# **Original Research Article**

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# Eye donation: awareness and willingness among shopkeepers

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## **ABSTRACT**

**Background:** Corneal blindness is one of the important causes of blindness in India that can be conventionally cured by corneal transplantation. The number of corneal transplants done is less than the actual requirement in India due to inadequate number of corneas collected. Therefore increasing awareness regarding eye donation and also willingness to pledge for the same is the today's need. Hence current study was undertaken to assess the awareness regarding eye donation and the willingness to pledge the eye for donation amongst the shopkeepers in urban area of Pune city.

**Methods:** Total 1014 shopkeepers above 15 years of age from field practice area of Urban Health Training Center of a private medical college, Pune were interviewed regarding awareness of eye donation and willingness to pledge eye for eye donation.

**Results:** Out of total 1014 subjects, 752 (74.16%) were aware of eye donation amongst which males were maximum (75.13%) compared to females (24.87%). Awareness was more in the age group >40 years i.e. 47.87%. Willingness to pledge eyes for eye donation was 19.83%.

**Conclusions:** Though the awareness regarding eye donation is high very few of them are ready to donate their eyes. Therefore more transfer of knowledge is needed to motivate people for eye donation which will be helpful in reducing the gap between the availability of corneas and actual requirement.

Keywords: Awareness, Eye donation, Urban

# INTRODUCTION

According to World Health Organization corneal diseases are among the major cause of vision loss and blindness in the world today. In India it is estimated that there are approximately 6.8 million people who have vision <6/60 in at least one eye due to corneal diseases, of these about a million have bilateral involvement. According to the National Programme for Control of Blindness (NPCB) estimates, there are currently 120,000 corneal blind persons in the country and each year about 20,000 new cases of corneal blindness is added to the existing list. The burden of corneal diseases in our country is reflected by the fact that 90% of the global cases of ocular trauma

and corneal ulceration leading to corneal blindness occur in developing countries.<sup>3</sup> Although strategies to prevent corneal blindness are likely to be more cost-effective, visual rehabilitation by corneal transplantation remains a major treatment option for restoring sight in those who already have corneal blindness.<sup>4</sup> According to eye bank association of India, the current cornea procurement rate in India is 49,000 per year. It is estimated that a significant proportion of donor corneas are unsuitable for corneal transplantation. Based upon current ratio of available safe donor eyes we would need 2,77,000 donor eyes to perform 1,00,000 corneal transplants in a year in India which is approximately a 20-fold increase from the donor eyes available now.<sup>5</sup> Shortage of transplantable

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corneas is common and has been the subject of much attention. To reduce this shortage, raising the level of public education and willingness on eye donation is an important first step. Current study was planned to assess the awareness of eye donation and willingness to pledge eyes amongst shopkeepers of urban area of Pune city.

## **Objectives**

- 1. To assess the awareness regarding eye donation amongst the shopkeepers in urban area of Pune city.
- To determine the willingness to pledge the eye for donation amongst the shopkeepers in urban area of Pune city.
- 3. To associate the awareness regarding eye donation and willingness to pledge the eye for donation with selected demographic variables.

#### **METHODS**

## Study design

Community based observational cross-sectional study.

## Study sample

1014 shopkeepers above 18 years of age.

#### Study area

350 shops (i.e. on Tilak road, Shastri road, Kumthekar road and Laxmi road) from field practice area of Urban

Health Training Center of private medical college, Pune were covered.

Shop from each road was serially covered one by one. Initially purpose of the study was explained to the subjects. Informed Consent was taken before data collection. A predesigned; pre-structured Proforma was administered by interview technique. Shopkeepers who were not aware of eye donation, information regarding the same was given at the end of filling the Proforma and their misconceptions were cleared off. Efforts were made to increase the willingness amongst them to pledge eye for eye donation. Details of shopkeepers who were willing to donate their eyes was registered in the register maintained by Department of Ophthalmology, Tertiary Care Hospital in Pune and the pledge card was issued to them in the second visit. Data was entered in Microsoft excel sheet and analyzed using the SPSS version 20.0.Multivariate logistic regression was performed to find the variables associated with awareness and willingness.

#### **RESULTS**

Total 1014 shopkeepers participated in the study. The mean age of participants was 36 years (SD  $\pm$  13.54 years) with a range of 18-70 years and Male to female ratio was 2.7:1.Out of 1014 participants, 739 (72.9%) were male and 275 (27.1%) were females. One forty two (14%) participants were illiterate or had primary education, 550 (54.2%) had secondary education and 322 (31.7%) were graduates or post graduates.

Table 1: Responses to the questionnaire on eye donation.

Question	Number (%)
Mass Media was main source of information	628 (83.5)
Is there any age limit for eye donation	275 (36.5)
Eyes can be donated only after death	599 (79.7)
Only cornea is transplanted	84 (11)
Ideal time for donating eye is within 6 hrs after death	275 (36.56)
Relative can give consent for eye donation of deceased person	316 (42.02)
No disfigurement of the face as a result of eye donation	293 (39)

Table 2: Multivariate analysis showing an association between awareness for eye donation and variables

		1 otal	XX/*11!	Percentage	Multivariate analysis (binary logistic regression)				
			Willing		95% C.I.				
			ness	(%)	P-value	Odds ratio	Lower	upper	
Age	≤ 40	701	544	77.6	0.001	1.633	1.208	2.209	
group	> 40	313	208	66.5		1			
Gender	Male	739	565	76.5		1			
	Female	275	187	68.0	0.024	0.698	0.51	0.955	
Education	Illiterate + prim	142	87	61.3		1			
	> primary	872	665	76.3	0.008	1.689	1.147	2.486	

			Willing	Percentage (%)	Multivariate analysis (binary logistic regression)				
		Total					95% C.I.		
			ness		P-value	Odds ratio	Lower	upper	
Age group	≤40	544	106	19.5	< 0.001	0.514	0.355	0.745	
	>40	208	64	30.8		1			
Gender	Male	565	129	22.8		1			
	Female	187	41	21.9	0.949	1.013	0.676	1.519	
Education	Illiterate + prim	87	16	18.4		1			
	> primary	665	154	23.2	0.118	1 598	0.888	2 878	

Table 3: Multivariate analysis showing an association between willingness for eye donation and variables.

The awareness of eye donation was 74.2% (752) amongst which males were maximum (75.13%). Mass media was the main source of information on eye donation as per 628 (83.5%) participants followed by family members and friends 113 (15%). It was observed that 275 (36.5%) participants said that there is age limit for eye donation, 252 (33.5%) said that there is no age limit. Majority of the subjects were aware 599 (79.7%) that eyes could be donated after death. One seventy eight (23.7%) knew that whole eyeball is removed from deceased but only 84 (11%) thought that only cornea is transplanted. Two hundred seventy five (36.56%) participants knew that ideal time for donating eye was within 6 hours after death. 316 (42.02%) subjects knew the fact that eye donation can be done after death of a person if relative or next of the kin gives consent for the same. No disfigurement of the face as a result of eye donation was documented by 293 (39%) (Table 1).

On multiple logistic regression analysis, awareness of eye donation was significantly higher in younger age group (<40 years) (OR 1.6; 95% CI: 1.2-2.2) and in participants with more than primary education (OR 1.6; 95% CI:1.1-2.4) while awareness was significantly lower among females (Table 2).

Amongst total 1014 participants, 201(20%) were willing to donate eyes and out of 752 participants who were aware of eye donation, 170 (23%) were willing to pledge their eyes for donation. Of these 170 willing participants, maximumi.e.64 (30.8%) were above 40 years of age, males 129 (22.8%) and those with more education were 154 (23.2%). Multiple logistic regression analysis showed that willingness was significantly lower in younger population (OR 0.5; 95% CI: 0.3-0.7) (Table 3).

#### **DISCUSSION**

Only awareness about eye donation is not sufficient, it is particularly depend on person's willingness to pledge the eye for donation and on relatives to honour that pledge after the death of that person. Thus soliciting for actual eye donation at the time of death is necessary and accepted practice. In the present study to motivate the shopkeepers for eye donation we have made them to fill eye donation forms and eye donation cards of our hospital were provided to them to aware their family

members also. This has made them aware regarding the system of eye donation canters.

Data from our study showed that 74.2% were aware of eye donation and out of these aware participants 23% were willing to pledge their eyes for donation. In contrast to our study Shinde et al (80%), Ronaki et al (93%), Marathe et al (78%) and George et al (90.5%) noted higher prevalence while Shrivastava et al (53.4%), Bhandary et al (69%), Tiwari et al (62.35%) found lower prevalence of eye donation compare to current study. Our study reported lesser willingness for eye donation compared to other studies conducted from Aurangabad (26.47%), Shrikakulum district (82%), Rewa city (38.9%), Thiruvanantapuram district (70.6%) in Pune (hospital based) (80.3%), Malaysia (34.42%) and Gwalior district (40.33%).

It is very important for general public 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 study done by George et al (79.5%), Bhandary et al (88%), Tiwari et al (50%) knew the ideal time for donating eyes i.e. within 6 hours of death which is in contrast to our study (36.5%) and study done by Marathe (44.7%). 9.10,12,13 Various studies noted that mass media is the main mode of awareness for getting information on eye donation like current study.

Eyes can be donated only after death was known to 79.7% of subjects in our study which is almost similar to the studies done by Ronaki et al (80.3%), Marathe et al (82%), Bhandary et al (88%), while George et al (49%), Shrivastava S et al (53.4%) noted lesser knowledge about it. Ronaki et al, George et al, Bhandary et al noted 62%, 72.5%, 55.6% subjects respectively had knowledge that relatives can pledge for eye donation of deceased person which is in contrast to Marathe et al (27%) and current study (42%). Ronaki et al. (27%) and current study (42%).

In our study only 11% subjects thought that only cornea is transplanted which is almost similar to Shrivastava et al (15.2%). <sup>11</sup> 39% subjects in current study thought that eye donation doesn't cause disfigurement of the face which is lesser in comparison to Ronaki et al (>70%) and Bhandary et al (76.2%) and 18% subjects from our study feels it causes disfigurement which is in contrast to

findings of Tiwari et al (29.99%), George et al (48.2%),  $^{8,10,12,13}$ 

On logistics regression analysis we found awareness of eye donation is more in younger age group and willingness for donation is more in higher age which is similar to the observations by Bhandary et al.<sup>12</sup> This shows that, maturity that develops as age increases has effect on actual pledging for eye donation. In contrast to this, Ronaki et al found more awareness as well as willingness both in higher age. Like our study Shrivastava et al, Shinde et al noted significantly more awareness of eye donation in younger age group while Marathe et al found that awareness was more in higher age.<sup>7-9,11</sup>

Current study and studies done by Shinde et al, Marathe et al, Bhandary et al noted that educational status showed positive impact on awareness. No association between willingness and education noted by Bhandary et al same as our study. 12

Our study noted significantly lower awareness of eye donation among females than males which is similar to Shinde et al, Marathe et al, George et al, Bhandary et al, Tiwari et al while there was no association found between gender and willingness by Shrivastava et al like our study. Lower willingness among females may be the necessity to seek permission from their family members or due to fear of disfigurement of face after death.

Current study is the first study done among various shopkeepers representing different communities and this may act as beneficial for spreading message regarding eye donation in their family members, relatives and friends circle. Another advantage is that shopkeepers were informed regarding eye donation centres so that they can approach to these centers whenever required.

# **CONCLUSION**

Although majority of participants were aware of eye donation, only one-third of them were willing to donate their eyes. Therefore there is great need to have motivational programs for general public to convert awareness into willingness to become eye donors and help mankind by giving sight to the needy.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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