

# Awareness and Willingness to Eye Donations among Undergraduate Medical Students

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## Abstract

**Objective:** This study was carried out to determine awareness and willingness to eye donations among undergraduate medical students. **Methods:** A cross sectional survey was done at Al-Nafees Medical College Islamabad during the months of March to July 2018. Total 250 students were enrolled by applying simple random sampling. A self administered structured questionnaire was applied for data collection. Data was entered and analyzed by using statistical package for social sciences (SPSS version 23). **Results:** Out of the selected 247 students, 124(50.2%) were male and 123(49.8%) were female. 234(94.7%) knew about eye donations and 106(51.8%) knew that cornea is transplanted into the receiver's eye. Only 32(13%) knew about eye banks in Pakistan whereas only 67(27.1%) students were agree to donate their eyes. **Conclusion:** From the current study it was concluded that most of the medical students were aware of eye donations but they did not know the further detail of eye donation and majority was not ready to bestow their eyes.

**Keywords:** Medical students, eye donation, corneal transplant, awareness.

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## INTRODUCTION

Medical professionals can play their role to increase frequency of eye donation by educating and motivating families and relatives in case of patient's death [1]. Majority of medical students join this profession with inherited motives to serves mankind. If medical students are aware of and well-informed about eye donation they can positively influence eye donation rates. Similarly if sensitization of medical students occurs early in their courses it may lead to better procurement rates for donor cornea. The cornea is one of the major refracting media of the eye. The vision of a person is grossly reduced if the transparency of the cornea is lost. In developing world, corneal diseases contribute significantly to visual impairment and blindness. Trachoma, xerophthalmic corneal ulcer, ophthalmia neonatorum, harmful traditional medicine use, onchocerciasis, leprosy and ocular trauma are the major causes of corneal blindness. Year by year, the need for corneal transplant is continuing to grow. The main obstacle for the corneal transplant in Pakistan is lack of awareness of eye donation. So, education about eye donation in the community is highly essential to increase procurement of the cornea [2].

Prevalence rate of corneal blindness varies among countries and also differences exist among various populations, based on the presence of facilities and knowledge related to eye care. The reported prevalence for blindness in Pakistan is 0.9%. After cataract, corneal blindness is the leading cause of blindness nationally which accounts 11.8% of the total blindness in Pakistan [3].

According to World Health Organization (WHO) approximately every 5 seconds a person become blind. There are presently 45 million blind people in the world which increases by 1-2 million yearly. Corneal blindness is the second leading cause of visual impairment and blindness which estimates for 6-8 million total blind cases inside the world [4]. It includes for 4% of the estimated 2010 global blindness burden of 39 million [5].

There are few eye donation centers in Pakistan, Rawalpindi eye donors organization (REDO), Layton Rahmatulla Benevolent Trust Hospital (LRBT) free eye care, Al-Shifa Trust eye Hospital, Pakistan Institute of Ophthalmology and Pakistan eye Bank Society.

Eye donations are dependent on people willing to pledge their eyes for donation and on relatives to honor that pledge upon the death of the person. The students were chosen for this study because they are young, well educated adults undergoing training in medicine with access to newspapers, magazines, movies, internet and television (TV) and should be better informed about eye donation when compared to other groups in society [6]. By doing this way students can help reducing the demand supply gap of corneal donation and corneal blind persons will not have to wait for long time and this helps them to buy cornea in affordable cost. A total of 80% of the world's blind live in developing countries [7].

According to different studies in different countries most of the medical students are aware of eye donations, whereas willingness to eye donation among medical students is usually affected due to religious issues, in a study of awareness and perception regarding eye donation in students of nursing college in Bangalore, it is stated that, the majority (96.8%) of students knew that eyes can be donated, Perceived reasons for not pledging eyes by the students were the unacceptable idea of separating the eyes from the body (67.9%) [8], similarly In a study of knowledge attitude and practice about eye donations among paramedical and medical students in tertiary eye care hospital, it is stated that, the participants were well aware of eye donation (99.2%), 48% participants were eager to vow and 52% participants did not deem in pledging their eyes [9].

Medical professionals especially doctors have great advantage in terms of eye donation because majority of patient's deaths are witnessed or handle by them. Therefore they can become a quickest source to create awareness and to persuade relatives of diseased to donate eyes [4]. Keeping in view about current picture this study was planned which is aimed to document the knowledge of medical students towards eye donations as well as to find out their eagerness to donate eyes.

## METHODS

### Study Design

Cross sectional survey

### Sampling Technique

To enroll the study participant's simple random sampling technique was used. A list of all the students was obtained from admission office where the data of all the students was available. There were total of 500 hundred students in all five years including first, second, third, fourth and fifth year. A serial number was assign to all the students for their identification and the data was entered in SPSS to draw the desire 250 sample. We required fifty percent of the total students, so a command was given on fifty percent selection. The computer randomly generated the serial numbers by

crossing those numbers in the file, so those students with highlighted serial numbers were selected for data collection.

### Sample Size

To calculate sample size for the study, World Health Organization (WHO) calculator for sample size calculation was used. To estimate the sample size, estimating a population proportion with specified absolute precision was used. The parameters included were, absolute precision required (d) 5%, Confidence level ( $1 - \alpha$ ) was taken as 95% and anticipated population proportion (p) of knowledge was used from previous studies which was 80%<sup>8</sup>, therefore 246 was the calculated sample size rounded off to 250.

### Study Duration

This study was done from 1<sup>st</sup> of the march 2018 to the end of the July 2018

### Study location

Study was conducted at Al-Nafees Medical College and Hospital, ISRA University Islamabad Pakistan.

### Inclusion & Exclusion Criteria

Students who were agreeing to participate from MBBS discipline were including in the study and no student from any other discipline was enrolled. The students who were from other institution came in university for voluntary work and lecture were also excluded from the study.

### Data Collection Tool and Process

After a thorough literature review a structured, self administered questionnaire developed and used for data collection. Questionnaire contained questions related to the demographic information of student as well as the questions pertaining to knowledge of eye donation and students willingness toward eye donation. Questionnaires were distributed to the students who were randomly selected to assess their knowledge; students filled the form and return it back to the data collector on the spot. The data was collected by office assistant and the researcher(s) were not directly involved in data collection process to avoid potential biases.

### Data Entry and Analysis

Data analysis was performed by using SPSS version 23. Results were summarized as frequencies and percentages. Bar chart and pie diagram was also used to describe the data.

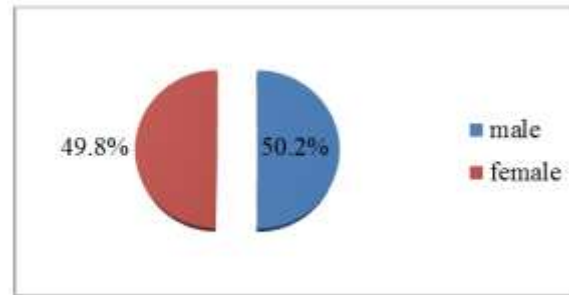
### Ethical Review

Ethical review of the study was taken from the institutional review board and ethical committee of Al-Nafees Medical College and Hospital, Isra University Islamabad Campus. The study was presented before the committee and power point presentation was given on

the study topic. The committee was convinced to give approval for study after the comprehensive presentation. A written informed consent was obtained from all the research participants. As such there was no harm attached to this research and benefits of the study were explained to the participants. The participants were free to leave the study at any time and their identities were kept confidential as there were no names on the questionnaire and a serial code was used. Only researcher and ethical committee were having access to the data.

## RESULTS

Out of 250 students 247 filled the questionnaires, among those 124(50.2%) were male and 123(49.8%) were female, Figure-1 showed the findings of gender distribution of participants. Age varied from 17 to 25 years of age, 74(30%) students were of age group between 17-19 years, 128(51.8%) students were of age group between 20-22 years, 45(18.2%) students were of age group between 23-25 years.



**Fig-1: Gender distribution of Participants (N= 247)**

The commonest resource of information for eye endowment was television 79(32%), followed by internet 62(25.1%), hospital as a source of information 46(18.6%), students and others as source of information 27(10.9%) and university/school as a source of information was the least common with 20(8.1%).

As far as the awareness levels of the participants related to eye donation is concerned. Analysis was performed to find out what percentage of the students was aware to eye donation. The results are given in Table-1.

Data was gathered to find out what percentage of students were willing to donate their eyes. The results showed that only very few students 67(27.1%) were eager to donate their eyes, whereas majority of them 164(66.4%) were not interested to donate eyes.

## DISCUSSION

Medical students are the potential part of society for creating awareness about organ donations. In developing countries there is severe shortage of eye donations, therefore the role of medical students become significant and they should be taught sufficiently about organ donation particularly eye donation [10].

In the present research study 247 medical students gave data and out of those 234(94.7%) were aware of eye donations. The results were more consistent with a study done by Singh MM *et al.*, in which a total of 180 students provided data and 179(99.4%) were aware of eye donations [11]. The similar results have been shown in a research done by M K Bharti *et al.* in their research 400 students participated and majority 344(86%) were aware of eye

donations. University students from all the disciplines of health sciences represent a young, well educated and active group that can potentially influence opinion, especially on sensitive issues such as organ donation. Well informed students in non-medical fields may also influence the eye donation rate by motivating the public regardless to the work area for future life<sup>5</sup>. Interestingly the current study showed that 215(87%) students were aware that eyes can be gifted after death, and these results were surprisingly different from a research study conducted by Ahirwar RK *et al.*, only 82(31%) male and 60(30%) females expressed that eyes can be endowed after death within 6 hours [10]. These discrepancies in the results possibly explained by the differences in the environment and may be there has been raised awareness about organ donation with the passage of time.

In this study 166(67.2%) students said there is no age limit for eye donation and in a study of Nekar MS *et al.*, 69% students believe that there is no age limit for eye donation [12]. In this study only 69(27.9%) students knew that in STDs eye donation is contraindicated while in the study of Okoye O *et al* results are different and 110(84%) students knew that persons with AIDS and Hepatitis can't donate eyes [13].

In this study 106 (51.8%) students knew that cornea is transplanted into the receiver's eye which are pretty much in accordance with a research done by Ahirwar RK *et al.*, in which they reported that 148 (56%) males knew that cornea is used for transplantation whereas the trends were different in female gender and only 81 (40%) showed awareness of the topic under study [10]. The results were contrary to

the results showed by one of the research done by M K Bharti *et al.*, only 121 (30.25%) knew that cornea is transplanted from the donor eye [5] and results from a

study of Magdum R *et al.*, showed that 38(63%) students knew that cornea is used for transplantation [14].

**Table-1: Awareness of participants related to eye donation (N=247)**

S. No	Questions	Frequency	Percentage
1(i)	Can eyes be donated?		
	Yes	234	94.7%
	No	13	5.3%
1(ii)	If yes, what is your source of Information for eye donation?		
	Television	79	32.0%
	Internet	62	25.1%
	University/School	20	8.1%
	Hospital	46	18.6%
	Others	27	10.9%
2	At what time can eye be donated?		
	After death	215	87.0%
	During life	19	7.7%
3	Can the whole eye be transplanted?		
	Yes	172	69.6%
	No	62	25.1%
4	Is there any age limit for eye donations?		
	Yes	68	27.5%
	No	166	67.2%
5	Can a person undergone cataract surgery donate eyes?		
	Yes	100	40.5%
	No	134	54.3%
6	Does the body need to be shifted in hospital for eye donation?		
	Yes	210	85.0%
	No	24	9.7%
7	Can eyes be donated if a person is blind with normal cornea?		
	Yes	126	51.0%
	No	108	43.7%
8	In which conditions eye donation is contraindicated?		
	STDs	69	27.9%
	Retinal Diseases	165	66.8%
9	Which part of eye is transplanted in the receiver's eye?		
	Cornea	106	51.8%
	Whole Eye ball	128	42.9%
10	Can the relatives pledge for eye donation after a person's death and is their consent must for eye donation after death?		
	Yes	160	64.8%
	No	74	30.0%
11	Do you know about the eye banks in Pakistan?		
	Yes	32	13.0%
	No	202	81.8%
12	Can the donor eyes be preserved in the eye bank?		
	Yes	181	73.3%
	No	53	21.5%

In this study 181(73.3%) students knew that eyes can be conserved in the eye banks while only 32(13%) knew about eye banks in Pakistan and in a study of Gupta A, Gupta R, 21% students know about any existing eye bank in India [15], while in a study of M K Bharti *et al.*, around fifty percent students (231,57.75%) did not know that the benefactor eye can be preserved before transplantation, most of the

students 376(94.0%) were not aware about the subsistence of eye banks in Malaysia [5].

In this study only 67(27.1%) students were willing to donate their eyes and in a study of Renu Magdum *et al.*, 46 (77%) students were willing to donate eyes [11] and in a study of Eze BI *et al.*, only

10(9.3%) medical students were willing to donate their eyes [16].

## CONCLUSION

This study concluded that most of the medical students were aware of eye donations but they do not know the further detail of eye donation and majority was not willing to donate their eyes. Majority of the students were also not familiar about eye banks in Pakistan.

## Recommendations

- Seminars should be held for awareness of eye donations.
- Awareness raising campaigns should be launched periodically where the medical students can actively participate.
- The media can play a key role to raise awareness to eye donation.
- There should be an eye bank on national level to facilitate people with mobile teams and cost affordable corneas.

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