

Original Research Article

Awareness, knowledge and attitude regarding eye donation in school going children in Uttarakhand

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ABSTRACT

Background: Corneal blindness is one of the major causes of blindness in India which can be treated by corneal transplantation but collection of cornea lacks behind the requirement. Therefore awareness regarding eye donation and also willingness to pledge for the same is the need of the hour. Students form the backbone of any society which can motivate the society regarding eye donation only if they are well aware. This study was conducted to evaluate awareness and knowledge regarding eye donation in school going children.

Methods: Total 375 students of schools were surveyed between 25th August to 8th September 2017. We used a pre-tested, semi-structured questionnaire to obtain information from the students regarding awareness of eye donation and willingness to pledge eyes for eye donation.

Results: Out of total 375 subjects, 290 (77.3%) were aware of eye donation amongst which males were maximum 194 (66.89%) as compared to females 96 (33.10%). 231 (61.1%) students were willing to pledge eyes for eye donation which was maximum with males 142 (61.47%). There was significant difference between male and females about the knowledge regarding which, part of the eye can be utilized after eye donation, place of eye donation, what to do for eye donation in the event of a death, facial features after donation was significant with p value (0.00) each.

Conclusions: The awareness regarding eye donation is high among males as compared to females and despite being aware response for pledging eyes is not that good which means further motivation is needed for eye donation among students especially females.

Keywords: Awareness, Pledging, Corneal transplantation, Eye donation, School going children

INTRODUCTION

Corneal diseases are among the major causes of vision loss and blindness in the world today according to the World Health Organization.¹ In India, there are approximately 6.8 million people who have corneal blindness with vision less than 6/60 in at least one eye, out of which, about 1 million are bilateral blind.² According to NPCB, there are currently 1,20,000 corneal blind persons and there is addition of 25,000-30,000 cases every year in the country.³ Approximately we need 1,00,000 good quality of corneas for transplantation by

proper health care education and conventionally cured by corneal transplantation for which awareness regarding eye donation is essential. Infective keratitis either active or healed act as the major indication for keratoplasty.⁴ There is a huge gap in the demand and supply and to fill this gap we need to make the people aware and motivated about eye donation, especially youth which is comprised of students which are an important part of our society and can act as best motivators.⁵ In view of that this study was conducted to evaluate awareness and knowledge regarding eye donation in school going children as these students are future of the nation and their knowledge,

awareness and attitude towards eye donation can decide the future of eye donation in the nation.

METHODS

It was a cross-sectional study which was conducted between 25th August to 8th September 2017, the period that is observed as National Fortnight on Eye Donation. We obtained approval from institutional research and ethical committee to conduct this study. The study was carried out in four randomly selected schools of Haridwar. All the students of standard VIII, IX and X of these four schools constituted the study population. The school authorities were contacted two weeks prior to the study and were explained about the nature and purpose of the study. All the schools were surveyed on separate days. We could cover all the students present on that particular day of survey and that came to be 375. We used a pre-tested, semi-structured questionnaire to obtain information from the students. Questions were in local language and it included demographic details, student's knowledge and awareness regarding eye donation, myths related to eye donation and sources of information regarding eye donation. The ophthalmologists, para-medical ophthalmic assistant and eye donation counselor of a tertiary care level hospital collected all the information.

Statistical analysis

Initially data obtained were entered into an excel spreadsheet and then transferred to SPSS software (Statistical Package for Social Sciences, version 22, SPSS Inc, Chicago, IL) for analysis. Statistical data were expressed in terms of means \pm standard deviations (mean \pm SD). The descriptive statistics was used to express data in terms of frequency and percentage. Pearson Chi-square test was used to find out the association between

categorical variables. $P < 0.05$ was considered statistically significant.

RESULTS

A total of 375 students participated in this study and all students submitted their responses. Out of 375, 264 (70.4%) were males and 111 (29.6%) were females (Figure 1). Average age of the students involved in study was 15.01 years. 290 (77.3%) were aware about donation of eyes can be done after death and 231 (61.1%) students were willing to pledge eyes. Awareness was maximum among males 194 (66.89%) as compared to females 96 (33.10%). Willingness to pledge eyes for eye donation was 231 (61.1%) which was maximum with males 142 (61.47%).

The location to donate eyes & only eye bank in Uttarakhand was known to 332 (88.5%) students. The ideal time of eye donation is within 6 hours of death was known to 358 (95.5%) of the students. Disclosure of identity of donor cannot be done was known to only 196 (52.3%) of students.

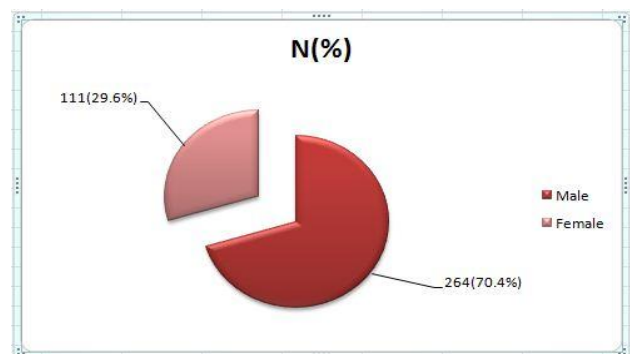


Figure 1: Distribution of the students among both genders.

Table 1: Awareness and knowledge on eye donation.

Questions	Right response N (%)	Other responses N (%)
Donation of eyes can be done after death	290 (77.3)	85 (22.7)
Willing to pledge eyes	231 (61.1)	144 (38.5)
Non-specific reason for not pledging the eyes	270 (72.0)	105 (28.0)
Awareness about the only Eye Bank in Uttarakhand at HIMS	332 (88.5)	43 (11.5)
Cornea can be utilized after eye donation	280 (74.7)	95 (25.33)
People of any age can donate eyes	360 (96.0)	15 (4.0)
People suffering from hepatitis B & C cannot donate eyes	287 (76.5)	88 (23.5)
Eye donation can be done within 6-8 hours after death	358 (95.5)	17 (4.5)
Place for eye donation	243 (64.8)	132 (35.2)
Pre-requisites for eye donation	234 (62.4)	141 (37.6)
Time required for enucleation	334 (89.1)	41 (10.9)
What happen to the face after enucleation	260 (69.3)	115 (30.7)
Disclosure of identity of donor to the recipient	196 (52.3)	179 (47.7)
Knowledge about pledging of eyes	130 (34.7)	245 (65.3)

Table 2: Myths on eye donation.

Questions	Right responses N (%)	Percentage (%)
Donation of eyes lead to blindness in the next birth	338 (90.1)	37 (9.9)
Prohibited entry in the heaven after eye donation	288 (76.8)	87 (23.2)
Financial transaction to the relatives of donor for eye donation	252 (67.2)	123 (32.8)
Corneal blind recipient gets cornea free of cost	188 (50.1)	187 (49.9)

Table 3: Relationship of the gender with the awareness of eye donation.

Responses	Male N(%)	Female N(%)	P* value
Are you aware about eye donation?			
Can be done before death	16 (4.26)	3 (0.80)	0.04
Can be done after death	194 (51.73)	96 (25.60)	
Can be done during life	50 (13.33)	12 (3.20)	
Don't know	4 (1.06)	0 (0.00)	
Willing to pledge eyes today			
Yes	142 (37.86)	89 (23.73)	0.00
No	13 (3.46)	2 (0.53)	
I will think	99 (26.40)	19 (5.06)	
Don't know	10 (2.66)	1 (0.26)	
Reason for not pledging the eyes			
Religious	38 (10.13)	5 (1.33)	0.02
Facial disfigurement	25 (6.66)	10 (2.66)	
Blindness in next birth	22 (5.86)	5 (1.33)	
Any other reason	179 (47.73)	91 (24.26)	
Awareness about the only eye bank in Uttarakhand at HIMS			
Yes	229 (61.06)	103 (27.46)	0.04
No	10 (2.66)	2 (0.53)	
May be	15 (4.00)	0 (0.00)	
Don't know	10 (2.66)	6 (1.60)	

P*- P value statistically significant calculated by Pearson Chi-Square.

Table 4: Relationship of the gender with the knowledge of eye donation.

Responses	Male N (%)	Female N (%)	P# value
Which part of the eye can be utilized after eye donation			
Whole globe	68 (18.13)	4 (1.06)	0.00
Cornea	175 (46.66)	105 (28.00)	
Retina	18 (4.80)	1 (0.26)	
Don't Know	3 (0.80)	1 (0.26)	
Who can donate eye			
People of any age	252 (67.20)	108 (28.80)	0.85
Suffering for Rabies	4 (1.06)	1 (0.26)	
Less than one year of age	5 (1.33)	1 (0.26)	
Don't Know	3 (0.80)	1 (0.26)	
Who cannot donate eyes			
People suffering from hepatitis B & C	197 (52.53)	90 (24.00)	0.48
Diabetic people	30 (8.00)	11 (2.93)	
Who wear spectacles	19 (5.06)	4 (1.06)	
Don't Know	18 (4.80)	6 (1.60)	
After death, eyes should be donated within			
6-8 hours	251 (66.93)	107 (28.53)	0.39
10-24 hours	8 (2.13)	2 (0.53)	
Time does not matter	3 (0.80)	0 (0.00)	
Don't know	2 (0.53)	1 (0.26)	

Continued.

Responses	Male N (%)	Female N (%)	P [#] value
Where can eye donation be done?			
Hospital	104 (27.73)	17 (4.53)	0.00
House	2 (0.53)	2 (0.53)	
Mortuary	7 (1.86)	0 (0.00)	
All the above	151 (40.26)	92 (24.53)	
What to do in the event of a death?			
Switch off the fans	142 (37.86)	92 (24.53)	0.00
Put wet cotton on lids	62 (16.53)	11 (2.93)	
Pillow under the Head	16 (4.26)	2 (0.53)	
All of the above	44 (11.73)	6 (1.60)	
How much time does the eye removal take?			
One hour	11 (2.93)	1 (0.26)	0.14
15-20 minutes	229 (61.06)	105 (28.00)	
Two hours	8 (2.13)	2 (0.53)	
Don't Know	16 (4.26)	3 (0.80)	
After eye removal			
Face looks disfigured	16 (4.26)	3 (0.80)	0.00
Orbital cavity is left empty	59 (15.73)	13 (3.46)	
Artificial prosthetic eye is placed in the orbit and face looks normal	169 (45.06)	91 (24.26)	
Don't Know	20 (5.33)	4 (1.06)	
Can the identity of donor be disclosed to the recipient			
Yes	147 (39.20)	49 (13.06)	0.05
No	78 (20.80)	46 (12.26)	
May be	25 (6.66)	7 (1.86)	
Don't Know	14 (3.73)	9 (2.40)	
Pledge for eye donation means			
It is same as eye donation	50 (13.33)	11 (2.93)	0.02
Commitment by the donor for eye donation after death	81 (21.60)	46 (12.26)	
Commitment by the relatives for eye donation after death	88 (23.46)	42 (11.20)	
Don't know	45 (12.00)	12 (3.20)	

P[#]-P value statistically significant calculated by Pearson Chi-Square.

Table 5: Relationship of the gender with attitude and myths of eye donation.

Responses	Male N (%)	Female N (%)	P [^] value
What has been the source of your awareness regarding eye donation?			
Family/friends/doctor	7 (1.86)	8 (2.13)	0.04
Television/radio/posters/pamphlets/internet	31 (8.26)	14 (3.73)	
Magazine/newspaper	8 (2.13)	0 (0.00)	
All of the above	218 (58.13)	88 (23.46)	
Would you like to spread awareness regarding eye donation in society			
Yes	256 (68.26)	110 (2.93)	0.46
No	2 (0.53)	1 (0.26)	
May be	4 (1.06)	0 (0.00)	
Don't know	2 (0.53)	0 (0.00)	
Donation of eyes lead to blindness in the next birth			
Yes	4 (1.06)	1 (0.26)	0.44
No	233	105	
May be	12	2 (0.53)	
Don't know	14	3	
Prohibited entry in the heaven after eye donation			
Yes	24	4 (1.06)	0.15
No	196	92	
May be	27	7	
Don't know	17	8	

Continued.

Responses	Male N (%)	Female N (%)	P^ value
Do the relatives of donor get any money for eye donation?			
Yes	31	17	0.53
No	176	76	
May be	31	11	
Don't know	26	7	
Corneal blind recipient gets cornea free of cost			
Yes	137	51	0.76
No	69	32	
May be	34	16	
Don't know	24	12	

P[^]-P value statistically significant calculated by Pearson Chi-Square.

280 (74.7%) students had the knowledge that the cornea is used for eye donation and only 360 (96.0%) knew that people of any age can donate eyes. 287 (76.5%) students knew that people suffering from hepatitis B & C cannot donate eyes. After enucleation no disfigurement of face of donor happen was known to 260 (69.3%) students (Table 1).

No myth like people who donate their eyes may be born blind in their next birth were prevailing among 338 (90.1%) students. 252 (67.2%) students were aware about no financial transaction to the relatives of donor for eye donation and 188 (50.1%) students knew that corneal blind recipient gets cornea free of cost (Table 2).

Difference between male and females about the awareness of eye donation, willingness to pledge eyes, reasons for not pledging the eyes and awareness about the location of eye bank in Uttarakhand was significant with p value (0.04, 0.00, 0.02 and 0.04) respectively (Table 3).

Difference between male and females about the knowledge regarding which, part of the eye can be utilized after eye donation, place of eye donation, what to do for eye donation in the event of a death, facial features after donation was significant with p value (0.00) each. The knowledge about the fact that Identity of donor cannot be disclosed to the recipient showed significant difference between males and females with P value of 0.05. There was significant difference between males and females about the knowledge of the meaning of pledging and source of awareness of eye donation with P value of 0.02 and 0.04 respectively (Table 4 and 5).

DISCUSSION

In the present study 70.4% were males and 29.6% were females in contrast to a study done by Biswas et al in which 55% were females.⁶

Data from our study shows that, 77.3% of the students were aware that eyes could be donated after death but only 61.1% of them were willing to pledge their eyes which showed that despite being aware of eye donation low proportion of people were ready to pledge eyes

which are a real matter of concern. Detailed knowledge of eye donation is mandatory to transform awareness into the pledging and procurement of more corneas. In a study among the south Indian population, 50.7% of participants were aware of eye donation which was quiet less as compare to current study.⁷

Though 61.1% were willing to pledge their eyes in the current study but only 12% pledged their eyes out of which 7.2% were students who were ≥ 18 years of age rest 4.8% students motivated their parents and grandparents to pledge their eyes. Krishnaiah et al conducted a study on awareness of eye donation in the rural Indian population of all ages showed that only about one fifth of those aware of eye donation pledged their eyes, which is quite less as compared to the current study in which 12% pledged their eyes, it could have been more pledging but major chunk of the students involved were less than 18 years, which shows that students are important determinants in promoting eye donations as they are the future potential donors.⁸

Biswas et al reported that media publicity plays an important role to increase awareness of eye donation and to educate the students who can act as motivators for enhancing eye donation and increasing eye health care awareness in the community which holds true for the current study where media was responsible for awareness among 12% of the students.⁶ This shows that mass media alone is not sufficient for awareness regarding eye donation, but there is a great need to educate students about preventive and curative aspects of corneal blindness and they can motivate their friends and family members about eye donation.

A cross sectional study done by Simon George and Prashob Mohan on awareness, knowledge and attitude to eye donation among the residents of Thiruvananthapuram, Kerala State, India concluded that although Thiruvananthapuram has a high level of awareness about eye donation, significant number of people are unwilling to donate their eyes mainly due to their misconceptions.⁹ Similarly in current study 23.2% students believed in the myth that after eye donation soul gets prohibition of the entry into heaven and 9.9%

believed that they will get blindness in next birth after eye donation.

It is expected that the number of individuals with unilateral corneal blindness in India will increase to 10.6 million by 2020.¹⁰ So long as there is a properly documented will of the donor and written consent of relatives, no law prevents removal of donor eyes for corneal grafting. Higher secondary school students are the future citizens for the country. If they are sufficiently educated about eye donation they can spread the message among their friends and family members. Thus they will act as important motivators and ultimately enhance eye donation rates in our country.

Corneal transplantation being the most successful of all organ transplantation remains the major treatment option for various corneal pathologies and it prevent corneal blindness. Backlog of corneal transplantation can be cleared by increasing the corneal procurement and its further utilization. It is very important for people to be aware of time limit for eye donation as it may not be useful to utilize eyes for donation that are donated later than 6 hours after death. In the present study 95.5% students were aware about the ideal time required for corneal donation which is higher than George et al (79.5%) and Bhandary et al (88%).^{9,11}

A similar result was found in a preliminary survey conducted by the Aravind Eye Care System on the level of awareness of eye donations in an adult population of the state of Tamil Nadu in southern India.⁷ In the present study males were more aware and were ready to pledge eyes and there was significant difference on the awareness and attitude towards eye donation between both gender. In contrast Krishnaiah et al reported that females were less willing to pledge eyes but there was not any significant association between gender regarding willingness to donate eyes.⁸ It is our moral responsibility to motivate school going students, illiterates and rural population for this noble cause. It might be a good idea, if managers of movie theatres are motivated to present a video show on the importance and reasonable details of eye donation at the time of screening the movie. This could have a greater impact if any presentation on eye donation can be broadcasted by a prominent film stars or sport persons. There is also a great need to educate students in all fields, medical professionals about eye donation, so as to enable the younger generation to act as future motivators for enhancing eye donation rates.¹² Studies have shown that training of staff is significantly associated with higher rates of donation.¹³

The consent of the family is of utmost importance for eye donation as the pledge can be respected only if the family consents for eye donation so involvement of the governmental and non-governmental organizations should participate in training the hospital medical staff, nurses and counselors who can motivate positively the

next of the kin of the deceased for eye donation whenever there is a death.

Grief counseling of relatives by hospital medical staff following death in the hospitals has been successful in procuring organs.¹⁴

Indian legislation needs modifications to enhance eye donation like in USA the Presumed Consent Law which means if the dead person has not registered any objection to donate while alive, consent is presumed and eyes can be removed as required.¹⁵ In India we do not yet have such legislation; the government should introduce the concept of "presumed consent" to boost eye donations. Such legislation would emphasize the government's commitment to the cause of eye donation. Another area of legislation is the "required request law" wherein it becomes mandatory for all health care staff institutions coming into contact with families to make a request for eye donation.

CONCLUSION

The data from the present study suggest that students need more awareness regarding eye donation. To translate awareness into action appropriate strategies have to be developed to increase the knowledge about eye donation. It is encouraging that male students were predominantly ready to pledge their eyes and were found more motivated. More focus is required for enhancing the eye donation by making the school going students mainly females as they are the future citizen who will imply all the strategies for this noble cause. Although awareness regarding eye donation is high, there is lack of knowledge and motivation related to eye donation and the myths are still prevailing in the society despite being highly aware.

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