

# Knowledge, Attitude and Practices Regarding Eye Donation Among General Public of Faisalabad, Pakistan

Muhammad Zain Aftab, Muhammad Sohaib Ejaz, Tayyab Hassan, Muhammad Atif Sarfraz, Saif-ur-Rehman, Muhammad Ahmad, Rao Ahmed Yousaf

## ABSTRACT

**Background:** Corneal damage, after cataract, is the second commonest cause of blindness worldwide. The only remedy for corneal damage is corneal grafting, which is only possible by eye donation. The practice of eye donation in Pakistan is very low as compared to developed countries. However, well aware and well-informed public is expected to increase the practice of eye donation. **Objective:** To assess the knowledge, attitude and practices of general public of Faisalabad regarding eye donation and their willingness to pledge eyes after death. **Study Design:** Observational Descriptive Study. **Settings:** Out-patient departments (OPDs) and in-patient departments (IPDs) of three public sector hospitals of Faisalabad namely Allied Hospital, DHQ Hospital and General Hospital Samanabad Faisalabad. **Duration:** From March to May 2018. **Methodology:** An observational descriptive study was conducted using a pre-tested questionnaire among the attendants. 500 individuals were selected using convenient sampling technique. Collected data was then analyzed by SPSS version 24. **Results:** Out of 500 participants, 337 (67.4%) had heard about eye donation before (aware). These 'aware' participants were then subjected to questions pertaining to their knowledge, attitude and practices regarding eye donation. In context of knowledge, only 61/337 (46 males, 15 females) knew that just cornea is transplanted in eye donation. In context of attitude and practices, only 76/337 (56 males, 20 females) were willing to donate their eyes after death. Further, media (both print and electronic) was the source of awareness for 52.82% of the aware participants. On applying chi square test of independence, education was found to have strong association with awareness level ( $p$ -value= 0.000). **Conclusion:** Our study reveals inadequate awareness and low willingness among general public regarding eye donation. Low literacy rate, few eye banks and inadequate awareness campaigns are the major hurdles in this regard. Further, awareness and practices regarding corneal donation according to our research can be increased by utilizing the services of print and electronic media.

**Keywords:** Eye donation, Awareness, Willingness to pledge, Faisalabad, Media, Cornea.

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## INTRODUCTION

Eye is a spectacular organ which gives us a view of this beautiful universe. But as much precious as the eye is, the severity of its ailments coexists. There are about 45 million blind people worldwide, based on WHO's definition of blindness as the best corrected visual acuity being less than 3/60.<sup>1</sup> The number of blind people increases by 1-2 million annually as the service delivery is not keeping pace with increasing and ageing population.<sup>2</sup> The visual disability has detrimental influence on quality of life<sup>3</sup> thus blindness being classified as the 6<sup>th</sup> of seven categories of increasing disability.<sup>4</sup> Blindness has notorious relation with poverty as some eye diseases are a direct result of poverty e.g. trachoma.<sup>1</sup> Further, a study conducted by Foster A and Johnson G has shown that about 85% of the world's blindness resides in Asia and Africa.<sup>5</sup> Damage to cornea (the transparent tissue present at the front of eye), after cataract, is the second commonest cause of blindness - accounting for 6-8 million cases of blindness worldwide. The major cause of blinding corneal damage is trachoma (responsible for about 4.9 million cases of corneal damage). Other causes include ocular trauma, corneal ulceration, xerophthalmia, ophthalmia neonatorum, onchocerciasis, leprosy and vernal conjunctivitis.<sup>1</sup>

According to Global data on visual impairments (2010), Pakistan is located in WHO's Eastern Mediterranean region which has most number of blind people per million population.<sup>6</sup> Pakistan has 1.14 million blind people with over 1 lac cases of corneal blindness.<sup>7,8</sup> Unfortunately, health has never been a priority in the eyes of country's policy makers as only 0.5 to 0.8% of the gross domestic product is meant for health (much lower than the WHO's standard for low income countries)<sup>9</sup> and only a small proportion of it is specified for eye care.<sup>10</sup> In spite of all the challenges, the country accommodated to decrease the burden of blindness from 1.78% in 1987-1990<sup>11</sup> to 0.9% in 2003<sup>7</sup> simply by improving the services at district level.<sup>12</sup>

The Andhra Pradesh Eye Diseases Studies (APEDS) in India proposed that 2.7 million blind-people-years could have been saved provided that 90% of the preventable corneal blindness and glaucoma had been avoided.<sup>13</sup> Though the plans to preclude the corneal blindness are likely to be more cost productive, corneal transplant is the only treatment for the restoration of vision of those who are already corneal blind and it is only possible through eye donation, which is an act of donating one's cornea after his/her death (the 1<sup>st</sup> human corneal transplant being carried out in 1905 by Eduard Zirm).<sup>14</sup>

Currently in Pakistan, Al-Shifa Trust Eye Hospitals (carrying out 50-60 corneal graftings monthly),<sup>15</sup> Layton Rahmatulla Benevolent Trust (LRBT) Free Eye Hospitals (successfully performed 281 corneal transplants in 2016/17)<sup>16</sup> and Pakistan Eye Bank Society Hospital Karachi are on the mission to counsel and educate people regarding eye donation.

Likewise Lyallpur Eye Trust (LET) Faisalabad, established in November 2016, is working on eye donation and has successfully carried out 158 corneal transplantations but the point of concern is that out of 158 corneas, only 14 were retrieved from locals while the rest were received from abroad.<sup>17</sup>

Further a study conducted by Parvez MA et al. has already shown the lack of adequate awareness among urban population of Pakistan regarding eye donation.<sup>18</sup>

Thus, this study was launched to assess the knowledge, attitude and practices of general public of Faisalabad regarding eye donation and their willingness to pledge eyes after death.

## METHODOLOGY

**Study Design:** Observational Descriptive Survey.

**Settings:** The study was conducted among the attendants in out-patient departments and in-patient departments of three public sector hospitals of Faisalabad namely Allied Hospital, DHQ Hospital and General Hospital Samanabad Faisalabad.

**Duration:** Two months from (March to May 2018).

**Sample Technique:** Non-probability/Convenient sampling.

**Sample Size:** 500 individuals.

**Data Collection Tool:** The study was conducted using a pre-tested questionnaire. The questionnaire contained a section of demographics in which data about age and education of subjects was collected and then there were 3 sections that assessed sequentially the knowledge, attitude and practices regarding eye donation. The interviewers asked all the questions of questionnaire and marked the relevant responses on the questionnaires. Data collection was followed by a session of delivering the much-needed awareness regarding eye donation to the participants.

**Data Analysis:** Data analysis was performed using Statistical Package for the Social Sciences (SPSS) version 24. Data was analyzed. Chi square test of independence was also applied.

## RESULTS

Out of total 500 participants, 385 (77%) were males and the rest 115 (23%) were females. Majority of respondents (241, 48.2%) belonged to age group of 26-40 years, though appreciable number (154, 30.8%) also fell within 18-25 years. Questions about subjects' education and religion were also included in demographic section of questionnaire, assuming them in the first place to be the factors associated with awareness and willingness to pledge eyes in one way or the other. However, on applying chi-square test, there was found a significant association between participants' education and their awareness regarding eye donation ( $p < 0.05$ ) but age, gender and religion were not found to be associated with awareness regarding eye donation ( $p > 0.05$ ). (Table 1)

**Table 1: Demographic Information of the Participants**

Characteristics	Frequency (N=500)			p-value
	Total (%) n=500	Aware (%) n=337	Unaware (%) n=163	
<b>Gender</b>				
Male	385 (77%)	267 (53.4%)	118 (23.6%)	0.089
Female	115 (23%)	70 (14%)	45 (9%)	
<b>Age</b>				
18-25 years	154 (30.8%)	107 (21.4%)	47 (9.4%)	0.586
26-40 years	241 (48.2%)	165 (33%)	76 (15.2%)	
41-60 years	99 (19.8%)	61 (12.2%)	38 (7.6%)	
Above 60 years	6 (1.2%)	4 (0.8%)	2 (0.4%)	
<b>Education</b>				
Illiterate	94 (18.8%)	36 (7.2%)	58 (11.6%)	0.000*
Primary	64 (12.8%)	37 (7.4%)	27 (5.4%)	
Matric	214 (42.8%)	154 (30.8%)	60 (12%)	
Higher Education	128 (25.6%)	110 (22%)	18 (3.6%)	
<b>Religion</b>				
Islam	476 (95.2%)	321 (64.2%)	155 (31%)	0.937
Christianity	24 (4.8%)	16 (3.2%)	8 (1.6%)	
Others	0 (0.0%)	0 (0.0%)	0 (0.0%)	

\*Significant

**Table 2: Eye Donation Awareness**

Question		Frequency (N= 500)		
		Male (%) n=385	Female (%) n=115	Total (%) N=500
Have you ever heard about Eye Donation before?	Yes	267 (69.35%)	70 (60.87%)	337 (67.4%)
	No	118 (30.65%)	45 (39.13%)	163 (32.6%)

Participants' awareness regarding eye donation was assessed by asking the question "Have you ever heard about eye donation before?" 337 respondents (267 males, 70 females) marked 'yes' against this question and were regarded as 'aware' (Table 2), and were subjected to questions pertaining to knowledge, attitude and practices regarding eye donation (Table 3 & 4). While 163 respondents (118 males, 45 females) marked 'No' against this question and were labelled as 'unaware'. They were then asked generously if they would like to get information regarding eye donation from interviewer: 139 (85.28% of unaware) respondents were willing to be informed while the rest 24 (14.72% of unaware) refused to get information.

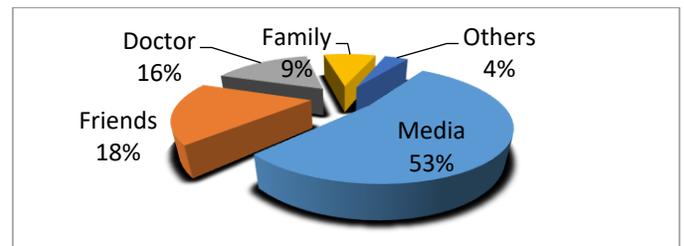
**Table 3: Knowledge of the Participants**

Questions		Frequency (N= 337)		
		Male (%) n=267	Female (%) n=70	Total (%) N=337
What is meant by eye donation?	Only cornea is transplanted	46 (17.23%)	15 (21.43%)	61 (18.10%)
	Whole eye ball is transplanted	92 (34.46%)	21 (30%)	113 (33.53%)
	I don't know	129 (48.31%)	34 (48.57%)	163 (48.37%)
Is there any age limit for eye donation?	Yes	78 (29.21%)	20 (28.57%)	98 (29.08%)
	No	132 (49.44%)	34 (48.57%)	166 (49.26%)
	I don't know	57 (21.35%)	16 (22.86%)	73 (21.66%)
Can a person with a communicable disease donate eye?	Yes	53 (19.85%)	13 (18.57%)	66 (19.58%)
	No	158 (59.18%)	40 (57.14%)	198 (58.75%)
	I don't know	56 (20.97%)	17 (24.29%)	73 (21.66%)
Can 'eye donation' help every blind person?	Yes	81 (30.34%)	16 (22.86%)	97 (28.78%)
	No	130 (48.69%)	33 (47.14%)	163 (48.37%)
	I don't know	56 (20.97%)	21 (30%)	77 (22.85%)
Does 'eye donation' disfigure the face?	Yes	79 (29.59%)	26 (37.14%)	105 (31.16%)
	No	143 (53.56%)	35 (50%)	178 (52.82%)
	I don't know	45 (16.85%)	9 (12.86%)	54 (16.02%)
Are eyes donated after death?	Yes	214 (80.15%)	58 (82.86%)	272 (80.71%)
	No	33 (12.36%)	7 (10%)	40 (11.87%)
	I don't know	20 (7.49%)	5 (7.14%)	25 (7.42%)
Time duration to retrieve eyes after death:	Within 6 hours	103 (38.58%)	32 (45.71%)	135 (40.06%)
	Within 1 day	23 (8.61%)	4 (5.71%)	27 (8.01%)
	I don't know	141 (52.81%)	34 (48.57%)	175 (51.93%)
Can eyes be donated by living people?	Yes	177 (66.29%)	45 (64.28%)	222 (65.88%)
	No	68 (25.47%)	21 (30%)	89 (26.41%)
	I don't know	22 (8.24%)	4 (5.71%)	26 (7.72%)
Are you aware of eye donation procedure in Faisalabad?	Yes	9 (3.37%)	2 (2.86%)	11 (3.26%)
	No	258 (96.63%)	68 (97.14%)	326 (96.74%)

**Table 4: Attitude and Practices of the Participants**

Questions		Frequency (N= 337)		
		Male (%) n=267	Female (%) n=70	Total (%) N=337
Is consent required from the family of donor?	Yes	181 (67.79%)	42 (60%)	223 (66.17%)
	No	79 (29.59%)	24 (34.29%)	103 (30.56%)
	I don't know	7 (2.62%)	4 (5.71%)	11 (3.26%)
According to your belief, is it right to donate eyes?	Yes	224 (83.90%)	63 (90%)	287 (85.16%)
	No	7 (2.62%)	3 (4.29%)	10 (2.97%)
	I don't know	36 (13.48%)	4 (5.71%)	40 (11.87%)
Are you willing to donate your eyes?	Yes	56 (20.97%)	20 (28.57%)	76 (22.55%)
	No	12 (4.49%)	8 (11.43%)	20 (5.93%)
	Never gave it a thought	199 (74.53%)	42 (60%)	241 (71.51%)

'Aware' participants were also asked about their source of information: Media (both print and electronic) came out to be the commonest source of information regarding eye donation (178, 52.82%). (Figure 1)



**Figure 1: Sources of Information**

**DISCUSSION**

Corneal transplantation is the only way to restore eyesight for those who are corneal blind. It is solely possible by the practice of eye donation. Since well aware and well-informed public is expected to enhance this practice, our study aimed to evaluate awareness, knowledge, attitude and practices regarding eye donation among general public of Faisalabad. The participants in our study were largely adult males (77%) with a mean age of 33.4±10.9 years. Our study suggests that 67.4% participants had awareness regarding eye donation. Whereas a study conducted by Sharma B et al. in India revealed that only 9.6% of the subjects were truly aware of eye donation despite vigorous campaigns by their government.<sup>19</sup> This difference can be explained by the fact that their place of study involved a hospital mostly used by people with lower or middle socio-economic status.<sup>19</sup> Although our study was conducted in almost the same setting and the awareness campaigns occur once in a blue moon, it showed higher awareness. However, there are many researches showing far greater awareness level than that

of ours as true for studies conducted by Tiwari R et al<sup>20</sup> and Ronanki VR et al<sup>21</sup> in India. This higher level of awareness is due to high literacy level of the subjects of these studies.

Our study reveals that only 76 (22.55%) out of 500 participants were enthusiastic to donate their eyes after death. Similarly, a study done in India exhibited that only 30.18% of subjects were willing to donate eyes even when all of the participants of this study were aware regarding eye donation.<sup>20</sup> This low level of willingness to pledge eyes can be attributed to some misconceptions the subjects had.<sup>20</sup> However, a study conducted among Singaporean adults revealed that 67% of them were willing to donate eyes.<sup>22</sup> This could be attributed to higher literacy level of Singapore and also a special act by the Singapore Government i.e. All Singaporeans when turn 21 receive a letter from the Ministry of Health that introduces them to HOTA (Human Organ Transplant Act).<sup>23</sup> Thus, failure to pledge eyes in our general public could be attributed to low literacy rate as we found a noteworthy association between eye donation awareness and education of the participants encompassed in our study. However, there was no substantial association found between eye donation awareness and other demographic variables such as gender, religion and age.

Cornea can be extracted from any departed person within 6-8 hours after death. To make corneal transplantation successful, timely excision of cornea after death is necessary. In the current study, 40.06% participants were aware about the correct retrieval time for corneal transplant. Analogous results were shown by the surveys conducted by Panigrahi S et al.<sup>24</sup> and Bijapur VM et al.<sup>25</sup> in India. However, another study in India showed that 72.47% individuals knew about the time correctly.<sup>26</sup> This might be due to the fact that the participants enrolled in that study were medical students. In our study mass media came out to be the major source of information regarding eye donation as consistent with a study carried out in India.<sup>21</sup> This can be attributed to the fact that most of the families have televisions in their homes and most of the people read newspapers.

Pakistan is generally lacking adequate awareness regarding eye donation as compared to India. According to the physical report 2016-17 by National Program for Control of Blindness (NPCB), many states of India notably Tamil Nadu, Gujarat, Orissa, Punjab and Pondicherry have already excelled their proposed targets in eye donations.<sup>27</sup> This success is because of NPCB's commendable IEC activities for spreading awareness regarding eye donation among the general population.<sup>27</sup> However, this is not the case in our country. No proper NGOs and Eye Banks are established for educating people regarding eye donation and corneal retrieval process. Currently ASTEH, LRBT, LET and few other entities are on the assignment to make Pakistan fulfill its corneal requirement from its own residents. But still there are many shortcomings in their administration and management.

Speaking of Lyallpur Eye Trust Faisalabad (LET), it is not a proper organization established in a separate building but a room of Ophthalmology ward of Allied Hospital is allocated to LET. Moreover, it is not running active awareness campaigns regarding eye donation.

Establishment of Eye banks and various NGOs focusing on eye donation can help Government sort out this matter. Additionally, advertisements promoting eye donation should be run on mass media to address the superstitions of general public. For those who are willing to participate in this service but are restricted just because they do not know exactly how and where to donate eyes, detailed seminars and lectures using one on one approach should be arranged.

The current study has certain limitations as well. Firstly, as the study was conducted among the attendants in hospitals, the participants were perhaps not in a receptive mood because of the critical condition of their relatives; there might be some communication gap that hindered the process of educating the illiterate participants included in our study. In addition, convenient sampling technique was used in our study, which can cause many biases in the data. Still our study managed to cover various aspects of eye donation successfully such as assessing the knowledge, attitude and practices of general public, educating people about eye donation and addressing their superstitions regarding facial disfigurement after eye donation. However, in order to get better results, this study should be repeated using probability/ random sampling technique and should not just confine to the hospitals of the city.

## CONCLUSION

Our study reveals inadequate awareness and low willingness among general public regarding eye donation. On applying chi-square test, education was found to have significant association with awareness, thus low literacy rate is one of the major factors responsible for lack of awareness. Still most of the educated participants failed to answer some questions in context of knowledge, attitude and practices regarding eye donation, it is because of few eye banks and lack of awareness campaigns in the city. Further, the study suggests that awareness regarding corneal donation can be increased by utilizing the services of mass media.

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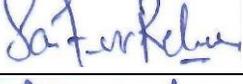
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