in MBBS curriculum will have a positive impact on knowledge and attitude of medical students towards eye donation.

In our study, most of the students were inclined to pledge for eye donation and the motivated students can help to motivate more people for eye donation if given proper knowledge and encouragement. According to Andhra Pradesh Eye Disease (APEDS)¹⁸ study comprising of rural population of Andhra Pradesh, the prevalence of corneal blindness was found to be 0.13%, constituting a significant burden of corneal blindness, of which 95% was avoidable. Thus, educating and strengthening the knowledge of medical students who can be actively involved as volunteers in eye donation in rural areas can help in getting more number of pledges of eye donation being done and further increase in retrieval of good quality corneas from the rural population.

5. Conclusion

The present study shows that our postgraduate students have good knowledge about eye donation but there is a need to create more awareness among the students and motivate them to pledge for eye donation. Eye donation should be considered as an important part of MBBS curriculum and more competencies should be included for the same. This will motivate MBBS students and in this way they can help in motivating rural population during their postings in community medicine and can participate in counselling family of diseased person during their internship in medicine and surgery departments including casualty postings where death rates are high. This will eventually promote Hospital Corneal Retrieval Programme (HRCPP) and will surely help in bridging the gap between the demand and supply of cornea.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. Wong KH, Kam KW, Chen LJ, Young AL. Corneal blindness and current major treatment concern-graft scarcity. *Int J Ophthalmol*. 2017;10(7):1154–62.
2. Blindness and vision impairment. Geneva, Switzerland: WHO; 10 August 2023. Available from: <https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment>.
3. Gupta N, Tandon R, Gupta SK, Sreenivas V, Vashist P. Burden of corneal blindness in India. *Indian J Community Med*. 2013;38(4):198–206.
4. Dandona R, Dandona L. Corneal blindness in a southern Indian population: need for health promotion strategies. *Br J Ophthalmol*. 2003;87(2):133–41.
5. Dafne LP, Dangre DM, Patil AB, Wangikar VD. Who cares for eye donation. *Int J Public Health Hum Rights*. 2012;2(1):11–5.
6. Bardell T, Hunter DJ, Kent WD, Jain MK. Do medical students have the knowledge needed to maximize organ donation rates? *Can J Surg*. 2003;46(6):453–7.
7. Kannan KA. Eye donation movement in India. *J Indian Med Assoc*. 1999;97(8):318–9.
8. Jayashree MP, Pujar C, Gadag VR, Salagar M, Pattnaik M. Comparison of awareness of eye donation among medical and paramedical students. *J Clin Res Ophthalmol*. 2017;4(1):6–9.
9. Gupta A, Jain S, Jain T, Gupta K. Awareness and perception regarding eye donation in students of a nursing college in Bangalore. *Indian J Community Med*. 2009;34(2):122–5.
10. Chawla U, Chadha G, Chugh JP, Yadav P, Chawla A. Knowledge and Attitude Regarding Eye Donation among Students of Medical, Nursing and Allied Health Sciences at a Tertiary Care Hospital in Northern India. *Saudi J Med Pharm Sci*. 2021;7(10):526–32.
11. Runda N, Ganger A, Gupta N, Singh A, Vashist P, Tandon R. Knowledge and attitude towards eye donation among health professionals of northern India. *Natl Med J India*. 2019;32(1):9–12.
12. Kumar S, Shukla US, Agarwal P. Awareness and Knowledge on Eye Donation Among Students at Bhopal. *Natl J Community Med*. 2012;3(4):685–9.
13. Singh MM, Rahi M, Pagare D, Ingle GK. Medical students' perception on eye donation in Delhi. *Indian J Ophthalmol*. 2007;55(1):49–53.
14. Gupta A, Jain S, Jain T, Gupta K. Awareness and perception regarding eye donation in students of a nursing college in bangalore. *Indian J Community Med*. 2009;34(2):122–5.
15. Lal B, Usgaonkar U, Narvekar H, Venugopal D. Awareness and knowledge on eye donation among Allied Health Sciences, medical, and nursing students in Goa. *J Curr Ophthalmol*. 2018;30(3):255–2.
16. Nema N, Srivastava R, Bose S. An insight into competencybased undergraduate curriculum and its application in Ophthalmology. *J Clin Ophthalmol Res*. 2022;10:91–7.
17. Shrivastava SRB, Shrivastava P. Competency-Based Medical Education for Undergraduates in India -Strengths, Weaknesses, Opportunities, Challenges Analysis and the Way Forward. *Mustansiriyah Med J*. 2020;19(1):37–9.
18. Dandona L, Dandona R, Srinivas M, Giridhar P, Vilas K, Prasad MN, et al. Blindness in the Indian state of Andhra Pradesh. *Invest Ophthalmol Vis Sci*. 2001;42(5):908–16.

Author's biography

Jyoti Deswal, Associate Professor

Rajender Singh Chauhan, Senior Professor

Ashok Rathi, Professor

Khushboo Sheoran, Senior Resident

Nidhi Sharma, Junior Resident

Cite this article: Deswal J, Chauhan RS, Rathi A, Sheoran K, Sharma N. Awareness and attitude towards eye donation amongst first year postgraduate students in a medical college in Haryana, India. *Indian J Clin Exp Ophthalmol* 2024;10(4):733–738.