

AN INSIGHT INTO AWARENESS ABOUT EYE DONATION AMONG DENTAL
STUDENTS OF TERTIARY DENTAL CARE INSTITUTION

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ABSTRACT

Purpose: a) To assess the promoting factors for eye donation among dental students. b) To find out perceptions about eye health care among them. **Methods:** A cross sectional self-reporting questionnaire based study was conducted among 592 dental students in a private dental institution situated in Rajasthan. A detailed proforma containing 24 questions was framed for the purpose of capturing sociodemographic information, questions concerning different aspects of eye health care, eye donation and perceived promoting factors for eye donation. The reliability of the questionnaire was evaluated by cronbach's coefficient alpha to measure the internal consistency and test-retest method to examine the stability of the questionnaire. The alpha coefficient of 0.7 was considered adequate. Intraclass correlation coefficient (ICC) with 95% confidence interval was used for assessing the reliability. The value of the ICC was 0.70. **Results:** The most common source of information was from the mass media/ TV/radio/ movies (91.55%). 15.37% dental students were keen to pledge their eyes for donation. However, 39.02% of the dentist did not know whom to approach for pledging their eyes for donation. Donated eyes can give vision to a person was the main motivational force for eye donation among dentists (37.36%). Majority of the respondents (85.98%) opined that blindness can be prevented if awareness is generated upon eye health care. **Conclusion:** To increase the level of awareness and knowledge of dentist on eye donation, more health education about eye diseases, eye donation and corneal transplantation is needed.

KEYWORDS: Eye donation, corneal transplantation, dental students, awareness.

INTRODUCTION

Vision is the most important sense because it allows interacting freely with the environment and enjoying the beauty of life. Eye is sometimes called the "mirror of soul," "it twinkles with humor, sparkles with joy, softens with worry, hardens with anger and clouds when things go wrong or one loses hope. The eye often reflects physical health.^[1] Once vision becomes significantly limited, it influences the activities of daily living. Even simple tasks become difficult to perform. So eye care is very important to maintain the eye health.^[2]

The eye is the window to the world and it is a sensitive, highly specialized sense organ subject to various disorders many of which lead to impaired vision. Blindness is a lack or loss of ability to see; lack of

perception of visual stimuli. The disease of the cornea is one of the major causes of blindness in India for which the vision can be restored by eye donation. Eye donation is an act of donating one's eyes after his/her death. Only corneal blinds can be benefitted through this process, not other blinds. It is an act of charity, purely for the benefit of the society and is totally voluntary.^[3]

The world health organization (W.H.O) estimates that for every 5 seconds, someone goes blind. Globally 37 million people are blind and of these nearly 10 lakh blind people are willing for corneal transplantation.^[4] It's a poignant tragedy that India has one of the largest quanta of blindness in the world. There are 12 million blind people in India, which is more than one third of the global blind population (32 Million).^[5] The state of

Rajasthan has the second highest prevalence of blindness in the country: 2.5% of the total population of 68.6 million in the state is afflicted. This means that there are nearly 1.7 million blind people in Rajasthan alone.^[6] For such people, corneal transplantation helps in restoring their sight. According to the Eye Bank Association of India, the current cornea procurement rate in India is 22,000 per year. However, the current corneal procurement rates are inadequate to meet the transplantation need in India.^[7]

Voluntary eye donation depends on the awareness levels of various stakeholders in the community. Today's dental students are tomorrow's stakeholders of the community. The dental students are the future health care providers for the community, having strong scientific base and an inherent inclination to serve the mankind. In India, currently every year approximately 30,000^[8] dental graduates and postgraduates are added to the profession. Therefore, such large amount of workforce (dental professionals) if properly utilized can enhance eye donation rates by educating and motivating the relatives in case of patient's death. Hence the present study was undertaken with an objective of assessing the promoting factors for eye donation among dental students. Additional objective of this study was to find out perceptions about eye health care among them.

MATERIALS AND METHODOLOGY

A cross sectional institutional and self-reporting questionnaire based study was conducted among dental students in a private dental institution situated in the North West part of the country, Rajasthan, India. The present study was cleared by the ethical committee of the SDCRI. Research has been conducted in full accordance with the World Medical Association Declaration of Helsinki. Data was obtained from the students perusing their graduation and post-graduation courses enrolled in the institution for 2010 to 2015 batch. The students were briefly explained about the nature of study and their written consent was taken. To maintain anonymous design all performatives were coded to avoid identification of the sample by the investigator. Those who were either unable to provide the required information or submitted incomplete questionnaire form were excluded. The initial sample consisted of 631 students but after applying exclusion criteria the final sample comprised of 592 students.

A detailed proforma containing 24 questions was framed for the purpose of capturing sociodemographic information of participants, questions concerning different aspects of eye health care, eye donation and perceived promoting factors for eye donation. The questions are answered either in yes, no, don't know or according to the form of question. The reliability of the questionnaire was evaluated by: (1) Cronbach's coefficient alpha to measure the internal consistency; (2) test-retest method to examine the stability of the questionnaire. The alpha coefficient of 0.7 was

considered adequate. Test-retest reliability was measured by having the same set of respondents to complete a questionnaire at two different points of time within which there was no change of the constructs of interest. Intraclass correlation coefficient (ICC) with 95% confidence interval was used for assessing this reliability. ICC measures the strength of agreement between repeated measurements. The value of the ICC was 0.70. An ICC 0.4–0.75 was an indication of fair to good reliability. The questionnaire was viewed by three experts in dental public health to ensure its suitability for the present study. The questionnaire was personally administered and the professionals were explained regarding the motive of the study and how to complete the questionnaire. It was emphasized that the confidentiality of the responses made by them would be strictly maintained.

Data so collected was tabulated in an excel sheet, under the guidance of statistician. Data was analyzed using SPSS software Version 20 for generation of descriptive as well as inferential statistics.

RESULTS

The final sample consists of 592 dental students. Table 1 summarizes the students' awareness on eye donation. 97.8% of the dental students were aware about the existence and practice of eye donation. The most common source of information was from the mass media/ TV/radio/ movies (91.55%). Ninety one (15.37%) dental students were keen to pledge their eyes for donation, while only 53(8.95%) of them were willing to donate their close relative's eyes. However, 39.02% of the dentist did not know whom to approach for pledging their eyes for donation. 85.3% dentist knew that the eye is removed by a doctor/surgeon/eye specialist. More than fifty percent of the dentists were not aware about the existence of eye banks in their city.

Table 2 summarizes the students' knowledge on eye donation. Only 15.71% dentists were aware that the eye cannot be donated while a person is alive. Dental students (33.11%) were more aware about the fact that the eyeball should be removed within few hours after death. Two hundred two dentists were aware that the whole eye can be removed from the donor while 211 were aware that the cornea can be removed separately. 33.45% of the dentist knew that donated eye can be used for corneal grafting. More than 55% of the dentist did not know that the donor eye can be stored before transplantation.

Majority of the respondents (85.98%) opined that blindness can be prevented if awareness is generated upon eye health care. Poor knowledge was observed among the dentist (44.43%) regarding Vitamin A role in prevention of childhood blindness and 79.05% had the knowledge that it is present abundantly in green leafy vegetables and yellow fruits. Most of the dentists (91.05%) were in favour of active involvement of

themselves in spreading awareness regarding eye donation & eye health care among their family members (Table 3).

Donated eyes can give vision to a person was the main motivational force for eye donation among dentists

(37.36%) (Table 4). Dislike of separating the eyes from body before last rituals was the most common reason among dentists (32.14%) for not donating their eyes (Table 5).

Table 1: Responses to questionnaire- Awareness of eye donation.

Questions	Dental N (%)
How did you come to know about eye donation?	
Mass media/TV/radio/movies	542 (91.55)
Don't know	3 (0.51)
Through this form	1 (0.17)
Hospital/clinics	5 (0.85)
Organ donation campaigns	4 (0.68)
Through lecture	11 (1.86)
Friend	5 (0.84)
Doctor	8 (1.35)
Did not answer/left blank	13 (2.20)
Are you willing to donate your eyes?	
Yes	91 (15.37)
No	252 (42.57)
Don't know	179 (30.24)
Maybe/ need time	70 (11.82)
Are you willing to donate your close relative's eyes?	
Yes	53 (8.95)
No	386 (65.2)
Don't know	82 (13.85)
Maybe/ need time	71 (11.99)
Whom do you approach for eye donation?	
Hospital/ society	154 (26.01)
Doctor	57 (9.63)
Specialist	28 (4.73)
Don't know	231 (39.02)
Parent/ close family	26 (4.39)
Eye bank	69 (11.66)
Did not answer/left blank	27 (4.56)
Who should remove the eye from the donor?	
Eye specialist	209 (35.30)
Doctor/ surgeon	296 (50)
Optometrist	51 (8.61)
Don't know	8 (1.35)
Any one	4 (0.68)
Did not answer/left blank	24 (4.05)
Name any eye bank you know in SriGanganagar?	
Don't know	318 (53.72)
Rotary eye bank	171 (28.89)
Did not answer/left blank	103 (17.40)

Table 2: Responses to questionnaire - Knowledge of eye donation.

Questions	N (%)
Can the eye be removed from a living person for donation?	
Yes ...	316 (53.38)
Yes with consent of donor	126 (21.28)

No ...	93 (15.71)
Don't know ...	43 (7.26)
May be	14 (2.36)
Within how much time after death should the eyes be removed?	
Don't know	283 (47.80)
Hour/few hours ...	196 (33.11)
Within 24 hours/week ...	46 (7.77)
As soon as possible ...	54 (9.12)
Not sure ...	7 (1.18)
Did not answer/left blank	6 (1.01)
What is removed from the donor eye?	
Don't know ...	74 (12.5)
Whole eye ...	202 (34.12)
Cornea ...	211 (35.64)
Eye/lens ...	81 (13.68)
Retina/sclera/tissues	24 (4.05)
What is transplanted from the donor eye?	
Don't know ...	167 (28.21)
Retina ...	23 (3.89)
Whole eye ...	184 (31.08)
Cornea ...	198 (33.45)
Iris/lens/any part	20 (3.38)
How long the donor eye can be kept/stored before transplantation?	
Don't know ...	327 (55.24)
Up to 6 hours ...	24 (4.05)
7 – 12 hours ...	66 (11.15)
Up to 24 hours ...	31 (5.24)
Few days /few weeks ...	17 (2.87)
Few months/ few years ...	28 (4.73)
As soon as possible ...	21 (3.55)
Did not answer/left blank	78 (13.18)

Table 3: Responses of the study subjects on different aspects of eye health care.

Questions	N (%)
Most of the blindness can be prevented if awareness are generated on eye health	
Yes	509 (85.98)
No	64 (10.81)
No response	21 (3.55)
Vitamin A has important role in prevention of childhood blindness	
Yes	263 (44.43)
No	152 (25.68)
No response	177 (29.90)
Most of the green leafy vegetables, yellow fruits contain abundant Vit A	
Yes	468 (79.05)
No	73 (12.33)
No response	51 (8.61)
Students should take active role in spreading awareness among family members	
Yes	539 (91.05)
No	7 (1.18)
No response	46 (7.77)
First eye screening should be done	

Within 6 months of age	44 (7.43)
6 months -3 years of age	219 (36.99)
3 - 6 years of age	189 (31.93)
No response	150 (25.34)

Table 4: Reasons for willingness to donate the eyes.

Reason	Dental (N=91) N (%)
Donated eyes can give vision to a person	34 (37.36)
Eye donation is a noble work	19 (20.88)
Influenced after reading an article	14 (15.39)
Influenced after a lecture	17 (18.68)
Influenced after watching a movie	26 (28.57)
A friend or family member has received or donated the eyes	29 (31.87)

Table 5: Reasons for refusal to donate the eyes.

Reason	Dental (N= 252) N (%)
Lack of awareness	48 (19.05)
Dislike of separating the eyes from body before last rituals	81 (32.14)
Objection by family members	57 (22.62)
Religious restriction	38 (15.08)
Unsuitability to donate eyes because of disease or old age	44 (17.46)
Signing eye donor's card is like signing death certificate	29 (11.51)

DISCUSSION

India is now home to the world's largest number of blind people.^[9] Of the 37 million people across the globe who are blind, over 15 million are from India. What's worse, 75% of these are cases of avoidable blindness, this could be due to the country's acute shortage of transplant surgeons and donated eyes for the treatment of corneal blindness. While India needs 2.5 lakhs donated eyes every year, the country's 109 eye banks manage to collect a maximum of just 25,000 eyes, 30% of which can't be used.^[10] Cost for donor cornea is prohibitive due to the lack of local donors which can be attributed to the lack of national awareness on corneal transplantation and eye donation.

Although 92% of the dental students in the present study had heard about eye donation previously, only 15.37% of them were willing to pledge their eyes for donation and merely 8.95% of them were willing to donate their relatives' eye which is less than the previous studies which were done on a lesser number of students.^[11] One of the reasons why students were more willing to donate their eyes than their close relative's eyes could be that they felt they don't have the right to pledge their relative's eyes without their consent. These findings suggest that more health education should be given to the students during their secondary school education on the importance of eye donation and benefits of corneal transplantation so that they will be motivated to pledge their own eyes for donation as well as to motivate their relatives to do the same.

In the present study, even though students knew that either whole eye (34.12%) or cornea (35.64%) is removed from the donor, only 33.45% knew that cornea is transplanted from the donor eye, while more than half the students (55.24%) did not know that the donor eye

can be stored before transplantation. The knowledge of dentist regarding eye donation in the present study was comparatively better than the one reported by Bharti MK *et al*^[11] in their study.

Present study revealed that only 44.43% of students had knowledge about vitamin A's important role in prevention of childhood blindness and 79.05% had knowledge about the dietary sources of vitamin A. They have acquired this knowledge as they are being taught about it in their classes. The prime reasons cited in the study for eye donation was donated eyes can give vision to a person 37.36% and a friend or family member has received or donated the eyes by 31.87% participants. But dislike of separating the eyes from body before last rituals was the reason for people not donating eyes according to 32.14% of the respondents. Other reasons for not donating eyes included objection by family members, lack of awareness, unsuitability to donate eyes because of disease or old age, religious restriction and signing eye donor's card is like signing death certificate. Dissimilar reasons were reported in other studies.^[12,13]

In the present study, author has taken the maximum sample (dentist) to know their perception regarding eye donation till date. So, results of the present study can be implemented among other population groups with the same characteristics and must be considered in terms of current trends. The limitations of the present study is that the anonymous questionnaire lead to social desirability bias, however, the extent of over-reporting of positive attitudes and under-reporting of smoking behaviour cannot be assessed. The present study is cross-sectional in nature, due to which the cause cannot be determined. The author recommends further longitudinal studies should be done on the same.

CONCLUSION

To increase the level of awareness and knowledge of community on eye donation, more health education about eye diseases, eye donation and corneal transplantation is needed. This can be achieved by educating practicing doctors on the importance of eye donation and benefits of corneal transplantation and training them to motivate the families of ill patients to pledge for eye donation. Dental students have great potential to increase eye donation. They come in contact with many patients and therefore have a great opportunity to motivate the patients or relatives to donate eyes.

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