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Original Research Article

Knowledge, attitude and practice related to eye donation among donor's and recipients' family in Ahmedabad: a cross sectional study

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ABSTRACT

Background: India shoulders the largest global burden of blindness. Despite all the advances of science, there is no artificial substitute invented so far to replace human cornea. This study was conducted to assess the knowledge, attitude and practice about eye donation among the eye donors' and recipient's family.
Methods: A community based cross sectional study was conducted from January 2011 to December 2011 in Ahmedabad city, Gujarat. Eighty-one eye donors and 127 eye recipients using pre-designed and pre-tested proforma was finalized to collect the information from the participants either by home visit (in city) or by telephonic or e-mail interview. Data was entered and analyzed in MS Excel 2007 and Epi info7 software. Knowledge, attitude and practice were expressed as proportions.
Results: A total of 81 eye donors and 127 eye recipient's relatives were interviewed. Doctor or hospital was the most common source of knowledge regarding eye donation for both eye donors (68, 83.95%) and eye recipients (113, 88.97%). In this study 11 (13.58%) eye donors and 4 (3.15%) eye recipients were regular blood donors showing their positive attitude. Only nine (11.11%) donations were done by either donor's personal will or by already pledging. Among our participants 68 (83.95%) family members had closed the eye lids of the donor after death, 39 (48.15%) had switched off fan of the room after death.
Conclusions: Relatives of eye donors and eye recipients are willing to pledge for eye donation after death. Media and medical person was the mainstay in imparting knowledge to the participants. The relative of the donors are well versed with various aspect of preserving eyes after the death of donor compared to those recipients.

Keywords: Corneal blindness, Eye donation, Keratoplasty, Organ donation, Knowledge, Attitude and practice study

INTRODUCTION

World Health Organization defines blindness as a visual acuity of 3/60 or less. Current estimates revealed a worldwide burden of 39 million by literally blind people, while 285 million have impaired vision.[1]

India shoulders the largest global blindness burden, approximately 3.5 million cases; with 30000 new cases being added every year. Taking this as a health problem of national priority India initiated a public funded program for control of blindness.[2] National programme for control of blindness and visual impairment with the goal of reducing the prevalence of blindness to 0.3% by 2020.[3]

Though medical science has advanced tremendously, there is no artificial substitute to replace the human cornea. Therefore the only alternative to treat or cure blindness or severely impaired vision is eye donation. Shortage of transplantable corneas is common and has

been the subject of much attention. The current cornea procurement rate in India is 22,000 per year, as per Eye Bank Association of India estimate. Further a large proportion of donor corneas are often deemed unsuitable for transplantation, most common reason being low endothelial cell density.[4,5] The current ratio of available safe donor eyes in India is 2.77:1 in a year. The number of donated eyes every year is 25000 collected by the country's 109 eye banks, of which 30% cannot be used. India's requirement every year is 2.5 lakh eyes.[6] Therefore, there is a gross deficit in the number of eye donations required. Procurement of cornea can be increased by raising the level of public awareness regarding eye donation. There are several eye donation campaigns through mass media and social marketing.[7]

A few of knowledge, attitude and practice studies done reveal that attitude of the eye donor for being willing to donate eyes is the main reason for corneal supply; a few donors were willing to donate because of opportunity to help the blind. Studies show that many are willing to donate, but do not register. Media campaign has proven to help increase this rate of registration.

Therefore this study was conducted to assess the knowledge, attitude and practice about eye donation among the eye donors' and recipient's family in Ahmedabad city of Gujarat.

METHODS

This was a cross sectional study carried out in Ahmedabad city, from January 2011 to December 2011. Information regarding eye donors and eye recipients during the study period was collected from eye bank of M J Institute of Ophthalmology situated in the campus of Civil Hospital Ahmedabad.

All those who had donated or received eyes at the eye bank and the family of whom gave consent were included in the study. Those eye donors and eye recipients whom we were not able to contact or trace were excluded from the study. Therefore 81 eye donors and 127 eye recipients were included in the study. A pilot study was conducted after which the pretested proforma was used to collect information from the participants either by home visit (in city) or by telephonic interviewed (outside the city).

The questionnaire included questions regarding socio demographic characteristic and knowledge, attitude and practice towards eye donation. Data was entered into MS Excel 2007 and analyzed using Epi info7. Socio demographic characteristic and knowledge attitude and practice has been described using percentage.

RESULTS

Socio demographic characteristic

During the study period, 81 family members of eye donors and 127 eye recipients were interviewed. Almost two thirds (63%) and more than half of the donors (58%) were above the age of 50 years. While two thirds of recipients (62%) were in the age group of 40-70 years. There were more males among the donors (63%) and recipients (56%) as compared to females.

There was no difference between level of education and proportion of eye donors. Most of the donors and recipients were unemployed. Many of the donors were from socio economic class II (32%) and III (30.86%), while many of recipients were from socio economic class IV (48%).

Knowledge, attitude and practice

Knowledge regarding eye donation was gathered from doctors or hospital (32%) followed by friends (29.6%). Majority eye recipients had gained information from doctors or hospital (86.6%) (Figure 1).

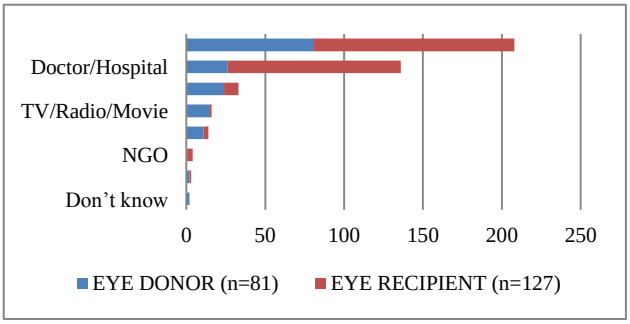

Figure 1: Source of knowledge regarding eye donation among participants.

Table 1: Socio-demographic profile of participants.

Variables		Eye donors (%)	Eye recipient (%)
Age group (in years)	0-10	00 (00.00)	06 (04.72)
	>10-20	03 (03.70)	08 (06.30)
	>20-30	07 (08.64)	07 (05.51)
	>30-40	14 (17.28)	11 (08.66)
	>40-50	10 (12.35)	24 (18.90)
	>50-60	17 (20.99)	30 (23.62)
	>60-70	12 (14.81)	25 (19.68)
	>70	18 (22.22)	16 (12.60)
	Total	81 (100)	127 (100)

Continued.

Variables		Eye donors (%)	Eye recipient (%)
Sex	Male	51 (62.96)	71 (55.90)
	Female	30 (37.03)	56 (44.09)
	Total	81 (100)	127 (100)
Religion	Hindu	64 (79.01)	107 (84.25)
	Muslim	00 (00.00)	14 (11.02)
	Jain	17 (20.99)	05 (03.94)
	Sikh	00 (00.00)	01 (0.79)
	Total	81 (100)	127 (100)
Education	Illiterate	09 (11.11)	44*(34.65)
	Primary	17 (20.99)	46 (36.22)
	Secondary	19 (23.46)	21 (16.53)
	Higher secondary	13 (16.05)	12 (09.45)
	Graduate	20 (24.69)	04 (03.15)
	Post graduate	03 (03.70)	00 (00)
	Total	81(100)	127 (100)
Occupation	Profession	11 (13.58)	06 (04.72)
	Semi profession	00 (00)	00 (00)
	Clerk, shopkeeper, farmer	04 (04.94)	28 (22.05)
	Skilled worker	19 (23.46)	05 (03.94)
	Semi-skilled worker	02 (02.47)	00 (00)
	Unskilled worker	14 (17.28)	12 (09.45)
	Unemployed	31 (38.27)	76 (59.84)
	Total	81 (100)	127(100)
Socio Economic class	I	15 (18.52)	03 (02.36)
	II	26 (32.10)	04 (03.15)
	III	25 (30.86)	19 (14.96)
	IV	12 (14.81)	61 (48.03)
	V	03 (03.70)	40 (31.50)
	Total	81 (100)	127(100)

*Including two children under age of 7 year.

Table 2: Reason of eye donation among willing participants.

Willing to donate or already pledged		Eye donors (%) (n=73)	Eye recipients (%) (n=122)
Reasons	Can give vision to person	67 (91.78)	115 (94.26)
	Is a noble work	04 (05.48)	02 (01.64)
	Pleasure to help the blind	01 (01.37)	00 (00)
	Friend or relatives has donated or received eyes	00 (00)	04 (03.28)
	Influence after reading an article	01 (01.37)	01 (00.82)

Table 3: History of regular blood donation among the participants.

Variable	Eye donors (%)	Eye recipients (%)
Yes	11 (13.58)	04 (03.15)
No	70 (86.42)	122 (96.06)
Don't know	00 (00)	01 (00.79)
Total	81 (100)	127 (100)

One forth (25%) donors' relatives and 16.5% eye recipients were aware about celebrities canvassing for eye donation, of whom seven donors and none of the

recipients were encouraged for eye donation by celebrities.

Among our participants 68 (83.95%) family members had closed the eye lids of the donor after death, 39 (48.15%) had switched off fan of the room. Only six had raised the donors head before technical person arrived to remove the eye.

Table 4: Procedure followed by relatives to preserve donors' eye after death of donor.

Variable	Practice by eye donors (%)
Close eye lids	68 (83.95)
Switch off fan	39 (48.15)
Raise head end of body	06 (07.41)

Regarding blood donations, 13.6% of eye donors regularly donated blood. Relatives of eye donors as well as recipients shows readiness to donate eye (90% and 96% respectively). Main reason for this was giving vision to other blind person. Five of the 81% eye donors had donated other organs also.

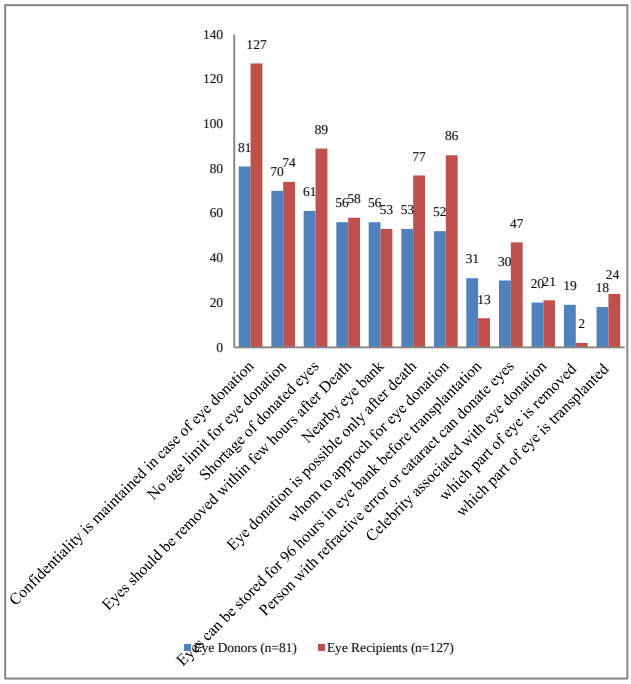

Figure 2: Knowledge about eye donation among relatives of eye donor and eye recipients.

DISCUSSION

This study explores the knowledge, attitude and practice of eye donors and eye recipients, thereby helping us to get baseline data which will help us prepare counseling tools or prepare awareness models regarding eye donation.

In the present study it was found that maximum numbers of donors were in the age group of more than 70 years followed by 50-60 years. About 60% donations were done after 50 years of age. Similar results were found in the study carried out by Dasar et al which revealed 32 (14.95%) eye donations between 0-50 years and 85.05% donations after 50 years of age.[8] Findings of the present study indicates, there were male preponderance in the eye donation compared to female, while contrast finding were seen in the study of Bhandary et al who carried out the study at Melaka in Malaysia that there was female (55.70%) preponderance.[9]

Our study did not show any difference in literacy level and eye donation. This finding is an indication that awareness for eye donation can be generated through other means and needs to be equally disseminated among the educated as well as uneducated. Mass media campaign regarding the public awareness in general may be more effective for the same, which can be explored further. Most common mode of death among the donors was natural (62.96%), whereas different study found different mode of death. In the study done by Dasar et al old age (47.2%, n=101) was the most common cause followed by cardiovascular disease.[8] Our study showed that 3/4th donors and recipients agreed that there is shortage of eye donors and nearly all donors and recipients (more than 90%) were either willing or had already pledged to donate their eyes. Similar results were found in a study of Gupta et al on the nursing college student of Bangalore with 85.1% participant shows willingness to donate eyes.[10] According to M. K. Institute of Ophthalmology, Civil Hospital Ahmedabad data, there is 2 to 3 month waiting period for corneal transplantation. Therefore if eye donations are done in abundance, this shortage may be addressed.

Present study shows doctor or hospital was the most common source of information 26 (32.10%) followed by mass media 11 (13.58%). In contrast to this study many other studies like Bharti et al (71%), Biswas et al (52.6%), Bhandary et al (55.4%), Krishnaiah et al (79.2%) found mass media as most common source of information.[2,9,11,12] This discrepancy may be because our study participants were first degree relatives of eye donors and eye recipients whereas in other studies participants were general population. This reason could also have led to increased awareness and practice regarding the precautions and actions to be taken after death (donation within 4 to 6 hours of death, raising the head end of body, closing of eyelids, switch off the fan and placing cool wet cloth over eyes to prevent the cornea from drying) while waiting for the technical person to come for enucleation.[13] In our study almost 2/3rd eye donors and recipients were aware that eye donation is possible only after death. It was 31.5% in the study of Bharti et al and 88% in study of Bhandary et al.[9,11] Eyes should be donated within six hour, this fact in our study was known to nearly 2/3rd of donors and half of the recipients, while 38.2% participants had this knowledge in the study done by Gupta et al.[10] In the present study ¼ donors and very few recipients were aware that the whole eye is to be removed from the donor while 16.05% donors and 19.68% recipients were aware that the cornea can be removed separately. Nearly 2/3rd donors and almost 90% recipients did not know that donor eye can be stored before transplantation, while as per Bhandary et al 36.2% were not aware that the eye could be preserved after retrieval.[9] After removal eyes can be stored for 96 hours (4 days) in M. K. Medium, only 31 (38.27%) eye donors and 13 (10.24%) of eye recipients had correct knowledge about the same in our study while it was 128 (32%) in the study of Bharti et al.[11] Knowledge regarding anonymity of donor was 100% in present study while it was 74.5% in the study of Bhandary et al.[9]

The current procedure for eye donation regarding registration and being given a certificate along with information about preservation of eyes, therefore need to be propagated further. This would improve the

preservations and thereby percentage of cornea uptake from among donated cornea.[13]

Present study shows majority of eye donors and eye recipients were willing to donate their eyes in future. Similar were finding in the study carried out by Giri et al 74 (84.09%) among intern of rural medical college Loni, Maharashtra and Dhaliwal et al (87.8% medical students).[14,15] Other person being enabled to see was the main reason for donating eyes among most of donors and recipients in the present study. Similar reason were also reported in study among interns of rural medical college Loni, Maharashtra. There were only three (n=208, 1.44%) person in our study who were not willing to donate eye because they disliked their eyes being separate from their body, which is similar to study of Giri et al on intern student 14 (15.91%).[14]

Eye donation by already pledging before death was found in three out of 81 donors in the present study. Similar finding were observed in the study by Giri et al in Loni, Maharashtra.[14] This shows the felt need to carry out eye donation campaigns and encouraging people to donate their eyes.

CONCLUSION

Most common source of information for eye donation for eye donors and eye recipients were doctors or hospital. Relatives of donors are well versed with various aspect of preserving eye after the death of donor compared to those recipients. One fourth of donors' relatives were aware about celebrities canvasing for eye donation. Most of them were ready to donate their eyes in future.

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