



Knowledge and Attitude Regarding Eye Donation Among Medical Students and Graduates in a Tertiary Care Centre

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Abstract

Visual impairments have psychological, social and economic ramifications they play an important role in determining one's quality of life. The best treatment option for visual rehabilitation is still corneal transplantation, but efforts to solve this issue are still hampered by a global lack of suitable donors. To assess the knowledge, attitude practices of eye donation among medical and healthcare professionals in a tertiary care hospital in south India. The 200 medical students, resident physicians nursing staff members of the Sree Mookambika Institute of Medical Sciences in Kulasekharam were surveyed for this cross-sectional study using a standardized questionnaire and a convenience sampling technique. The study was carried out between January and March of 2024, a duration of three months. The awareness of eye donation and readiness to donate eyes were measured using a standardized questionnaire (10 questions for knowledge and 4 questions for attitude). Responses regarding attitude were divided into positive and negative categories, while responses regarding knowledge were ranked as excellent, good and poor. SPSS 20.0 was used to analyze the data Fisher's exact test and the Chi square test were used to determine whether there was a correlation. The mean (SD) age of the 200 participants was 28.45±4.52 years, with 102 (51%) falling between the ages of 18 and 25. Age and awareness of eye donation did not significantly correlate ($p=0.45$). Approximately 151 (75.5%) participants acquired knowledge about eye donation through media. The majority of research participants were informed that corneas must be collected within six hours of death and that eye bank staff should be notified. Only 22 (11%) of the study participants were aware of the hospital corneal retrieval program. In answer to the willingness to donate their eyeballs, 57 (28.5%) people responded positively. Furthermore, the question about unwillingness to give eyeballs elicited a mixed response, with 141 (70.5%) being unwilling due to familial objection. ($p<0.05$). The knowledge and attitude scores differed significantly between the groups ($p = 0.01$ and $p<0.001$, respectively). There was considerable awareness regarding eye donation, but health professionals showed an unacceptably low desire to volunteer their eyes for donation. Thus, it is crucial that knowledgeable, sensitive physicians provide prompt counseling to both patients and bystanders.

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Key Words

Awareness, cornea transplantation, eye bank, eye donation

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INTRODUCTION

Blindness and vision impairment are serious public health issues on a global scale. Approximately 80% of these occurrences, according to data from the World Health Organization (WHO), can be prevented or cured^[1]. Due to corneal opacity, there are 4.5 million people who are visually impaired and 45 million people who are blind, with a 1-2 million increase each year. In low-income settings, the estimated prevalence of unilateral blindness caused by corneal opacity is between 5,000 and 20,000 persons per million population^[2]. It is estimated that 6.8 million people in India suffer from corneal blindness and the number is growing every^[3].

Although there are many different causes of corneal blindness, the three most common ones—corneal ulcers, corneal scarring and ocular trauma—are under reported yet may account for 1.5-2 million new cases of corneal blindness year. The causes of infantile blindness, which affects approximately 1.5 million people globally and leaves 5 million visually impaired, include xerophthalmia (3,50,000 cases annually), ophthalmia neonatorum and less common ocular conditions such as vernal keratoconjunctivitis and herpes simplex virus infections^[4].

Treatable causes of corneal blindness can be avoided with timely and efficient management provided by an efficient health care delivery system. The National Programme for Control of Blindness (NPCB), an effort of the Government of India, has employed multiple approaches to mitigate the prevalence of blindness by providing comprehensive eye care treatments, such as corneal transplantation^[5].

By means of corneal transplantation, many people who are blind due to corneal illness can regain their vision. The most successful and often carried out solid organ transplantation is penetrating keratoplasty, which can treat about 50% of cases of corneal blindness^[6]. The process of eye donation includes recovering, priming and delivering donated eyes for use in research and corneal transplants. The first eye bank was established in 1944 and the first successful corneal transplant was carried out in 1905^[7].

The Transplantation of Human Organs and Tissues Act, which establishes the legislative framework for organ donation for both the living and the dead, regulates organ donation in India.

India has a 0.01% organ donation rate, according to the World Health Organization^[8].

The Hospital Cornea Retrieval Program (HCRP) was established in 1990 to focus on hospital-based deaths and promote eye donation through a combination of motivation and bereavement counselling. It offered a number of benefits, including the ability to quickly obtain a thorough medical history, the availability of

tissues from young donors, a shorter time from the point of death to corneal retrieval and cost effectiveness. Health professionals, particularly attending doctors, residents, nursing staff and paramedics, play an important role in HCRP by counseling and motivating families of the deceased and potential donors^[9].

Numerous studies on the general public's awareness of eye donation have been conducted in the past. Medical graduates play a vital role in providing healthcare in rural India, thus understanding their views on eye donation is essential to raising awareness of eye banking services and encouraging more people to donate their eyes. A thorough review of the literature revealed that there are surprisingly few surveys on eye donation conducted among medical graduates.

Aims and Objectives: The study aimed to assess the knowledge, attitude and practices of eye donation among medical and healthcare professionals in a tertiary care hospital in south India.

MATERIALS AND METHODS

The current study was a cross-sectional study that used a convenient sampling method and a standard questionnaire to survey 200 medical students in phase III-Part I, resident doctors and nursing staff at Sree Mookambika Institute of Medical Sciences, Kulasekharam. The study lasted three months, from January 2024-March 2024. Medical graduates and nursing staffs who were not willing to participate in the study were excluded.

A Google Form with a semi-structured questionnaire was used to conduct the study and it was distributed via internet channels. Informed consent was obtained once the students were made aware of the project. Following their consent to participate in the study, the students were required to complete an online survey. The form has three analytical sections: Knowledge about eye donation, Attitude toward eye donation and Demographic parameter.

A questionnaire with 8 questions focused on areas of knowledge concerning eye donation, while 5 questions tried to assess participants' attitudes and desire to donate their eyes. Knowledge was rated between 0 and 3 based on the participants' accurate answers to questions about awareness of corneal transplantation, eye donation and donor preservation. Knowledge was rated as poor, good, or excellent depending on whether participants gave one, two, or all three correct answers. The preparedness of research participants to register their eyes for donation was then used to gauge the attitude of medical

professionals about eye pledges. The attitude-related responses were divided into positive and negative categories.

Data entered in Excel sheet and results were analysed using Statistical Package for the Social Sciences (SPSS) for Windows 21. Frequencies and percentages were used for descriptive statistics. Chi square test and Fisher's exact test for univariate analysis were used for inferential statistics. A $p < 0.05$ was taken as the level of statistical significance.

RESULTS AND DISCUSSIONS

The study questionnaire was completed by 200 participants in total. The age range of the study participants was 20-42 years old, with a mean (SD) age of 28.45 ± 4.52 years. Of the 200 participants, 102 (51%) belonged to the 18-25 age group, followed by 55 (27.5%) for those over 30 and 43 (21.5%) for those between 26 and 30. Age and awareness of eye donation did not significantly correlate ($p = 0.45$). Of the total participants, 166 (83% were females) and there was no significant difference in knowledge based on gender. Four categories of participants were identified: junior residents (JR) 45 (22.5%), medical students 88 (44%), nursing staff 47 (23.5%) and senior residents (SR) 20 (10%).

Every group had a fair level of awareness and knowledge about eye donation. A total of 151 participants, or 75.5%, learned about eye donation from the media. The majority of research participants were informed that corneas must be collected within six hours of death and that eye bank staff should be notified. The students knew more about the utilization of corneal tissue for corneal transplantation than the majority of participants ($p < 0.001$). However, only 22 (11%) of the study participants were aware of the hospital corneal retrieval program. Upon compiling the knowledge-based question responds, it was observed that 7 out of 8 questions showed a statistically significant difference ($p < 0.05$) between the subgroups. (Table 1)

When asked if they were willing to donate their eyeballs, 57 (28.5%) responded positively, whereas just 28 (31.82%) of medical students and significantly fewer in other groups were willing. Every group had a distinct motivation for becoming a donor. The majority of participants in each grouping considered the work to be noble. Furthermore, the query about unwillingness to give eyeballs elicited a mixed response, with 141 (70.5%) refusing due to family objections. Regarding the participant attitudes toward eye donation, there were five questions. As seen in (Table 2), answers to three of them showed statistically significant differences ($p < 0.05$) between the groups.

When it came to future eye donation and awareness initiatives, the participants were questioned about their willingness to support them. Every participant responded well and expressed a desire to take part in initiatives aimed at donating their eyes. In contrast to the female group, the male group had a lower attitude score (2.12 ± 1.09 vs. 2.23 ± 1.33) and a higher mean knowledge (8.68 ± 2.45 vs. 8.32 ± 2.67). In the age group categories of younger people (<30 years) and older people (>30 years), a similar pattern was seen. Between these two groups, there was a statistically significant score difference in the knowledge and attitude categories ($p = 0.01$ and $p < 0.001$, respectively).

Corneal donation and collecting are essential to the long-term viability of the corneal transplantation program. To enhance cornea supply, it is necessary to examine the general public knowledge, attitude and readiness to donate corneas, as well as to develop an action plan based on this information^[10]. Based on realistic target methods, it was calculated that 2.7 lakh donor eyeballs will be needed in order to execute one lakh corneal transplants annually in India.

This will necessitate an increase in positive consent rate and coverage for death^[11].

Of the 200 participants, 151 (75.5%) said that the media is their main source of knowledge when asked where they learned about eye donation. The younger generation may now easily acquire knowledge because to the rapid improvements in technology and the greater accessibility of the Internet. This illustrates the profound effect that media has on young people. A plausible rationale for this could be the extensive ubiquity of eye donation television campaigns during the 1990s and early 2000s.

Kacheri^[12] in their study observed that most students 69 (46%) answered that media was their primary source of information, 26% (39) said they learned about eye donations from lectures, 11.3% (17) of students said they gained knowledge through organ donation campaigns, roughly 3.3% (5) of students mentioned doctors, 10.7% of students named the hospital or clinic as their primary source of information and 2.7% (4) of students were unable to name a specific source.

Similarly, Bano^[13] also found that, among the 290 medical and 439 nursing students in their study, the mass media (TV and newspapers) provided the most information regarding eye donation for 72.7% of the nursing students and 75.9% of the medical students. The majority of Indian high school textbooks have gradually increased access to eye donation literature, which is a good start in the long term.

The majority of research participants were aware that corneas must be collected within six hours of death. The majority of participants knew that corneal

Table 1: Response to knowledge based questions

	Nursing staffs (n=47)	Medical students (n=88)	JR (n=45)	SR (n=20)	p value
Sources of knowledge for eye donation					
•Media	33(70.22%)	62(70.45%)	38(84.44%)	18(90%)	0.001
•Lectures	10(21.28%)	26(29.55%)	7(15.56%)	2(10%)	
•Organ donation campaigns	2(4.25%)	0(0%)	0(0%)	0(0%)	
•Doctor	2(4.25%)	0(0%)	0(0%)	0(0%)	
Who can donate eyes?					
•Any willing patient	45(95.74%)	88(100%)	45(100%)	20(100%)	<0.001
•All who have died in hospital	2(4.26%)	0(0%)	0(0%)	0(0%)	
•Only intubated patients	0(0%)	0(0%)	0(0%)	0(0%)	
•Don't know	0(0%)	0(0%)	0(0%)	0(0%)	
Prior consent required for eye donation					
•Yes	40(85.11%)	85(96.59%)	45(100%)	20(100%)	0.001
•No	2(4.26%)	0(0%)	0(0%)	0(0%)	
•Don't know	5(10.64%)	3(4.1%)	0(0%)	0(0%)	
Optimal time for retrieval of eyes after death					
•<6 h	35(74.47%)	79(89.78%)	42(93.33%)	19(95%)	0.001
•<24 h	3(6.38%)	7(7.95%)	2(4.45%)	1(5%)	
•As soon as possible	7(14.89%)	2(2.27%)	1(2.22%)	0(0%)	
•Don't know	2(4.26%)	0(0%)	0(0%)	0(0%)	
Who should remove the eyes after donation?					
•Ophthalmologist	28(59.57%)	81(92.05%)	43(95.55%)	19(95%)	0.001
•Medical officer	5(10.64%)	0(0%)	0(0%)	0(0%)	
•Any surgeon	4(8.51%)	2(2.27%)	0(0%)	0(0%)	
•All of the above	10(21.28%)	5(5.68%)	2(4.45%)	1(5%)	
The part of eye removed for eye donation is					
•Whole eye	6(12.77%)	1(1.14%)	1(2.22%)	0(0%)	0.001
•Only cornea	30(63.83%)	86(97.72%)	41(91.11%)	19(95%)	
•Only lens	4(8.51%)	0(0%)	0(0%)	0(0%)	
•Don't know	7(14.89%)	1(1.14%)	3(6.67%)	1(5%)	
Is there any contraindication for eye donation?					
•Yes	43(91.49%)	73(82.76%)	41(91.1%)	16(80%)	0.012
•No	1(2.13%)	10(11.36%)	2(4.45%)	0(0%)	
•Don't know	3(6.38%)	5(5.68%)	2(4.45%)	4(20%)	
Do you know about HCRP?					
•Yes	2(4.26%)	1(1.14%)	12(26.67%)	7(35%)	0.078
•No	41(87.23%)	77(87.5%)	15(33.33%)	10(50%)	
•Not sure	4(8.51%)	10(11.36%)	18(40%)	3(15%)	

Table 2: Response to attitude based questions

	Nursing staffs	Medical students	JR	SR	p-value
Do you know anyone who has done eye donation?					
•Yes	3(6.38%)	8(9.09%)	2(4.44%)	7(35%)	0.24
•No	44(93.62%)	80(90.91%)	43(95.56%)	13(65%)	
Are you willing to donate your eyes?					
•Yes	2(4.24%)	28(31.82%)	17(37.78%)	10(50%)	0.051
•No	20(42.56%)	5(5.68%)	2(4.44%)	3(15%)	
•Maybe	5(10.64%)	43(48.86%)	10(22.22%)	4(20%)	
•Don't know	20(42.56%)	12(13.64%)	16(35.56%)	3(15%)	
What will you choose as a reason for donating eyes?					
•Noble work	38(80.85%)	79(89.77%)	42(93.33%)	19(95%)	0.001
•Pleasure to help blind	4(8.51%)	9(12.23%)	3(6.67%)	1(5%)	
•Influenced by article/lecture	2(4.26%)	0(0%)	0(0%)	0(0%)	
•Influenced by friend/relative donating eyes 32(68.08%)	3(6.38%)	0(0%)	0(0%)	0(0%)	
What will you choose as a reason for not donating eyes?					
•Family objection		72(81.82%)	28(62.22%)	9(45%)	0.001
•Medicolegal issue	0(0%)	0(0%)	1(2.22%)	0(0%)	
•Religious issue	2(4.26%)	3(3.41%)	0(0%)	0(0%)	
•Corneal transplant failure	5(10.64%)	7(7.95%)	1(2.22%)	1(5%)	
•No reason		8(17.02%)	47(100%)	6(6.82%)	15(33.33%)
	10(50%)				
Are you willing to support eye donation and awareness campaigns					
•Yes		88(100%)	45(100%)	20(100%)	<0.001
•No	0(0%)	0(0%)	0(0%)	0(0%)	

transplantation involved corneal tissue. However, only 22 (11%) of the study participants were aware of the hospital corneal retrieval program. This investigation bore similarities to that conducted by Parija^[14] The research also discovered that although 95.6% of individuals were aware of eye donation, only 51.5% were willing to make a pledge. In addition, the current study found that medical

students had good understanding in comparison to residents and other healthcare professionals.

Additionally, the male group had a better mean knowledge score than the female group, while the male group scored lower on attitude. There was a statistically significant difference in scores ($p < 0.05$). This was similar to the research conducted by Parija^[14]

Only 28 (31.82%) medical students and even fewer in other groups indicated that they would be willing to donate their eyeballs, out of the 57 (28.5%) who responded positively. Every group had a distinct motivation for becoming a donor. The overwhelming majority of participants in each grouping considered the work to be noble. Additionally, the response to the question regarding reluctance to give eyes was varied, with 141 respondents (70.5%) stated that they were against it because of objections from relatives.

Kacheri^[12] found that the majority of them (37.7% (29) attributed their reaction on resistance from family members, 13% (10) attributed it on concerns about potential long-term effects, 27.3% (21) thought the surgery was difficult, 14.3% (11) worried that organs would be missed, 1.3% (1) thought that the distortion of physical appearance was a barrier to eye donations, and 5% (5) thought it was an obvious violation of human rights.

Chawla^[15] revealed that the primary motivation for 45.79% (256/559) of the students who decided to donate their eyes was to inspire others to do the same, whereas 29.15% (163/559) of the students thought that after they died, someone else would be able to experience the world through their eyes. 52.43% (86/164) of the students who declined to pledge an eye donation cited familial objections as their primary deterrent.

CONCLUSION

Regarding eye donation, the majority of medical professionals were well-informed and had a positive outlook. The hospital HCRP can be strengthened in large part by the nursing staff, hence their practice patterns need to be changed. The nursing staff can encourage patient families to donate their eyes even more. All medical professionals can serve as important community educators and advocates by raising awareness of eye donation and the desire of people to donate their eyes. Thus, it is necessary to organize frequent educational events and public awareness campaigns for eye donation.

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