

# Knowledge and Awareness of Eye Donation Among Students of a Nursing College in Gujarat

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## Abstract

**Purpose** – To assess the awareness, knowledge and perception of nursing students regarding eye donation in a tertiary care hospital of Gujarat and to use this information to identify the possible interventions to increase the rates of eye donation.

**Methods**- A cross sectional observational study was conducted during the National eye donation fortnight 2018 with 142 first year and 138 second year nursing students to assess their knowledge and awareness regarding eye donation. The mean age of the participants was  $20.92 \pm 2.18$  years. Data was collected using a pre-tested semi-structured questionnaire and analysed using Microsoft Excel 2010 and Med-calc software.

**Results** - Awareness of eye donation was observed in a majority of 98.21% with the most common source of information being television (39%). Though 75.36% were aware that the ideal time of eye donation was within 6-8 hours of death, 60% had the misconception that it can be executed even before death. Though 87% knew about utilisation of eyes after donation, only 10% had the knowledge of eye donation done among their family or friends. A majority of 92.9% hadn't pledged their eyes.

**Conclusion**- The young nursing students can be the future torchbearers of eye donation campaign & their active involvement can make a vast difference in eradication of corneal blindness. The study revealed that though the students were aware of eye donation, there was a lack of proper knowledge & motivation amongst them. This highlights the need for educating them for this noble cause.

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**Keywords:** Eye donation, knowledge, awareness, nursing students, motivation

## Introduction

Corneal blindness is a major public health problem worldwide and according to the World Health Organisation (WHO) estimates, the fourth cause of blindness globally.<sup>1</sup> In India, according to the National Program for Control of Blindness and visual impairment (NPCB & VI), there are currently 1,20,000 corneal blind people in the country with an addition of 25,000 to 30,000 new cases per year.<sup>2</sup> A population based study done in Andhra Pradesh reported the prevalence of corneal blindness to be 0.13%.<sup>3</sup>

Corneal transplantation with good quality donor corneas is vital for the management of the corneal blind. However, there is a huge disparity in the demand and supply of surgical grade corneas, as highlighted by the statistical data of NPCB & VI which reported the corneal procurement rate as 68,409 corneas during 2018-19 with a significant proportion being unsuitable for surgical use.<sup>4,5</sup> Hence, collection of donor eyes is a priority in an organised effort to alleviate corneal blindness.

Hospital Corneal Retrieval Programme (HCRP) is an important strategy for collection of good quality corneas and envisages motivation and grief counselling of the relatives of the terminally ill patients and accident victims in the hospitals to donate eyes, ensuring retrieval of good quality transplantable corneas.<sup>6</sup> Nurses are the most trusted healthcare professionals who share a close bond with the patients and their relatives in the hospital and can play a major role in HCRP by sensitising them to the virtuous cause of eye donation. Nursing schools offer a sound prospect of spreading health education messages in the community and

targeting the nursing students at a young malleable age can help to develop right personal skills and attitudes towards eye donation.

With this in background, this study was conducted to assess the awareness, knowledge and perception of eye donation among the students of the nursing school attached to a tertiary care centre of Western India and to use this information to identify the possible strategies to increase the good quality corneal procurement rates.

## Material and Methods

**Study design and approval**-This cross sectional non-comparative observational study was carried out in a nursing college attached to a tertiary care hospital in Western India. The study was designed and implemented by the in house eye bank of the tertiary eye care hospital. All procedures followed were in accordance with the ethical standards of the institutional committee and with the Helsinki Declaration of 1975, as revised in 2013. A trained eye donation counsellor (EDC), working with the eyebank under HCRP and supervised by an ophthalmologist was appointed to conduct the survey.

**Selection of Study Population**- The EDC visited the nursing college and interviewed the first and second year General Nursing and Midwifery (GNM) nursing students about their willingness to participate in the survey, one month prior to the study. A total of 375 students were interviewed. A purposive type of sampling procedure was employed and 300 willing candidates were selected for the study conducted during the National Eye Donation Fortnight 2018

(25th August to 8th September 2018). Informed consent was obtained from all the students being included in the study. 20 students were absent when the study was conducted. Hence, the study included a total of 280 students, with 142 first year students (50.71%) and 138 second year students (49.29%). All the students were above 18 years of age.

Survey Questionnaire- Data was collected using a pre-designed, pretested, semi structured, self administered questionnaire in local Gujarati language understood by all the participants. The data collection tool, questionnaire contained three parts. The initial part was based on socio-demographic details of the students including the age, gender, the on-going academic year of nursing education and place of residence. The second part had multiple choice questions on awareness and source of information of eye donation. The third part had multiple choice questions testing the knowledge of the various aspects of eye donation and if they have pledged to donate eyes.

Statistical analysis- Data was compiled and analysed using Microsoft Office Excel 2010 and Med-calc software. Proportions, mean and standard deviation were used for quantitative data. Chi-square test was used for categorical data.  $p < 0.05$  was considered as statistically significant.

## Results

Socio-demographic variables of the participants- The male female ratio in our study was 1:9.7 with 90.71% female participants. The mean age of the participants was  $20.92 \pm 2.18$  years with a range of 21 to 24 years, and a majority of them were females and from urban area (Table 1).

Awareness about eye donation- 98.21% students ( $n = 275$ ) had heard about eye donation. 45.36% students ( $n = 127$ ) were aware of National Eye donation Fortnight with a majority being second year students (65.35%), and this difference in knowledge between the first and second year students was found to be statistically significant ( $p < 0.05$ ) (Table 2). The major source of awareness was television (Figure 1).

Knowledge of eye donation- Responses were assessed for the third part of the questionnaire. (Table 3) Notably, 60.71% ( $n = 170$ ) responded that eyes can be donated before death. A statistically significant difference ( $p < 0.05$ ) was found between the responses of the first and second year students with around 71.83% first year nursing students responding in affirmation. In spite of the high awareness, 92.86% hadn't pledged their eyes. No statistically significant difference according to gender was observed in the responses.

## Discussion

Medical professionals' attitudes towards eye donation can be expected to influence donation rates.<sup>7</sup> The acute shortage of donor corneas can be attributed in part to health professionals including nurses, for their reluctance to recognise and refer suitable candidates for donation in case of hospital deaths. Hence, increasing the awareness and knowledge among the nurses is essential for the procurement of quality donor corneas and understanding the trends and barriers in this is of utmost importance. To the best of our knowledge, ours is the first study to report awareness and knowledge of eye donation among students of a nursing college of Gujarat.

## Sources of awareness

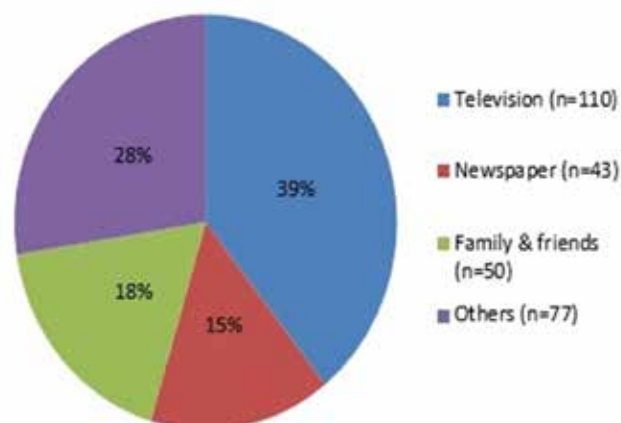


Figure 1: Sources of awareness of eye donation

Table 1: Demographic Profile of the study participants (n=280)

Characteristics	Total number	Percentage (%)
Gender		
Males	26	9.29%
Females	254	90.71%
Residence		
Urban	218	77.86%
Rural	62	22.14%
GNM study Year		
First year	142	50.71%
Second year	138	49.29%

Table 2: Responses assessing the awareness of eye donation

Question and response	First year GNM students	Second year GNM students	Total with Percentage	P value and statistical association
Can eyes can be donated?				
Yes	139	136	275 (98.21%)	0.97(Yates correction) statistically insignificant
No	03	02	05 (1.79%)	
Are you aware of National Eye Donation Fortnight?				
Yes	44	83	127(45.36%)	P<0.05 statistically significant
No	98	55	153(54.64%)	

In the present study, a majority of the population was aware of eye donation (98.21%), which is comparable to studies done in Goa and Bangalore.<sup>8,9</sup> It is higher in comparison to a study in Maharashtra (83%).<sup>10</sup> The high level of awareness in our study can be attributed to an educated and predominantly urban population, mass media as a source of information and Gujarat's inherent rich tradition of pioneering work in eye donation and eye banking.

Most of the students in our study reported learning about

Table 3: Responses assessing knowledge of eye donation

Responses to queries (%)		1st year GNM students	2nd year GNM students	p value and statistical association
Age for eye donation				
<20 years	7.92% (n= 19)	11.27%(n=16)	2.17%(n=3)	0.009 (p<0.05) significant
50 years	7.5% (n=21)	7.75%(n=11)	7.25%(n=10)	
Any age	85.71%(n=240)	80.98%(n=115)	90.58%(n=125)	
Can eyes be donated before death?				
Yes	60.71% (n=170)	71.83%(n=102)	49.28%(n=68)	0.0001 (p<0.05) Extremely significant
No	39.26%(n= 110)	28.17%(n=40)	50.72%(n=70)	
Can eye donation be done if body of the deceased is at home?				
Yes	62.5%(n=175)	61.98%(n=88)	63.04%(n=87)	0.85 Statistically insignificant
No	37.5%(n=105)	38.02%(n=54)	36.96%(n=51)	
Ideal time for eye donation after death				
Within 6- 8 hours	75.36% (n=211)	69.72%(n=99)	81.16%(n=112)	0.05 Statistically insignificant
Within 10-15 hours	12.83%(n=32)	15.49%(n=22)	7.25%(n=10)	
Within 15- 20 hours	13.21%(n=37)	14.79%(n=21)	11.59%(n=16)	
Utilization of eye donation				
Research education	1.07%(n=03)	1.41%(n=2)	0.72%(n=1)	0.855 Statistically insignificant
Corneal transplantation	12.14%(n=34)	11.97%(n=17)	12.32%(n=17)	
Both	86.78% (n=243)	86.61%(n=123)	86.96%(n=120)	
Does receiver have to pay for donor eye?				
Yes	18.57%(n=52)	20.42%(n=29)	16.67%(n=23)	0.65 Statistically insignificant
No	81.43%(n=228)	79.58%(n=113)	83.33%(n=115)	
Is there any artificial replacement for cornea?				
Yes	30.36%(n=85)	32.39%(n=46)	28.26%(n=39)	0.45 Statistically insignificant
No	69.64%(n=135)	67.61%(n=96)	71.74%(n=99)	
Eye donation done in friends/ relatives?				
Yes	10.36%(n=29)	7.04%(n=10)	13.77%(n=19)	0.06 Statistically insignificant
No	89.64%(n= 251)	92.96%(n=132)	86.23%(n=119)	
Have you pledged eyes?				
Yes	7.14%(n=20)	5.63%(n=8)	8.70%(n=12)	0.31 Statistically insignificant
No	92.86%(n=260)	94.37%(n=134)	91.30%(n=126)	

eye donation through mass media with television (39.29%) being the most common source, which is similar to other studies.<sup>8,10,15</sup> This suggests utilising mass media more aggressively as a possible outlet for future public health campaigns can help in the propagation of the noble message of eye donation in the community.

NPCB and VI celebrates the National Eye Donation Fortnight (25th August to 8th September) every year in India to address the disparity in the demand and supply of donor eyes and create awareness among the masses. 45.36% awareness in our study indicates that a more targeted and strategic planning should be done during this period for spreading the knowledge about this righteous cause.

A significant majority of 60.71% students had the misconception that eye donation can be executed before

death, i.e. in the living or brain dead people. As the nursing students were posted in different departments in the tertiary care hospital, this misconception might be due to a misunderstood correlation of the time frame in which donation of organs other than eyes is done. Vital organs such as heart, liver, kidneys, intestines, lungs and pancreas can be donated only in case of brain death.<sup>16</sup>

75.36% students knew that the ideal time for eye donation is within 6 to 8 hours of death, which was found to be lower in other studies.<sup>13,14</sup> If this knowledge is lacking, a large number of donor eyes may not be available at an optimal time which can compromise the quality of the donor corneas for transplantation.

Even if the deceased is a pledged donor, the consent of the family members is essential for executing enucleation

at the time of death. In our study, the low knowledge of eye donation done among friends or relatives indirectly highlights the existing ignorance and the low eye donation to pledge ratios in the community.

In spite of the high awareness of eye donation, only 7.1% of the nursing students had pledged their eyes. Another study in an urban population had only 2.2% participants pledging eyes.<sup>17</sup> This indicates a significant lack of motivation, in spite of high awareness, also suggesting that there is enough potential to obtain more corneas for transplantation.

### Limitation

Since this study was conducted among the first year and second year GNM nursing students of a nursing college of Western India, representing a limited part of the health science background students, the results can't be generalised to a general population. Perceived reasons for not pledging eyes and religious viewpoints could not be assessed in the study.

### Future strategies

To conclude, the present study revealed that in spite of the high awareness, the knowledge of certain aspects of eye donation was low amongst the nursing students. Also, a very low percentage of them had pledged eyes. Hence, appropriate strategies need to be developed to increase the relevant knowledge and thereby motivation for eye donation.

Wider practice and training of grief counselling with educational visits and postings at nearby eye-banks by the nursing students, system funded round the year publicity of success stories of corneal transplant recipients, use of mass media and round the year promotional campaigns in the hospitals and nursing colleges can help in the long term. It is also advisable to revise the current subject related curriculum of the nursing course to make it more informative so that they get a sound understanding of the nuances of eye donation. This will not only allow them to be a resource to their professional colleagues, patients and their families for dissemination of accurate information concerning eye donation, but also help them to be role models even before they embark on their professional career as a nurse.

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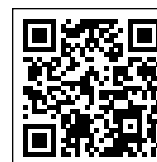
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