

## “Knowledge and attitude regarding Eye Donation among adults : An Urban and Rural comparison.”



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### ABSTRACT

**Introduction:** Vision is considered as the most important sense because it allows free interaction with the environment and to enjoy the beauty of life. Blindness is the condition of lacking the visual perception. Though all the causes of blindness can't be cured, corneal blindness can be reverted by corneal transplantation, which requires a suitable donor cornea at right time. There is lack of awareness about eye donation among general population, so the practice of eye donation is also lacking.

**Objectives:** To assess the knowledge and attitude regarding Eye donation among adults.

**Methodology:** Community based cross sectional study was conducted among 200 adults aged 18 years and above; 100 each from urban and rural areas. Data was collected using pre-designed, pre-tested semi-structured questionnaire. Descriptive statistics and Chi-square test was done using SPSS v22.0.

**Results:** Majority (37%) study participants belonged to 18-30 yrs age group, 55.5% were females, 25.5% had completed secondary education, 38% were housewives and 48% belonged to class III socioeconomic status. Majority (77%) of study participants in urban area and 81% in rural area had heard of the term eye donation. Television was found as the major source of information.

**Conclusion:** There are many myths regarding eye donation among the study population. These need to be dispelled with concerted IEC activities to overcome the eye donation barriers. IEC activities responsibilities need to be entrusted to Dept. of Community Medicine of Medical Colleges across the country.

### Key-words:

Attitude,  
Corneal blindness,  
Eye bank,  
Eye donation,  
Knowledge

**I. INTRODUCTION**

Vision is considered as the most important sense because it allows free interaction with the environment and to enjoy the beauty of life. Once vision becomes significantly limited, it influences the activities of daily living.<sup>1</sup> Blindness is the condition of lacking the visual perception.

Besides cataract, damage to cornea is the second most common cause of blindness. Corneal diseases constitute a significant cause of visual impairment and blindness in the developing world.<sup>2</sup> As per the National Program for Control of Blindness (NPCB), corneal blindness accounts to 0.9% of total blindness in India.<sup>3</sup> Major causes of corneal blindness include corneal scarring including trachoma, corneal ulceration following xerophthalmia due to vitamin A deficiency, ophthalmia neonatorum, onchocerciasis, leprosy and ocular trauma.<sup>4,2</sup> The epidemiology of corneal blindness is dependent on endemic diseases prevalent in those geographical areas. Corneal scarring either as a result of corneal diseases including ulcers or trauma is a major cause of bilateral or unilateral blindness and vision impairment in children and young adults.<sup>5,6</sup>

Although primary and secondary prevention are more cost effective, visual rehabilitation (tertiary prevention) by corneal transplantation remains a major option for restoration of vision in those who already have corneal blindness.<sup>4,7</sup> Keratoplasty or Corneal transplantation is the sight restoring surgery for corneal blindness, wherein the damaged or diseased cornea is removed and replaced by a timely harvested healthy cornea from a deceased donor. This surgery is totally dependent on eye donation after death.<sup>8</sup> India has the world’s largest corneal blind population, and therefore corneal donation is one of the major requirements in India.<sup>4,9</sup>

One of the major obstacles in eye donation is lack of awareness and a negative attitude among general population like retrieval of donated eye causes disfigurement of face of dead body, misuse of donated eye for commercial purposes (like kidney racket). Recognition of the fact that vision restoration through corneal grafting is possible for a sizeable proportion of the corneal blind in India, has led to a sustained multi-pronged drive to raise awareness of eye donations and corneal transplants. The National Eye Donation Fortnight, which is a campaign to create mass public awareness about eye donation and to motivate people to pledge their eyes for donation after death, is observed every year from 25th August to 8th September.<sup>10</sup> As per NPCB, in the year 2017-18, in India, only 52.2% of the target for collection of donated eyes was achieved (26091 collected, out of the 50000 target) and in Karnataka it was even lower at 39.5% (1383 collected, out of the 3500 target).<sup>11</sup> According to the Eye Bank Association of India (EBAI), the huge gap of demand and supply of corneal grafts is further worsened by a significant proportion of donor corneas being unsuitable for corneal transplantation.<sup>12</sup> The prerequisite, therefore, is to make the general people more aware about eye donation in an effort to increase the procurement of cornea. Keeping this in mind the present study was conducted to assess the knowledge, attitude and associated demographic factors in relation to eye donation and to create awareness about it among individuals residing in urban and rural areas.

**II. MATERIALS AND METHODS**

**Study design and setting:**

This study was a community based, cross-sectional study, which was carried out for a period of 3 months, from April 2017 to June 2017. The study was conducted among adults aged 18 years and above, residing in the field practice area of Urban Health Training Centre and Rural Health Training Centre, attached to a tertiary care hospital of a Medical College.

**Sample size:** A total of 200 subjects (100 each from urban and rural area) were selected for the study.

**Sampling procedure:** A house-to-house survey was carried out by the investigators, by doing systematic random sampling (every 10<sup>th</sup> house was considered), with the help of anganwadi workers and medico-social workers. Only one adult was considered from each house as representative of that family, to avoid duplication of data.

**Inclusion and exclusion criteria:** Individuals aged 18 years and above, residing in the study area for more than 1 year, who consented to participate on a voluntary basis, were included in the study. Adults not complying with the inclusion criteria were excluded.

**Data collection:** Data was collected by interviewing all 200 study participants by conducting house-to-house survey using a pre-designed, pre-tested and semi-structured questionnaire, which included questions on the socio-demographic profile and questions related to their knowledge and attitude about eye donation. Immediately after completion of data collection, health education regarding the importance of eye donation was imparted to each and every study participant as well as to his/her family members.

Data collection was done after taking verbal informed consent from the subjects. The study was approved and ethical clearance was obtained from Institutional Ethics Committee.

**III. STATISTICAL ANALYSIS**

Data entry was done using Epidata v3.1 and analysis was done using SPSS v22.0. The analysis was done separately for Urban and Rural area participants and was compared. Descriptive statistics like percentages, frequencies were done and chi square test ( $\chi^2$ ) was applied to determine association between two attributes and  $p < 0.05$  was considered as statistically significant.

**IV. RESULTS**

Total 200 individuals (100 from urban area and 100 from rural area) participated in the study.

Table:1 describes the socio demographic features of study participants, where a majority of 38% in urban area belonged to 31-50 yrs and a majority of 42% in rural area belonged to 18-30 yrs age group. Majority 55.5% of study participants were females and 87% were Hindus.

**Table 1: Distribution of study participants as per socio-demographic characteristics - Part I**

Characteristics	Urban n=100	Rural n=100	Total n=200 (%)
<b>Age (in years)</b>			
18 – 30	32	42	74 (37%)
31 – 50	38	32	70 (35%)
51 – 70	23	19	42 (21%)
> 70	7	7	14 (7%)
<b>Sex</b>			
Male	40	49	89 (45.5%)
Female	60	51	111 (55.5%)
<b>Religion</b>			
Hindu	86	88	174 (87%)
Muslim	10	12	22 (11%)
Christian	4	0	4 (2%)
<b>Occupation</b>			
Agriculture	4	40	44 (22%)
Laborer	6	13	19 (9.5%)
Housewife	46	30	76 (38%)
Business	3	5	8 (4%)
Employee in service	10	1	11 (5.5%)
Others	31	11	42 (21%)

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Table:2 shows that majority 30% in urban area had completed secondary education whereas majority 27% in rural area were illiterates and this difference across educational status was statistically significant ( $\chi^2=25.66$ ,  $df=5$ ,  $p<0.001$ ). 32% of study participants in urban area belonged to class I socioeconomic status and 64% in rural area were of class III socioeconomic status (Socio Economic Scale, Modified B. G. Prasad's Classification 2016 - India)<sup>13</sup> and this difference across socio-economic status was statistically significant ( $\chi^2=68.149$ ,  $df=4$ ,  $p<0.001$ ).

**Table 2: Distribution of study participants as per socio-demographic characteristics – Part II**

Characteristics	Urban n=100	Rural n=100	Total n=200 (%)
<b>Education</b>			
Illiterate	9	27	36 (18%)
Primary	16	23	39 (19.5%)
High school	14	20	34 (17%)
Secondary	30	21	51 (25.5%)
Graduate	28	9	37 (18.5%)
Post graduate	3	0	3 (1.5%)
$\chi^2 = 25.66$ , $df=5$ , $p<0.001$			
<b>Socio economic status*</b>			
Class I	32	0	32 (16%)
Class II	26	5	31 (15.5%)
Class III	32	64	96 (48%)
Class IV	10	29	39 (19.5%)
Class V	0	2	2 (1%)
$\chi^2 = 68.149$ , $df=4$ , $p<0.001$			

\*As per modified B. G. Prasad classification 2016.

Table:3 shows the knowledge of study participants regarding Eye donation. Majority 77% of study participants in urban and 81% in rural area had heard of the term eye donation and this difference was not statistically significant.

**Table 3: Knowledge of study participants regarding Eye donation – Part I**

Questions	Urban n=100	Rural n=100	Total n=200 (%)
Have you ever heard of the term Eye Donation?	Yes	77	158 (79%)
	No	23	42 (21%)
$\chi^2 = 0.482$ , $df=1$ , $p=0.488$			

Table:4 shows the knowledge of study participants regarding Eye donation among those who were aware of eye donation. 96.8% of study participants knew that eye donation involved removal of eye from donor immediately after death. A majority 49.4% believed that eye donation involved removal of only a part of the eye. Television was found as the major source of information among them. A majority 76.6% of study participants believed that eye donation was done to save someone's eye sight. However, 62% had not known personally anyone who had donated eyes. 44.3% informed that donated eye has to be removed within 6 hours after death. A majority 76.6% of study participants were of the view that the declaration form for eye donation has to be filled by the donor when he/she is alive.

**Table 4: Knowledge of study participants regarding Eye donation – Part II**

Questions	Urban n=77 (%)	Rural n=81 (%)	Total n=158 (%)	
The term 'Eye Donation' means?	The removal of eye from a dead donor	72 (93.5%)	81 (100%)	153 (96.8%)
	The removal of eye from a living donor	5 (6.5%)	0	5 (3.2%)
Eye donation involves	Removal of whole eye	32 (41.6%)	38 (46.9%)	70 (44.3%)
	Removal of only a part of eye	41 (53.2%)	37 (45.7%)	78 (49.4%)
	Don't know	4 (5.2%)	6 (7.4%)	10 (6.3%)
You heard about Eye donation through which of the following sources***	Doctor	8	3	
	Internet	2	4	
	TV	52	45	
	Radio	3	33	
	Newspaper	22	9	-
	Others	10	0	
Why is Eye donation done?	To save someone's eye sight	47 (61%)	74 (91.4%)	121 (76.6%)
	Out of compassion/sympathy	18 (23.4%)	6 (7.4%)	24 (15.2%)
	For money	0	0	0
	As a 'responsibility'	12 (15.6%)	1 (1.2%)	13 (8.2%)
Do you know of anyone who has donated Eyes?	Family member	8 (10.4%)	12 (14.8%)	20 (12.7%)
	Friend	10 (13%)	4 (4.9%)	14 (8.9%)
	Colleague	4 (5.2%)	0 (%)	4 (2.5%)
	No one	42 (54.5%)	56 (69.1%)	98 (62%)
	Others	13 (16.9%)	9 (11.2%)	22 (13.9%)
Within how many hours after death eye to be removed for donation?	Immediately after death	26 (33.7%)	20 (24.7%)	46 (29.1%)
	Within 6 hours	31 (40.3%)	39 (48.1%)	70 (44.3%)
	Within 24 hours	20 (26%)	22 (27.2%)	42 (26.6%)
Requirement of Eye donation declaration form, for donation?	Must be filled while donor is alive	48 (62.3%)	73 (90.1%)	121 (76.6%)
	Can be filled after death of the donor	29 (37.7%)	8 (9.9%)	37 (23.4%)

...continue

Questions		Urban n=77 (%)	Rural n=81 (%)	Total n=158 (%)
For agreeing to donate your eyes after death, who can give consent?	Donor while alive (by pledging)	60 (77.9%)	57 (70.4%)	117 (74.1%)
	Family	9 (11.7%)	24 (29.6%)	33 (20.8%)
	Spouse	3 (3.9%)	0	3 (1.9%)
	Friends	2 (2.6%)	0	2 (1.3%)
	Donors doctor	3 (3.9%)	0	3 (1.9%)
For donation after death, who should give consent?	No one	2 (2.6%)	0	2 (1.3%)
	Family	62 (80.5%)	81 (100%)	143 (90.5%)
	Spouse	10 (13%)	0	10 (6.3%)
	Doctor	2 (2.6%)	0	2 (1.3%)
	Friend	1 (1.3%)	0	1 (0.6%)
Who can retrieve the donated eye	Only in hospital	34 (44.2%)	64 (79%)	98 (62%)
	Eye bank team	43 (55.8%)	17 (21%)	60 (38%)
How long does the eye extraction procedure take?	15-30 mins	31 (40.3%)	6 (7.4%)	37 (23.4%)
	1 hour	34 (44.1%)	69 (85.2%)	103 (65.2%)
	More than 1 hour	12 (15.6%)	6 (7.4%)	18 (11.4%)
What other organs can be donated?***	Kidney	52	57	
	Blood	53	78	
	Heart	37	7	
	Lungs	56	4	
	Liver	22	9	
	Skin	3	22	
	Bone marrow	3	15	
	All of above	0	3	-
	None of the above	19	0	

\*\*\* Questions with multiple answers

Table:5 shows the attitude of study participants towards Eye donation. 58.2% believed that their religion allow Eye donation. 67.7% believed that donated eyes would not be misused or abused and 79.1% said that eye donation does not cause disfigurement of the face of the donor.

**Table 5: Attitude of study participants regarding Eye donation.**

Questions		Urban n=100	Rural n=100	Total n=200(%)
Your attitude towards the possibility of your own Eye being used for donation?	Would never consider donating(1)	1 (1.3%)	7 (8.6%)	8 (5.1%)
	Will think about donating(2)	29 (37.7%)	51 (63%)	80 (50.6%)
	Only under special circumstances(3)	30 (39%)	9 (11.1%)	39 (24.7%)
	Definitely, irrespective of circumstances(4)	17 (22.1%)	14 (17.3%)	31 (19.6%)
Does your religion allow Eye donation?	Yes	34 (44.2%)	58 (71.6%)	92 (58.2%)
	No	0	8 (9.9%)	8 (5.1%)
	Don't know	43 (55.8%)	15 (18.5%)	58 (36.7%)
Do you believe that donated eye could be misused or abused	Yes	12 (15.6%)	25 (30.9%)	37 (23.4%)
	No	65 (84.4%)	42 (51.9%)	107(67.7%)
	Don't know	0	14 (17.3%)	14 (8.9%)
Do you fear that eye donation will cause disfigurement of the face of the donors dead body	Yes	19 (24.7%)	14 (17.3%)	33 (20.9%)
	No	58 (75.3%)	67 (82.7%)	125(79.1%)
Who would you like to donate your eye to?	Family member	5 (6.5%)	9 (11.1%)	14 (8.9%)
	Can be anyone	72 (93.5%)	72 (88.9%)	144(91.1%)
Which of the following factor holds greatest importance to you while donating?***	Relation to the person	1	6	
	Age of recipient	21	0	
	Religion of recipient	0	2	-
	Health status of recipient	61	12	
	None of the above	0	61	

\*\*\* Questions with multiple answers

## V. DISCUSSION

In present study, 79% of study participants were aware of eye donation, television was the major source of information and 44.3% study participants knew that eye retrieval for eye donation had to be done within 6 hours of death, when compared to a study done in Tamil Nadu by Priyadarshini B. et al<sup>5</sup>, where 50.69% were aware of eye donation, publicity campaign was the major source of awareness and only 4.34% were aware of eye retrieval.

In present study, prevalence of awareness of eye donation was 79% and television was the major source of information, in contrast to a study done in Andhra Pradesh by Krishnaiah S. et al<sup>14</sup>, where only 30.7% were aware and media comprised the major source of information about eye donation. This difference in awareness could be attributed to the fact that the Andhra Pradesh study had study participants only from rural area, as compared to the present study which included both urban and rural areas. Of those aware of eye donation, in the present study, 50.6% informed that they would think about eye donation, when compared to Andhra Pradesh study, where only 32.9% were willing to pledge eyes. In another study done in Gwalior by Tiwari R. et al<sup>2</sup>, 62.3% of study participants were aware of eye donation. 29.99% were afraid that eye donation will result in deformity of face after death.

**VI. CONCLUSION**

Although multiple strategies are currently followed to increase awareness of eye donations and corneal transplants, more innovative strategies have to be developed, especially to target illiterate populations. Dispelling the myths regarding eye donation is very essential to overcome this barrier. IEC activities required to be organized in both urban and rural areas to educate people regarding the importance and procedure involved in Eye donation. Three PHCs are normally attached to each Medical College in the country for training of Under Graduates and Interns. To start with, Medical Colleges (Dept. of Community Medicine) be made responsible to impart health education to para-med staff of Primary Health Centers (PHCs), Sub Centers (SCs), Accredited Social Health Activists (ASHAs) and Anganwadi workers (AWWs) on eye donation. These trained staff could be utilized as resource persons for further educating the general public under their health care.

**VII. LIMITATIONS**

Results cannot be generalized to general public as the study participants were hailing from one urban area and one rural area only, which are located near to a Medical College.

**VIII. ACKNOWLEDGEMENT**

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