

Original Research Article

## Knowledge, Attitude and Willingness about Eye Donation among Medical and Nursing Students in a Medical College Hospital of Southern Odisha

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**Abstract:** Corneal transplantation is the most successful organ donation. It is the only treatment option available for corneal blind people. In India, the number of corneal transplants done is far less than the requirement. Medical and nursing students can influence the society and their relatives to pledge for their eyes. With this view, the present work was undertaken to assess the knowledge, attitude and willingness of medical and nursing students towards eye donation in a Government Medical College and Hospital in Odisha. 262 students which included 133 medical and 129 nursing were administered with a pretested semi structured questionnaire. From the collected data, it was observed that the majority 225(85.9%) students knew that eyes can be donated after death, 208 (79.3%) knew the ideal time for eye donation was within 6 hours of death. 155(59.1%) participants opined that the corneal retrieval time from donor was just 30-45 minutes. 169(64.5%) students were willing to pledge for eye donation, among them restoration of vision in a blind person was the motivation to pledge in 86(50.8%) and in 83 (49.1%) nobility in the act. 93 (35.4%) students were not willing to pledge, the perceived reasons for unwillingness were, 60 (64.5%) students need more information, 29(31.1%) fear objection by family members and in 4(4.3%) religious disbelieves. This study revealed that medical and nursing students were well aware about eye donation and many of them were inclined to pledge for eye donation, so could be actively involved as volunteers in eye donation campaigns and act as grief counsellors in hospital to motivate the relatives of the gravely ill patients for eye donation.

**Keywords:** Corneal transplantation, organ donation, eye donation.

### INTRODUCTION

Corneal disease is one of the important causes of preventable blindness in developing countries. The major causes of corneal blindness in paediatric population of India include ocular trauma, infectious keratitis, post-infectious keratitis corneo-iridic scars, hereditary dystrophies, congenital glaucoma, Peter's anomaly and other mesenchymal dysgenesis, birth trauma and metabolic disorders. In adults, the major causes of corneal blindness include bacterial, fungal or viral keratitis, eye injuries, hereditary corneal dystrophy, spheroidal degeneration, iatrogenic, pterygium-related corneal scarring and use of traditional

eye medicines and noxious substances. Corneal blindness and severe visual impairment due to corneal diseases constitutes of 5.96 lakh unilateral blind and 1.9 lakh bilateral blind people [1]. According to The Andhra Pradesh Eye Disease study it is estimated that approximately 20,000 patients with corneal blindness are being added to the backlog each year [2]. As per NPCB statistical data from April 1<sup>st</sup> 2016 to March 31<sup>st</sup> 2017, 63256 donor corneas were collected and out of which 27300 were transplanted, that is only about 50 % of the total corneas procured [3]. So, shortage of transplantable cornea is an area of major concern. As cornea transplantation is the most successful organ

transplantation procedure, good quality cornea will definitely increase the success rate of cornea transplantation [4]. Hospital Corneal Retrieval Program (HCRP) was initiated by the Ramayamma International eye bank in 1990 with the objective to concentrate on the potential eye donations from hospital deaths by motivating and grief counselling the relatives and children of gravely ill patients at ICU, Trauma centre and casualty [5, 6]. In HCRP good quality transplantable corneas are collected due to availability of detailed medical history, many times from young donors and because of reduced time interval between death and corneal retrieval. The medical and nursing students who closely interact with the family can influence their decision. Therefore it becomes important to assess the knowledge, attitude and willingness of medical and nursing students towards cornea donation and transplantation. This study also assessed the willingness of medical and nursing students to pledge their eyes. The knowledge, attitude and willingness of medical and nursing students could influence eye donation as they are the future health care providers in the community [7].

#### MATERIALS AND METHOD

A cross sectional study was conducted in May 2017 among 8<sup>th</sup> semester medical students and 3<sup>rd</sup> year and intern nursing students of Maharaja Krushna Chandra Gajapati Medical College and Hospital. A total of 297 students were approached from them 262 students agreed to participate in this study. A 20 item pretested semi structured questionnaire was administered to all participants for obtaining the necessary information after getting informed consent. The participants were instructed not to discuss the questions among themselves and not to mention their identity in the questionnaire which eliminated bias. The questionnaire contains questions on demographic details, regarding knowledge, attitude and their willingness to donate eyes. After data collection we excluded 10 questionnaires due to incompleteness. The completely filled in questionnaires of 262 students (129 medical students and 133 nursing students) were analysed [4,8]. The data were compiled and analyzed using Microsoft excel sheet and Graph pad prism version 7.0. Data were expressed in proportion. Chi - square and Fisher's exact test were used for testing the association between various independent variables with

their responses towards knowledge, attitude and willingness. P value of <0.05 was considered as minimum level of significance. Protocol of this study was approved by Institutional Ethics Committee.

#### RESULTS

Out of 262 students, 185(70.6%) were females and 77(29.3%) were males. Age varied from 21 to 24 years which includes 72 students of 21(27.4%) years, 75(28.6%) of 22 years, 101(38.5%) of 23 years and 14 (5.3%) students of 24 years old. 129(49.2%) were medical 8<sup>th</sup> semester students who had already appeared for ophthalmology examination, 133(50.8%) were nursing 3<sup>rd</sup> year students and interns.

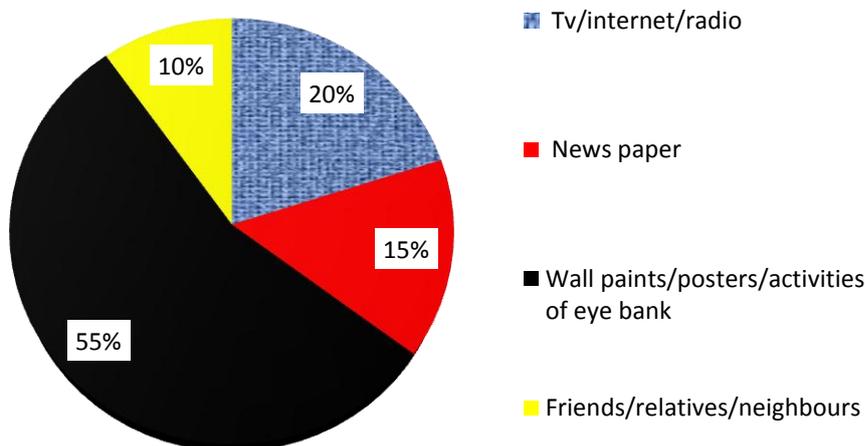
In our study 225(85.9%) students, 156(84.3%) females and 69(89.6%) males knew that eyes can be donated after death. 208 (79.4%) students, 142(76.7%) females and 66(85.7%) males knew that eyes should ideally be collected within 6 hours after death. Among all, 210 (80.1) students, 141(76.2%) females and 69(76.2%) males knew that eyes can be donated by all age group people. A total of 182(69.5%) students, 113(61%) females and 69(85.2%) males knew that only cornea was to be collected not the whole eye ball. In our study population, 155(59.2%) students, 98(52.9%) female and 57(70.4%) males knew that the time taken for corneal tissue retrieval from the donor was 30-45 minutes. 108(41.2%) students, 87(47.0%) females and 21(27.3%) males told there was disfigurement of face after eye donation. 170(64.9%) students, 105(56.7%) females and 65(84.4%) males knew that M.K media was used for donor corneal button transportation and preservation. Comparison of correct knowledge responses, based on gender revealed that the males had significantly better knowledge than females.

In our study 50(19.1%) opined that it was possible to know the recipient who received the donor cornea. 239(91.2%) students, 167(90.3%) females, 72(93.5) male students told written consent of the kin is mandatory before collecting eyes. 205(78.2%) students, 137(74%) females and 68(88.3%) males knew that cornea donation was under cover of the human organ transplant act 1994. 152(58%) students, 90 (48.6%) females and 62 (80.5% ) males responded that two recipients could be benefitted by one donor cornea.

**Table-1: Responses to questionnaires of knowledge on eye donation**

Responses	Awareness (%) (262)	Females(%) (185)	Males(%) (77)	P value
Eyes can be donated after death	225(85.9)	156(84.32)	69(89.6)	0.26
Ideal time for collection within 6 hours of death	208(79.4)	142(76.8)	66(85.7)	0.02
All age group persons can donate eyes	210(80.1)	141(76.2)	69(89.6)	0.01
Persons bearing spectacles, post cataract surgery ,hypertensives and diabetics can donate their eyes	228(87)	159(86)	69(89.6)	0.42
Patients with HIV +ve, HbSAg+ve, septicaemia,Tetanus,Rabies,Encephalitis can not donate their eyes	117(53.7)	102(55.1)	55(71.4)	0.0001
Only cornea is collected	182(69.5)	113(61.1)	69(85.7)	0.009
Duration of corneal retrieval 30-45 minutes	155(59.6)	98(52.9)	57(74.0)	0.0001
To restore vision in corneal blindness	245(55.3)	173(95.0)	72(93.5)	0.32
Disfigurement of face after eye donation	108(41.2)	87(47.0)	21(27.3)	0.003
It is possible to know who will receive the eye	50(19.1)	43(23.2)	7(9.1)	0.008
Written consent of kin of donor essential	239(91.2)	167(90.3)	72(93.5)	0.0001
corneal button preserved in M.K media	170(64.9)	105(56.8)	65(84.4)	0.0001
Corneal donation comes under the cover of Transplantation of Human organs act 1994	205(78.2)	137(74.1)	68(88.3)	0.05
Two recipients may be benefitted by one donor cornea	152(58)	90(48.6)	62(80.5)	0.0001
Corneal donation being a noble act donor family will not receive any money	192(73.2)	133(71.9)	59(59.8)	0.43
One has to contact nearest eye bank for cornea donation and about nearest eye bank	211(84.4)	153(82.7)	68(88.3)	0.25

Figures in parenthesis express percentages. Chi-square test applied for testing association.



**Fig-1: Various sources of information from which the participants developed awareness**

Among 262 participants 109(41.6%) students told they got information regarding eye donation from television, internet and radio, 29(11%) got information reading newspaper, 105(40%) got information through

wall paint, posters and activities of eye bank. 19(7.2%) got information regarding eye donation from friends, relatives and neighbours.

**Table 2: Willingness of the participants to donate eyes**

Willing to donate eyes	Female(185)	Male(77)	Total(262)
Yes	110(59.5%)	59(76.6%)	169(64.5%)
No	28(15.1%)	6(7.8%)	34(12.9%)
Do not know	47(25.4%)	12(15.6%)	59(22.5%)

Out of 262 participants, 169 (64.5%) students were willing to donate their eyes among which, 110(59.4%) were females and 59(76.6%) were male

students. The response of willingness to donate was significantly higher among males than female proportions. ( $p=0.008$ ).

**Table-3: Attitude of willingness to donate eyes as opined by the participants**

Attitude	Total(169)	Female (110)	Male (59)
Noble deed	83(49.1%)	65(59%)	18(30.5%)
To help the blind	86(50.9%)	45(40.9%)	41(69.5%)

Regarding attitude of willingness to donate eyes, 169 (64.5%) students were willing to pledge for eye donation. Among them 65(59%) female students and 83(49.1%) male students believed that nobility in the act of eye donation was the main motivational force to donate their eyes. 45(40.9%) female students and

41(69.5%) male students expressed pleasure to help the blind to get vision was their main motivational force. There was a significant association between the gender and the motivational force behind their attitudes. ( $p=0.0019$ )

**Table 4: Perceived reasons for unwillingness to donate eyes as opined by all participants**

Reason for unwillingness to donate	Female(75)	Male(18)	Total no and percentage (93)
a. Religion did not permit	04(5.33%)	0(0%)	4(4.3%)
b. Family may not permit	28(37.3%)	01(5.5%)	29(31.1%)
c. Needs more information	43(57.3%)	17(94.4%)	60(64.5%)

A total of 93(35.4%) students 75females and 18 males were unwilling or indecisive to donate their eyes. Out of 93 students who were unwilling to donate eyes, 60(64.5%) students needed more information regarding cornea donation and cornea transplantation before pledging for eye donation, 29 (31.2%) students thought family may not allow for eye donation and 4 (4.3%) students did not want to pledge due to religious disbelief that they may born blind in next birth if they donate their eyes. There was significant difference in the reason of unwillingness to donate eyes among of male and female students ( $p=0.012$ ).

## DISCUSSION

This study was done among homogenous group of people with good education and socioeconomic status and most of them belong to Hindu religion. These are the group of people expected to have good knowledge on cornea donation and transplantation than the general public. They can be good motivators and spokes persons for eye donation because they are in close contact with potential donors and their relatives.

In the present study 85.9% students were aware that eyes could be donated after death. In another study, on medical and non medical students 79.6% knew that eyes can be donated after death [9].

Our study showed a large number of students, 208 (79.4%) out of 262 knew that cornea should be collected within 6 hours of death. It is similar to a study conducted among medical and non medical students 63.3% of the respondents knew that cornea should be collected within 6 hours of death, in another study conducted among nursing students of Bangalore only 32.8% students knew about this, a study among students in Bhopal showed that 21.7% of nursing students had correct knowledge regarding time of collection of cornea after death [9,4,10]. A study conducted in north Kolkata observed that only 32.1 % knew the ideal time of cornea donation [11]. The knowledge regarding timing of eye donation being important, it may not be ideal to utilize eyes for optical purposes that are donated later than 6 hours after death.

In our study 69.5% responded that cornea only is collected for eye donation, 49.5% students knew about this in study of Bhopal, 38.8% students knew about this in Hubli study [10,12]. 80.1% students responded eye donation was done in all age groups, similar results were found in a study conducted among college students in Hubble Karnataka[12], 69% participants believed that there is no age limit for eye donation, whereas in a study among nursing students of Belgavi city of Karnataka only 46.5% replied eye donation was done in all age groups[13].

Among our study population, 41.9% replied there was disfigurement of face after eye donation, similar results found in the study of Bhopal 31.5% participants responded that there was disfigurement of face after eye donation, in study of south India 30% participants thought there will be disfigurement of face as a result of eye donation [10,14].

Mandatory consent for eye donation, expressed before death of the donor, should ideally form the basis of eye donation. However in case of unavailability of such consent, consent from adult family members (legal heirs) of the deceased donor should be obtained before collection of eyes. In our study 231(91.2%) students replied consent of next kin was mandatory before collection of eyes from the deceased donor. In a study done on the responses of relatives of potential post – mortem donors, it was revealed that only 44.3% of relatives gave consent for eye donation after intensive counselling.[15]In a study in Bangalore 47.3% of nursing students expressed that donor's consent should be mandatory and should be expressed before death, only 14.4% of the students told relatives can give consent [4].

In the present study 84.4% students were aware of the eye bank in our medical college hospital, in a study conducted in south India only 11.4% respondents were aware of the existent eye bank in their vicinity [14]. Again 169(64.5%) student were willing to donate their eyes. In comparison to our study, willingness to donate eyes was little higher 87.2% in a study conducted in medical students in Delhi [7], 87.8%, in a study conducted by Dhaliwal among medical and nonmedical students [9], 85.1% in study conducted among nursing students in Bangalore [4], 67% in a study conducted among adults in Singapore [16]. Willingness to donate eyes was lower in comparison to our study, 33.6% among medical

students in Nigeria , 21% among ophthalmologists of Nigeria, 33.3% among medical doctors in delta state[17–19]. Willing of younger population could be the core target of enlightenment campaigns of eye donation in the community and among their relatives.

#### **Willingness to donate eyes**

In the present study 65(59.1%) students expressed that to help the blind to get some vision was their main motivational force for their willingness to donate eyes, whereas in a study in Belagavi city, Karnataka among nursing students 95% students expressed their willingness for eye donation was to help the blind to get some vision [13], in a study among medical students of Delhi 78.3% told to help the blind was their main motivational force to donate eyes [7]. In our study 45(49.1%) students thought eye donation was a noble act of doing some good to the humanity after death, In a study among nursing students in Bangalore 85.6% participants told eye donation was a noble act, it was similar in the study of Singapore [4,16].

#### **Unwillingness to donate eyes**

In our study 93(35.5%) students were unwilling or indecisive to donate their eyes. Among them, 60(64.5%) students need more information regarding cornea donation and cornea transplantation, this is similar to the study conducted among medical students in Delhi 32.7% need more information [7]. In the present study 29 (31.2%) students thought family may not allow for eye donation and 4 (4.3% ) expressed their unwillingness due to religious disbelief. Similar reasons for unwillingness to donate eyes were also reported in other studies [14, 15, 20].

Besides lack of awareness another important reason could be the influence of the immediate extended family making key decisions in a family which has always been part of the culture. The study by Tandon *et al.* [15] showed that the prior knowledge of eye donation, literacy, and socioeconomic status had no influence on willingness for eye donation and major reasons for not donating eyes included refusal to discuss the issue and dissuasion by distant relatives, legal problems, and religious belief [15].

In the present study mass media in the form of television, news paper, wall paints, pamphlets, and activities of eye bank were important sources of information for the participants regarding awareness on eye donation. Other studies also found publicity

campaigns and the media to be the major source of information on eye donation [4, 13, 14, 19].

With an increasing number of youths using social media, leveraging this platform may also be a way to get the message across. Online formats of face book ads, whatsapp messages, mobile apps and other internet tools can be utilised to engage youths more actively in promoting corneal donation awareness [8].

## CONCLUSION

The present study revealed that majority of the students was aware of eye donation. Though many of the students were willing to donate their eyes, still a few students were not willing because they need more information. The perceived reasons for unwillingness to donate eyes need to be considered while creating awareness about eye donation. The medical and nursing students could be actively involved as volunteers in eye donation campaigns in the community. They can act as grief counsellors to motivate the relatives and children of gravely ill patients in emergency wards and in post-mortem centres.

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