

Awareness of Eye Donation among Allied Health Students in Mangalore

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Abstract

Background: The blindness is a global problem. Recent estimates of World Health Organization suggest that there are 40 million people who are blind worldwide and that more than 90% of them live in developing countries. Nearly one-fifth of them are in India. Corneal blindness is one of the important types of blindness that can be cured by corneal transplantation for which awareness regarding eye donation is essential. **Aim:** To assess the awareness about eye donation among paramedical students. **Methodology:** Cross-sectional observational study was conducted at Srinivas University, Mangalore, Karnataka, India. A total of 227 paramedical students were involved in this study. A semi-structured questionnaire was used to collect the data from the students. **Results:** All the students knew that eyes can be donated, 54.2% knew the ideal time of donation. Most participants (85.9%) were willing to donate their eyes and 12.3% had already pledged their eyes. **Conclusion:** Paramedical students were well aware of eye donation and most of them inclined to sign-up for eye donation.

Keywords: Awareness, eye donation, paramedical students, corneal blindness

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Introduction:

The blindness is a global problem. Recent estimates of World Health Organization suggest that there are 40 million people, who are blind worldwide and that more than 90% of them live in developing countries. Nearly one-fifth of them are in India.¹ Corneal diseases are a significant cause of visual impairment and blindness in the developing world. Nearly 80% of all corneal blindness is avoidable.^{2,3} In India, the total number of overall treatable corneal blindness is about 3.1 million, children constituting 35% of the burden.⁴ For such people, corneal transplantation helps in restoring their sight. According to the Eye Bank Association of

India, the current cornea procurement rate in India is 22,000 per year. It is estimated that a significant proportion of donor corneas are unfit for corneal transplantation.⁵ Based upon our current ratio of available safe donor eyes, we would need 277,000 donor eyes to perform 100,000 corneal transplants in a year in India.⁶ There is a large gap between demand and supply because there is such a low awareness about how easy and noble eye donations are.⁷

To increase procurement of cornea, raising the level of public education on eye donation is an important first step. Soliciting for actual eye donation at the time of death is a necessary and accepted practice. Though the factors affecting procurement of corneas and the public attitude towards eye donation have recently received attention in the developed world, not much has been published from the developing world.⁶

This study was focused to assess the awareness among the paramedical students

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who will be part of health services in our country. Their knowledge about eye donation can play an important role in eye donation campaigns and for effective implementation of health programs. Hence this study was conducted with objective of studying the knowledge and attitude of eye donation among paramedical students.

Materials and Method:

The present cross sectional observational study was carried out at Srinivas University, Mangalore, Karnataka, involving the students of allied health sciences. The study was conducted in the month of January 2017. Total 227 paramedical students, including BPT, B.Sc., in medical lab technology, operation theatre & anaesthesia technology, cardio-vascular technology, perfusion technology, renal dialysis technology, optometry, imaging technology and respiratory technology were considered for the study. After obtaining institutional ethical clearance, permission from principal of the college and informed consent, a semi-structured questionnaire was administered for collecting the necessary information. The questionnaire contained questions on awareness regarding eye donation, knowledge regarding eye donation, reasons for donating and not donating eyes and willingness to donate eyes. The data were entered and analyzed using the SPSS software package, Version 19.0.

Results:

Out of 227 students, 132 (58%) were males and 95 (42%) were females. Age varied from 16 to 24 years with mean age of 20 years (Table No.1).

Table 1: Age & sex distribution of students

Age (years)	Sex		Total
	Male	Female	
16-18	23	29	52
19-21	69	62	68
22-24	40	4	23
Total	132 (58%)	95 (42%)	227 (100%)

100% of the students were aware that eyes could be donated, among them, 79% knew that eyes can be donated only after death. 54.2% knew the ideal time for eye donation and 43.2% knew the contact place for eye donation. 49.3% knew that donated eyes are used for corneal grafting. 48.1% knew that there is shortage of donors in India. 85.9% were willing to donate eyes and 12.3% had already pledged their eyes (Table No.2).

The prime reasons cited in this study for eye donation were pleasure to help blind by 77.9% and nobility in the work by 55.9% out of the 195 students who were willing to donate eyes (Table No.3). Perceived reasons for not pledging eyes by the students were: objection by family members (68.7%), religious beliefs (21.1%), the unacceptable idea of separating the eyes from the body (18.7%) and lack of awareness (15.8%) (Table No.4).

Mass media was the main source of knowledge (76.7%), followed by sources like family members and friends (45%), doctors and hospitals (27%), posters and pamphlets (22.5%) and other sources (4.8%) (Table No.5).

Discussion:

Awareness of eye donation is 100% among the paramedical students in the present study i.e., all the students were aware that eyes could be donated, which is consistent with many studies. In a study conducted by Muthukrishnan V et al among medical and engineering students in Puducherry, all the students i.e., 100% were aware of the concept of eye donation.⁸ In a study conducted by Singh P et al among hospital staff, 97% of them had excellent knowledge about transplantation of various human organs.⁹ 96.8% were aware of eye donation in a study conducted by Gupta A et al among students of a nursing college in Bangalore.¹⁰ 96% of the students were aware of eye donation in another study conducted by Nekar S Manjunath et al among college students of Hubli city, Karnataka.¹¹ Where as in a study conducted by

Table 2: Responses to the questionnaire on eye donation (n=227)*

Questions	Response -Yes Number (%)	Response- No Number (%)
Eyes can be donated	227 (100)	0 (0)
Eyes can be donated only after death	179 (78.9)	48 (21.1)
Knows Ideal time for eye donation (within 6 hrs after death)	123 (54.2)	104 (45.8)
Donated eye is used for corneal grafting	112 (49.3)	115 (50.7)
Knows contact place for eye donation	98 (43.2)	129 (56.8)
Consent of family members required before eye removal	166 (73.1)	61 (26.9)
There is shortage of eye donors in India	109 (48.1)	118 (51.9)
Willing to donate eyes	195 (85.9)	32 (14.1)
Already pledged to donate	28 (12.3)	199 (87.7)
Knows any eye bank in Karnataka / India	51 (22.5)	176 (77.5)

*Multiple responses

Table No. 3: Reasons for eye donation (n=195)*

Reason	Number	Percentage
Pleasure to help blind	152	77.9
Noble work	109	55.9
Donated eyes can give vision to a person	42	21.5
Influenced after reading an article/ media / lecture	17	8.7

*Multiple responses

Table No. 4: Reasons for not donating eyes (n=32)*

Questions	No	Percentage (%)
Lack of awareness	5	15.6
Unacceptable idea of separating the eyes from the body	6	18.7
Objection by family members	22	68.7
Religious beliefs	7	21.9

*Multiple responses

Priyadarshan B et al among the south Indian population, only 50.7% of participants were aware of eye donation.¹² The awareness is less in general population especially in rural areas when compared to students due to illiteracy, old age, low socioeconomic status and rural residence.^{2,4,12}

Table No.5: Source of information on eye donation (n=227)*

Source of awareness	No	Percentage (%)
Doctors / Hospitals	61	26.9
Friends / Family members	102	44.9
Radio / TV / News papers / Magazine	174	76.7
Poster / Pamphlets	51	22.5
Others	11	4.8

*Multiple responses

Cornea can be removed up to 12 hours after death, but ideally within 6 hours. Whole eyes can be stored in a moist chamber at 2-8°C, which has to be used within 2 days. Excised corneas can be stored up to 10 days in a preservative media such as McCary Kaufman medium or optisol maintained at 4°C.¹³ In this

study, 49.3% students knew that the donated eye is used for corneal grafting and 54.2% knew that the ideal time for donation is within 6 hours of death. This differs from other studies, where only 32% of the medical students in Biswas J et al, 41% of the medical students in delhi, 38% of nursing students and 4.3% of the general population were aware of ideal time.^{10,12,14,15} This being quite low in comparison to our study. However in a study on medical and non-medical students by Dhaliwal U conducted at Delhi, 79.6% of medical students knew that eyes can be donated after death and 63.3% knew that it should be collected within 6 hours.¹⁶

This study showed that 48.1% agreed that there is a shortage of eye donors and 85.9% were willing to donate their eyes and 12.3% had already pledged their eyes. In a study conducted by Dandona R et al among medical students, 87.8% of the respondents were willing to be eye donors.⁵ Another study in the urban population by Tandon R et al observed that 73.8% were aware of eye donations and only 44.9% were willing to pledge their eyes.¹⁷

There is no law in any country which permits the removal of an eye from a living person for donation even with the person's consent. The knowledge of students is better (79%) in this regard in comparison to Nigerian medical students, 72% of whom didn't know that eyes can be donated only after death.¹⁸

73% of the students knows that consent of the relatives of the donor is required before eye removal. Though the donor has pledged his/her eyes during life time, it is essential to obtain consent from the nearest relatives or the legal heirs after the death of the donor.¹⁹ Several countries have opted for a change in legislation by introducing a presumed consent, whereby organs can be used for transplantation after death unless individual have objected during their lifetime. The presumed consent law or practice has resulted in increased rates of organ donation.²⁰

Eye banks are the right places to be contacted for eye donation where the donor corneas are collected, processed, stored and distributed

for the corneal grafting.²¹ Among the present study group, 43.2% of the students knew about the contact place for eye donation. Only 27.2% of the medical students in delhi and 33% of the nursing students were aware of contacting right place for eye donation.^{10,14} The name of an eye bank nearby was known to only 22.5% of students in this study which is contradictory to the study of Manjunath et al who have reported that 74% of the college students at Hubli knew about eye banks in their surroundings.¹¹

The prime reason or motive cited in this study for eye donation was pleasure to help blind by 80% and nobility in the work by 56% out of the 195 students who were willing to donate eyes. This differs from other studies, where nobility was the major motivational force for eye donation in 85% of the medical and nursing students.^{10,14} But lack of awareness, objection by family members, dislike of disfiguring the body and religious restrictions were the reasons for not donating the eyes. Similar reasons were also reported in other studies.^{17,22} It is important to mention that neither enucleation nor corneal excision causes disfigurement of the face or any delay in funeral arrangements.²¹

In the present study, mass media was the main source of knowledge (76.7%), followed by sources like family members and friends (45%), doctors and hospitals (27%), posters and pamphlets (22.5%) and other sources (4.8%). Similar observations were made in other studies, where mass media was the source of information among 80% of medical students in Delhi and 79.2% of rural population.^{2,14} However, this differs from the study by Priyadarshini B et al where the major source of information was publicity campaigns in the south Indian population.¹²

Conclusion:

This study revealed that paramedical students were well aware of eye donation and most of them inclined to sign-up for eye donation. But the knowledge regarding the place of eye donation, time limit to collect cornea and whom to contact and when to contact was still

not known clearly. Among the students who were not willing to donate eyes, the major reasons were objection by family members, lack of awareness, dislike of disfiguring the body and religious restrictions. Although these data show that only a few had pledged eyes, there is enough potential in this population for obtaining many more corneas for transplantation. The information about awareness and willingness for eye donation could help in developing strategies to increase procurement of corneas for dealing with corneal blindness. We also need to educate students to overcome social stigma regarding eye donation.

The reasons for not donating eyes need to be considered while creating awareness about eye donation in the community. The paramedical students can be actively involved as volunteers in eye donation campaigns. To increase the level of awareness and knowledge of people on eye donation, health education about eye donation and corneal transplantation is needed. This can be achieved by educating practicing doctors, allied health personals and students who are the future health care providers on the importance of eye donation coupled with their training to counsel and motivate the relatives of patients for eye donation.

Mass media played a major role in spreading the awareness on eye donation among these people. Enhanced utilization of the mass media to increase the coverage of education on eye care and eye donation along with eye donation campaigns will a help to increase the frequency of eye donation. Education pertaining to eye donation should also be given to the students during their secondary school education.

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