

Attitude toward eye donation - A population-based study from Western Uttar Pradesh

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ABSTRACT

Background: Corneal blindness is one of the major causes of blindness and vision can be successfully restored by corneal transplantation. Eye donation can improve the availability of cornea, but it depends on awareness and willingness in general population. **Objectives:** The objectives of this study were to assess the awareness and willingness of urban population of western UP about eye donation and to correlate factors with willingness. **Materials and Methods:** A cross-sectional study was conducted among randomly selected 400 residents >30 years of age of urban field practice area of the Department of Community Medicine, TMMC and RC, Moradabad. Pre-tested structured questionnaire was used to obtain information about the awareness and perception regarding eye donation. **Results:** Of 400 participants, 75% were aware about eye donation and 25% were ignorant; print and electronic media were the most common source of information. 51.6 % knew about the time limit of eye donation. 63.5% were willing for eye donation; willingness for eye donation was significantly higher in younger age group, males, and well-educated participants. **Conclusion:** Our study establishes the need to improve the awareness of eye donation in the study population. The most idealist public health approach would be, to reduce the occurrence of vision loss due to corneal diseases, with effective preventive policies, but as a short-term goal, the key way to deal with corneal blindness is to obtain the required number of corneas for transplantation.


KEY WORDS: Eye Donation; Corneal Blindness; Awareness; Willingness

INTRODUCTION

According to the World Health Organization (WHO), blindness is defined “as visual acuity of 3/60 or less in the better eye with best possible correction.^[1] It is approximately the WHO that globally 1.3 billion have some visual impairment, of whom 36 million are blind.^[2] Cornea-related causes make 12% of blindness in the world, thus making it a global priority, and India accounts for a large share of this

burden.^[2-4] As per the “WHO estimates, one person goes blind every 5s.^[5] Diseases such as keratitis or trauma to cornea result in corneal scarring and hence are the foremost cause of bilateral or unilateral blindness and visual impairment in younger individuals, especially children.^[6] Important causes of corneal blindness include trachoma, ocular trauma, childhood corneal blindness, ulcerations, abuse of steroid eye drops, and use of traditional eye medications.^[7]

Even though preventive approaches for corneal blindness are more cost-effective, visual rehabilitation by corneal transplantation is the crucial remedy for restoring eyesight in those who are already corneal blind.^[8] Success depends on the availability of high-quality donor eyes for a corneal transplant. According to the Eye Bank Association of India, the huge gap of demand and supply of corneal grafts is further

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worsened by a significant proportion of donor corneas being unsuitable for corneal transplantation.^[7] The lack of corneal donors in these countries has been attributed to the lack of awareness and willingness to donate among the general population.^[9]

Corneal transplantation is, without doubt, the most successful of all organ transplant procedures, but it is dependent on people willingness to pledge their eyes for donation and close relatives to be keen to honor that pledge on the demise of the individual. Henceforth, there is a necessity for reasonable awareness concerning eye donation” in the community. Awareness on adults can enlighten the community members as well as their relatives and can motivate them for eye donation which in term will enhance the eye donation rates.^[10]

In general, organ transplantation has faced hurdles and restrictions due to religious and ethical implications as some universal scholars and jurists’ advance xenotransplantation research but opposes donation from living or deceased human because the body of man is a trusteeship from God which should not be dishonored after death.^[11,12]

Various studies have appraised the understanding among various groups of populations, such as medical students, nursing staff, rural populations, and others.^[4,5,13,14]

We conducted this study among urban population catered by UHTC of Teerthanker Mahaveer Medical College and Research Centre, Moradabad, to assess the awareness and compliance for eye donation and its determinants.

Aims and Objectives

The aims and objectives of this study were as follows:

- To assess the knowledge regarding eye donation.
- To assess the willingness for eye donation.
- To associate various factors determining willingness for eye donation.

MATERIALS AND METHODS

Study Design

This was a cross-sectional study.

Study setting

Our study was undertaken in urban field practice region of Community Medicine, Teerthanker Mahaveer Medical College and Research Centre in Moradabad District of Uttar Pradesh. The study protocol was approved by the Institutional Ethics Committee.

Study population

The study subjects were adults of above 30 years of age residing in the urban field practice area of the Department of Community Medicine, TMMC and RC, Moradabad.

Study period

The present study was conducted from July 2018 to October 2018.

Sample size

The dominance of awareness about eye donation in a previous study conducted by Tiwari *et al.* in India in 2014 was 62.3%.^[6] Hence by assuming prevalence as 62.3% and using the formula= $4PQ/L^2$; P = Prevalence of the number of cases, Q = (100-p)L = permissible error;

With the above assumption, the required sample size at 95% level of confidence with 5% of permissible error in the estimates is 375. The estimate was rounded off to 400 participants from urban areas of Moradabad.

The department has a record of all families residing in the field practice area. Each family has been given a registration number. All the registered families were allotted random numbers generated online. These random numbers were then selected randomly until the required sample size was grasped. After taking informed consent, a structured questionnaire was administered. If more than one such resident (above 30 years) were found, then only one was selected randomly. If no resident (above 30 years) was found in the selected family at the time of visit, then the investigator moved to the next pre-selected household. This process was continued until the required sample size was achieved.

Inclusion Criteria

Adults with age group of >30 years and who were willing to participate in the study were included.

Exclusion Criteria

Adults with age group of <30 years and who were not willing to participate in the study were excluded from the study.

To gain information regarding awareness and perception about eye donation, we used a pre-tested structured questionnaire. This included query regarding sociodemographic summary, awareness, and perception concerning eye donation and compliance to bequeath eyes.

Awareness was considered as having an understanding about the information that dead person’s eye can be used for light of life to blind persons. Perception was considered as the way the people have understood about the importance of eye donation.

Data Analysis

The information gathered from the survey was entered into Microsoft Excel spreadsheet. The scrutiny of information was performed by Statistical Package for the Social Sciences (SPSS) version 21 (IBM, Chicago, USA). Suitable statistical

tests of significance were applied to find the relationship between awareness and willingness of eye donation and different factors. $P < 0.05$ was considered to be statistically significant.

RESULTS

Our study had 400 participants and mean age of the respondents was 59.23 years with a slight male predominance of 53.5%. Table 1 depicts the sociodemographic profile of study subjects. Of 400 participants, 75% were aware that eyes can be given after death and 25% of participants were unaware of it. As displayed in Figure 1, 41.5% of participants got awareness from newspaper, 39.5% from television, 5%

from doctors, 1% from nurses and other health staff, 1% from posters, 4.5% from friends, and 7.5% from others. They reported negatively regarding radio and pamphlets being a source of information (0%).

Over half of respondents (51.6 %) were aware about that ideally eye donation to be done within 6 h of death. In our study, 63.5% of adults were keen to bequeath eyes and 36.5% were unwilling for the same. They had different reasons to donate the eyes and different reasons for not donating the eyes [Tables 2 and 3].

Various sociodemographic factors played a vital part in determining the willingness of person for eye donation [Tables 4].

Table 1: Sociodemographic profile of study participants

Characteristics	Percentage (%)
Sex	
Male	53.5
Female	46.5
Type of education	
No Formal schooling	26.5
Primary	6.5
Secondary	14
High school	22.5
College and degree	24.5
Postgraduation	6
Other	0
Religion	
Hindu	76.5
Muslim	16
Christian	0.5
Others	7
Occupation	
Professional	5
Semi professional	14
Clerk, shop owner, farm owner etc.	6
Skilled worker	1
Semi-skilled worker	29
Unskilled worker	43
Unemployed	2
Type of family	
Nuclear	86
Extended	4
Joint	10
Socioeconomic status	
Class I	7
Class II	15
Class III	9
Class IV	21
Class V	49

DISCUSSION

Eye banking in India is at a nascent stage, although a huge number of corneal blind persons are adding in the population, hence increasing the social and economic burden every year. The number of organs and tissues that can be donated after natural death is limited, but the cornea among them gives best transplant results.^[15] Hence, this study was conducted among urban population for the assessment of awareness status as well as willingness for eye donation. In our study of 400 urban residents of >30 years of age, 75% were aware about eye donation and 63.5% were willing to pledge for eye donation. The key sources of awareness in our study were from newspapers, television, friends, relatives, neighbors, wall paints, and health staff. More than half (51.6 %) of individuals in this study were aware regarding crucial time limit of eye donation being <6 h from demise. Of the 36.5% of respondents not willing for eye donation, about two-third did not give any reason for their refusal. Among those giving reason, most commonly they attributed objection from family member to eye donation. Over three-fourth (76.2%) of males responded positively to pledge their eyes for donation. However, less than half (48.9%) of the females were willing to

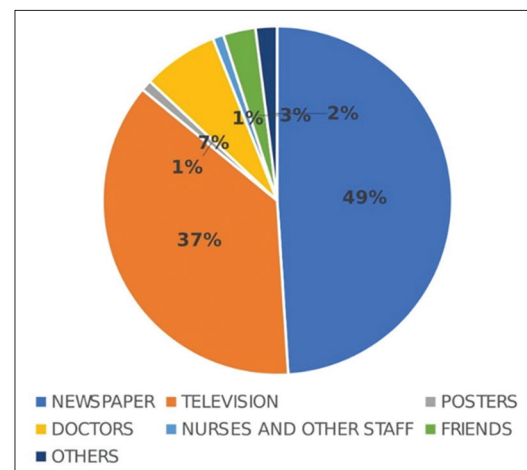


Figure 1: Source of information on eye donation

pledge for eye donation. 92.6% of participants with >10 years of education were willing to donate their eyes which contrast with low response rate in individuals with <10 years of formal education.

Similar to our findings, a study in Northwestern India found that respondents indicated 70.5% positive awareness about eye donation and over half (52%) of them were ready to bequeath their eyes following death.^[16] Other studies have showed higher awareness (<80%), but a study from Odisha reported only 57.9% awareness and 56.6% were willing for eye donation.^[17-20] Lack of information and incorrect information regarding eye donation might be probable hurdle for unwillingness to donate eyes. These important matters can be embattled by systematic planned campaigns meant to create awareness on eye donation. The key sources of awareness in our study were from newspapers, television, friends, relatives, neighbors, wall paints, and health

staff. This is comparable to Panigrahi.^[17] Majority of our respondents received information about eye donation from media, both print and digital. These similar findings are reported by other studies also.^[18,21] More than half (51.6 %) of individuals in this study were aware regarding crucial time limit of eye donation being <6 h from demise. This is vital as longer organ harvesting time after substantially affects the utilization and successful outcomes of transplant. Our results were comparable to a study conducted among government colony residents of Gwalior.^[6] The studies by Bhandary *et al* and George and Mohan reported much higher awareness level regarding this aspect.^[20,22] On the other hand, Patil *et al.*, Marathe *et al.*, and others reported lesser responsiveness about time lag for corneal retrieval.^[9,17,19,23] Of the 36.5 % of respondents not willing for eye donation, about two-third did not give any reason for their refusal. Among those giving reason, most commonly, they attributed objection from family member to eye donation. Willingness for eye donation was significantly higher in younger age, males, and participants with 10 or more years of education; these results were similar to earlier studies.^[6,17] In our study, we found that persons <50 years of age group were more willing for eye donation compared to older people, and this observation was comparable to previous studies.^[6,17,24,25] This predilection among younger age group seen in our study was perhaps due to higher education level and increase awareness due to higher exposure to mass media. Singh *et al.*, on the other hand, in their study from New Delhi completed in urban slum dwellers did not observed any noteworthy outcome of age on awareness of eye donation.^[23] This may be ascribed to better communication between the different generations with time and changing outlooks. Over three-fourth (76.2%) of males responded positively to pledge their eyes for donation. However, less than half (48.9%) of the females were willing to pledge for eye donation. This difference was statistically significant; lesser willingness among females may be due to the obligation to seek consent from their family members. Our results were comparable with earlier studies but are in contrast to Singh *et al.* who reported that their female participants appeared to be better aware of eye donation than male participants.^[6,9,17-19,23] This may be due to more social participation and more exposure to methods of mass media

Table 2: Reasons for willingness for eye donation

Reasons	Percentage (%)
Eye donation is noble cause	43.5
Pleasure to help the blind	12.5
It gives vision when we are gone	3
Influenced by article on eye donation	1
Influenced by movie, poster, or lecture	2
Know someone who has donated eyes	0
Know someone who has received eyes	1
No reason	37

Table 3: Reasons for not being willingness to donate eyes

Reasons for not being to donate eyes	Percentage (%)
Family objection	17.5
Unsuitability due to health reason	3.5
Cultural reason with respect to separation of eye from body	2
Fear of the unknown	1
Religious reason (not to defile body)	2
Lack of awareness	6.5
No reason	

Table 4: Factors affecting willingness for eye donation

Factors	Total (n=400)	Willingness (n=254)	Percentage (%)	X ²	P value
Age group (year)					
<50	135	100	74.1	9.83	<0.001
>50	265	154	58.1		
Gender					
Male	214	163	76.2	31.87	<0.001
Female	186	91	48.9		
Educational status					
Highly educated	122	113	92.6	64.24	-0.00001
Less educated	278	141	50.7		

communication such as radios and television sets. We found that 92.6% of participants with >10 years of education were willing to donate their eyes which is contrast with low response rate in individuals with <10 years of formal education. Similar results were shown in studies done by Ronanki *et al.* and Marathe *et al.*^[18,19] It is to be noted that no association with education and willingness was observed by Patil *et al.* and Bhandary *et al.*^[9,20] Our study participants were having very less knowledge about the usage of donated cornea regardless of reasonable awareness for eye donation. This may be due to overall ineffectiveness of mass media promotional activities on the complete process of eye donation in our participants. If we focus on that, this awareness can be transformed into the guarantee and collection of needed corneas.

Strength and Limitations of the Study

Our study establishes that, despite good awareness status of study participants, actual eye donors are less and the reasons for the same; hence, the study can become a basis for future interventions strategies for achieving the goal of vision for all.

Major limitation is that the study was conducted among a small group of urban population; henceforth, the results cannot be generalized.

CONCLUSION

Our study ascertains the call for improving awareness of eye donation in the study population. The most idealistic public health approach would be to reduce the occurrence of vision loss due to corneal diseases, with effective preventive policies, but as a short-term goal, the key way to deal with corneal blindness is to obtain the required number of corneas for transplantation. The public needs to be made aware of the process to become a pledged eye donor and how this pledge can materialize into actual eye donation. Better public education is required in this area as it would undoubtedly make the public's attitude to eye donation more favorable and this would facilitate an increase in the number of corneas available for transplantation. On the basis of the results of this study, we recommend that wholehearted health awareness programs led by ophthalmologists, health workers, religious leaders, Non-Governmental Organizations, and teacher should be planned and executed at the community level. The activities should be tailor-made depending on the local community requirements to accommodate diversities in thoughts and opinions of the target population. These programs should include all stakeholders including the general population, caregivers of individuals with corneal blindness, and recipients of corneal transplant themselves. Publicity of success stories brings positive improvement in the practice of eye donation. These activities should target at all age groups to ensure a better tomorrow. Grassroot health workers hold the key in clearing myths of eye donation and to

sensitize the community toward blindness due to the cornea and its associated spectrum of suffering.

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