Association between Eye Donation Awareness of Next-of-Kin and Eye Donation after Grief Counselling

Oshin Puri,[1] Neeti Gupta,[2,3] Sanjeev Kumar Mittal[3]

[1]MBBS Graduate, All India Institute of Medical Sciences (AIIMS), Rishikesh, Uttarakhand, India
[2]Rishikesh Eye Bank, Rishikesh, Uttarakhand, India
[3]Department of Ophthalmology, AIIMS, Rishikesh, Uttarakhand, India

ABSTRACT

Introduction: Corneal transplantation is a definitive treatment for corneal blindness, but only 25% patients receive corneas due to donor scarcity. Community awareness initiatives increase willingness to donate, but little is known about how awareness influences actual donation.

Objective: To assess the association between pre-existing eye donation awareness of the next-of-kin and donation after grief counselling.

Methodology: The 164 most stable next-of-kin were enrolled in this analytical cross-sectional study with due consent and ethical approval. Participants were approached by the Eye Donation Counsellor (EDC). After assessing their awareness about eye donation through the Ronanki "Awareness and Perception on Eye Donation" questionnaire, the EDC grief counselled the next-of-kin.

Result: Thirty-four (20.7%) brothers and 33 (20.1%) fathers of the deceased were the most stable next-of-kin. In total 139 (84.8%) participants were aware of eye donation. The mean awareness, knowledge, and perception scores of the study population were 2.46 ± 1.34 out of 4, 2.73 ± 2.37 out of 6, and 1.79 ± 1.72 out of 4, respectively. Eye care professionals (105, 64.02%) and mass media (61, 37.19%) were identified as the most common sources of information. While 86 (52.4%) expressed willingness to donate, only 12 (7.31%) donated, and there was one (0.61%) voluntary donation. Counselling and the belief that eye donation is a noble deed were identified as the major motivators. Chi-square (χ^2) and p-value for the association between eye donation and the pre-existing awareness of the next-of-kin were 0.95 and 0.33, respectively, suggesting no significant association. However, awareness was associated with the increased willingness to donate eyes ($\chi^2 = 19.35$; p-value <0.001).

Conclusion: There was no significant association between eye donation and awareness of the next-of-kin.

Key words: Corneal blindness; eye banking; eye donation; grief counselling; hospital cornea retrieval program.

Financial Interest : Nil
Conflict of Interest : Nil

Received : 29.07.2024
Accepted : 12.11.2025

Corresponding Author
Dr. Neeti Gupta,
Medical Director, Rishikesh Eye Bank;
Associate Professor, Department of Ophthalmology,
All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.
E-mail: neeti.oph@aiimsrishikesh.edu.in

Access this article online
Website: www.nepjol.info/index.php/NEPJOPH
DOI: https://doi.org/10.3126/nepjoph.v17i34.74013

ISSN: 2072-6805, **E-ISSN:** 2091-0320

INTRODUCTION

The 2018 "*Global Causes of Vision Loss Estimates"* reported that 2.4% of global visual impairment results from corneal causes, amounting to 6.17 million people worldwide (Harwood et al., 2005; Porth et al., 2019). The Eye Banking Association of India reports that about 1.1 million Indians suffer from corneal blindness, and it is the most common cause of reversible blindness in the country (Singh et al., 2019; EBAI, 2022). Corneal transplantation is emerging as a definitive treatment for corneal blindness (Tan et al., 2012; Drzyzga et al., 2016; Salamé et al., 2003). However, only 25% of the 1,00,000 transplants required in India are being done annually (EBAI, 2022). Scarcity of donor corneas has been identified as the major cause for this disparity in countries that have an opt-in donation policy (such as India) (Wong et al., 2017). Strategies like Community Awareness Interventions (CAI), Eye Donation Pledges, Grief Counselling, and the Hospital Cornea Retrieval Program (HCRP) are being encouraged to curb this scarcity (Latha et al., 2019; Tsigkos et al., 2020).

The CAIs enhance donor willingness and registry signing (Freely and Moon, 2009; Deedat et al., 2013). However, after death, when the next-of-kin holds the right to donate, the willingness of the deceased might be a deceptive outcome measure (Farooqui et al., 2018). This is especially important since the individual's wish to donate does not affect the family's decision to donate (Farooqui et al., 2018). Since there is limited evidence evaluating actual donation following CAIs, their impact remains debatable (Tandon et al., 2004; Freely and Moon, 2009; Sharma et al., 2017; Karunakaran and Amalorpavanathan, 2018; Symvoulakis et al., 2018). Thus, the primary objective of this study was to assess the association between eye donation awareness of the next-of-kin and donation rate after grief counselling.

METHODOLOGY

This analytical cross-secitonal study assessed the awareness, knowledge, perception, and donation rates of eye donation. However, the inclusion of grief counselling as a standardised intervention introduced a temporal sequence. This design accounts for the influence of grief counselling on eye donation but also allows us to evaluate how pre-existing awareness is associated with donation outcomes. The study was conducted after ethical clearance from the Institutional Ethics Committee (IEC) of the All India Institute of Medical Sciences (AIIMS), Rishikesh, Uttarakhand, India (Reference number: 262/IEC/STS/2022; dated 2022 August 5). Participants were recruited for the study from August to October 2023.

Through HCRP, the Eye Bank is immediately notified of deaths in the hospital and of the deceased brought to the mortuary. An Eye Donation Counsellor (EDC) then visits the site of death and identifies the most stable next-of-kin for grief counselling. An EDC is a science graduate (Bachelor of Science or equivalent) having undergone a three-month training in grief counselling and cornea retrieval from an eye donation training centre.

For the current study, the most stable next-of-kin was first approached to participate in the study, and a well-informed consent was taken. Thereafter, their relation to the deceased was documented, and their pre-existing awareness

regarding eye donation was assessed through an interview (based on "*Awareness and Perception on Eye Donation*"). The "*Awareness and Perception on Eye Donation*" is an open-access 15-item questionnaire developed by Ronanki et al. (2014), and was used with due permission from the corresponding author. The questionnaire has been tested for its face, content, and flow validity as a tool to assess awareness, sources of information, knowledge, perception, barriers, enablers, and willingness to donate among Indian patient attendants.

After assessment of awareness, the next-of-kin was counselled for eye donation following the institute's Grief Counselling Standard Operating Protocol (SOP) under HCRP, which has been in use since the inception of the eye bank (2019). Since the cornea must be harvested within 6-8 hours of death, grief counselling was initiated as soon as possible. Grief counselling starts with empathising with the next-of-kin, followed by assessment of their awareness, discussion about the need for donation, doubt addressal, and consent for donation.

Once the next-of-kin was counselled, their willingness to donate the deceased's eyes was assessed along with the reason for their decision. Whether the family actually donated, and the data of voluntary donations was retrieved from the Eye Bank HRCP records.

The sample size of the study was calculated as per the following (Charan and Biswas, 2013):

$$\text{Sample size} = \frac{Z_{1-\alpha/2}{}^2 P(1-p)}{d^2}$$

Where, $Z_{1-\alpha/2}$ = standard normal variate. Considering a 5% type 1 error ($p < 0.05$), it is 1.96; p = Expected proportion in population based on previous studies or pilot studies; d = absolute error of precision. Considering a 5% type 1 error, 5% absolute error of precision, and a eight donations per 100 deaths (based on the eye bank's record), a minimum of **113** participants had to be enrolled (Charan and Biswas, 2013). In the current study, data from **164** participants were collected by convenience sampling. For statistical analysis, the parameters were: i) categorical variables of an individual being aware/unaware of eye donation, willingness to donate, and actual donation; ii) discrete interval variables quantifying the (extent of) awareness, knowledge, and perception of the study population regarding eye donation; and iii) description of common sources of information, barriers, and enablers of donation.

The primary objective of the study was to assess the association between eye donation and the next-of-kin's pre-existing awareness. The above was analysed using the Chi-square test, considering a significance level of 0.05. A secondary objective of the study was to assess the association between the next-of-kin's willingness to donate and their awareness (also analysed using the Chi-square test). Data of awareness, knowledge, and perception regarding eye donation, sources of information, barriers, and enablers, willingness to donate, and actual donations have been reported descriptively.

RESULT

In total, 53 (32.3%) participants were females. Other demographics could not be recorded as participants were hesitant to discuss their own age, educational qualifications, occupation, and

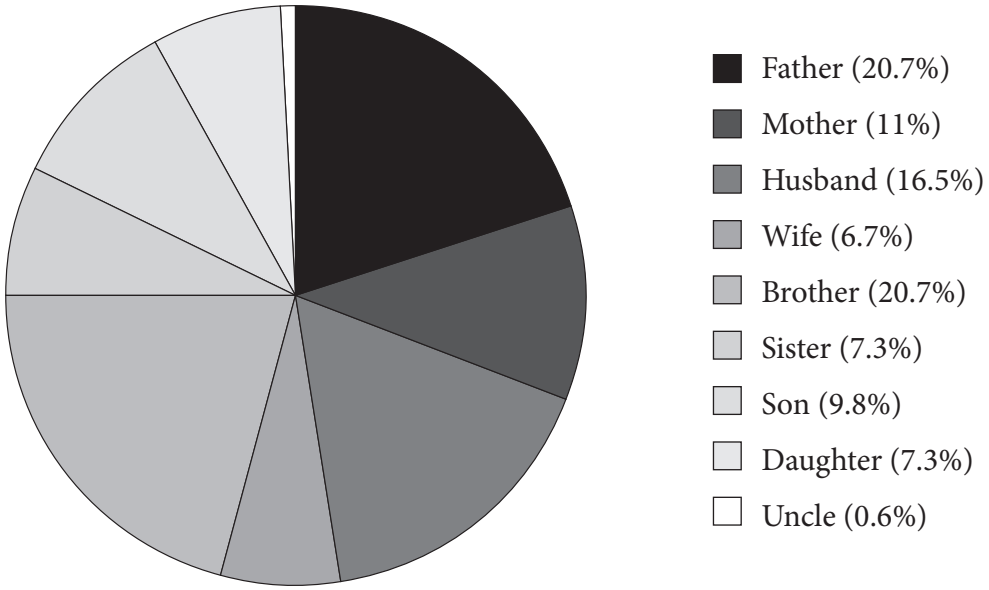

Figure 1: Relation of the study participant (most stable next-of-kin) to the deceased.

religion in the given circumstances. The relation of the participants to the deceased (Figure 1). suggests that the brothers (34, 20.7%)) or the fathers (33, 20.1%) were most commonly identified as the most stable next-of-kin.

Assessment of awareness suggested that 139 (84.8%) study participants were aware (had heard) of eye donation. Seventy-five (45.7%) knew about the nearby eye bank. One hundred and nineteen (72.6%) knew that eye donation was a post-death donation, and 71 (43.3%) knew that prior pledging was not necessary to donate eyes. The cumulative awareness score of all the participants was 2.46 ± 1.34 out of a maximum of four (Table 1).

Assessment of knowledge suggested that 66 (40.2%) participants were aware of the definition of eye donation. Forty-four (26.8%) knew the window period for eye donation, 76 (46.3%) knew that only the cornea is retrieved in eye donation, and 67 (40.9%) knew that donated corneas are used to replace the cornea of another individual's eye(s). One hundred and twenty five (76.2%) knew that donated eyes could give eyesight to two blind individuals, and 71 (43.3%) knew eye donation does not disfigure the donor's face. The cumulative knowledge score of all the participants was 2.73 ± 2.37 of a maximum of six (Table 1). Eye care professionals, namely ophthalmology consultants, residents, nurses, and optometrists, were the most common sources of information regarding eye donation, followed by social media (Figure 2).

Assessment of perception regarding eligibility to donate suggested that 72 (43.9%) knew that there is no age limit to donate eyes. Ninety-four (57.3%) knew that donation was not limited to any gender, 67 (40.8%) knew that individuals with prior use of spectacles could also donate eyes, and 61 (37.2%) knew that individuals having a history of chronic illness could also donate eyes (Figure 3). The cumulative perception score of all the participants was 1.79 ± 1.72 out of a maximum of four (Table 1).

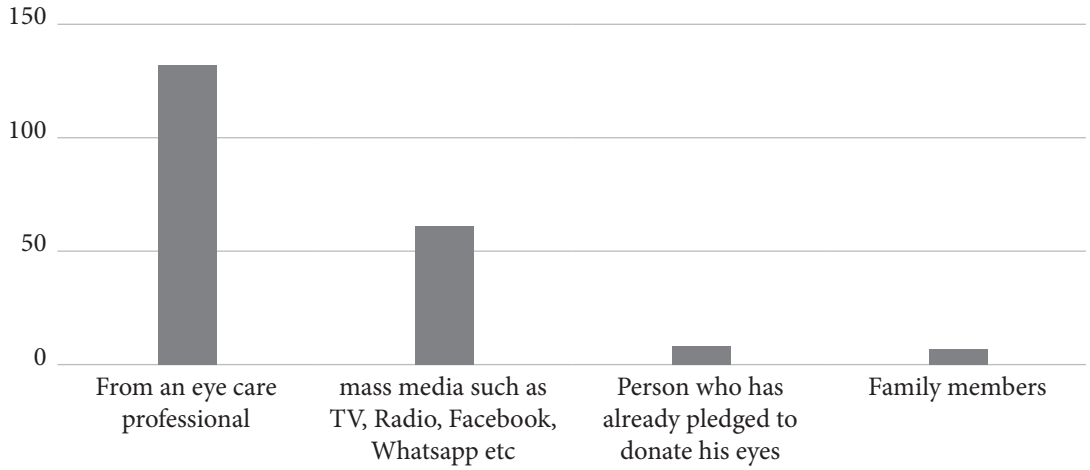

Figure 2: Sources of information regarding eye donation.

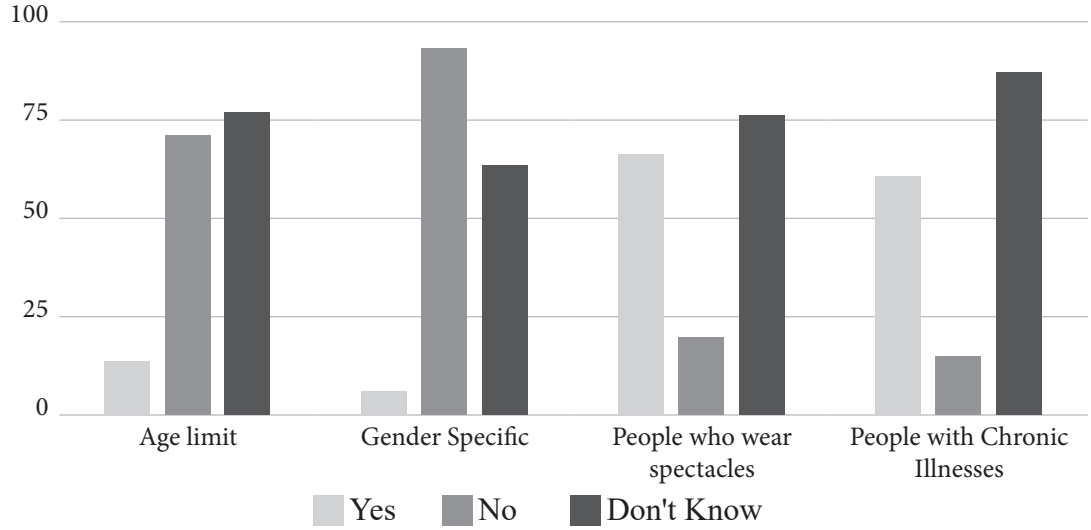

Figure 3: Bar-graphs representing the proportion of study participants towards eligibility to donate eyes, not being limited to (a) age group, (b) gender group, (c) prior use of spectacles, and (d) chronic illnesses.

Table 1: Variable description of Awareness, Knowledge, Perception, and Cumulative Awareness and Perception of the study population regarding eye donation.

	Max	Mean ± SD	Percentile			
			25	50	75	IQR
Awareness	4	2.46 ± 1.34	2	3	4	2
Knowledge	6	2.73 ± 2.37	1	1.5	5	4
Perception	4	1.79 ±1.72	0	1	4	4
Total	14	6.99 ± 5.12	3	5	13	10

SD: standard deviation; IQR: Interquartile Range.

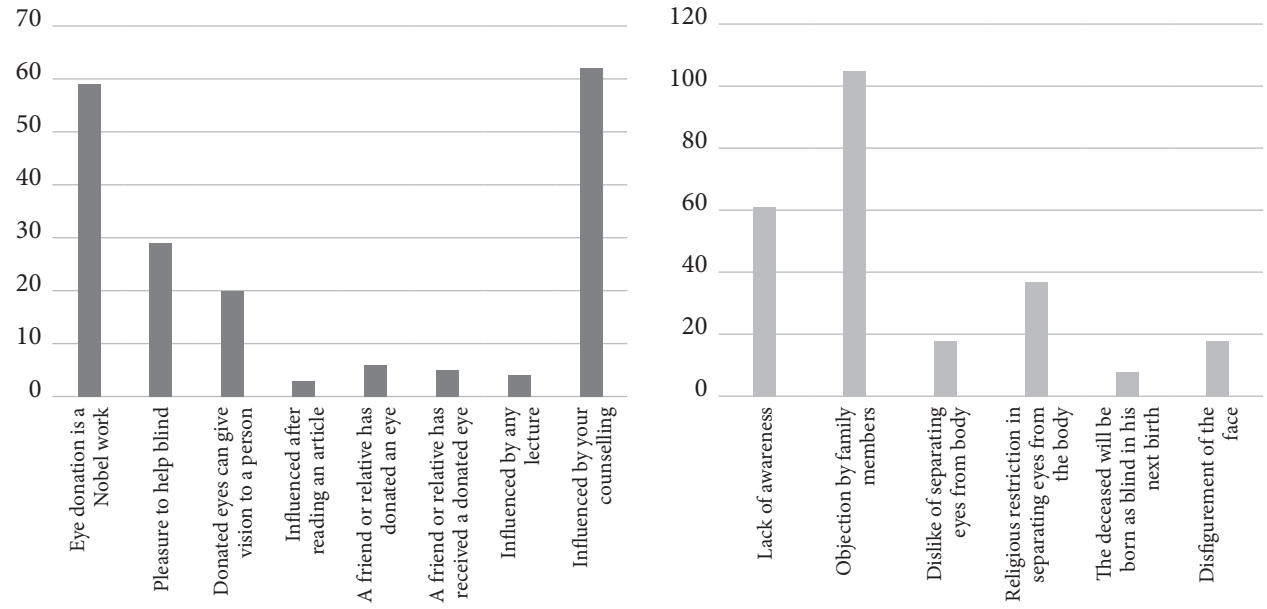

Figure 4: Bar graphs representing (a) Barriers to eye donation, (b) Motivators/Enablers.

A total of 86 (52.4%) participants expressed willingness to donate the deceased's eyes, but only 12 (7.31%) donations were made. During the same period, the eye bank received one (0.61%) voluntary donation. Assessment of motivators and barriers to donation suggested that the strongest motivator was grief counselling (62, 37.8%) encouraging participants, followed by eye donation being a noble work (59, 35.98%) encouraging participants (Figure 4B). Objection by other family members (105, 64.02%) and the lack of awareness about eye donation (61, 37.19%) were identified as the major barriers to donation (Figure 4A).

χ^2 and p-value for the association between eye donation and pre-existing awareness of the next-of-kin were 0.95 (<3.841, that is, the χ^2 statistic for degree of freedom of 1 and significance level of 0.05) and 0.33, respectively, suggesting that there is no significant association between eye donation and pre-existing awareness of the next-of-kin. χ^2 and p-value for the association between willingness to donate eyes and pre-existing awareness of the next-of-kin was 19.35 (>3.841) and <0.001, suggesting that there is a significant association between willingness to donate and pre-existing awareness of the next-of-kin.

DISCUSSION

Brothers and the fathers of the deceased were most frequently identified as the most stable next-of-kin. Similar results have also been reported in the past, where 41.8% of the most stable next-of-kin were siblings (Acharya et al., 2019).

The current study reported 84.8% awareness, similar to that reported in other parts of North India. (Farooqui et al., 2018) The existing literature also reports differences in awareness

about eye donation within the same region, suggesting that results regarding awareness can vary depending on sampling techniques and the period of assessment. (Dandona et al., 1999; Ronanki et al., 2014; Patil et al., 2015; Farooqui et al., 2018; Gupta et al., 2021; Marmamula et al., 2022) In our study, 85% of awareness might be due to the sampling of attendants of chronically ill patients regularly visiting the hospital, hence, more likely to attend hospital-based CAIs.

One hundred and nineteen (72.6%) of the population were aware that eye donation is a post-death donation, and only 71 (43.3%) were aware that prior pledging is not necessary for donation. These numbers were definitely lower than similar studies, where 80.3% and 81.1% of eye donation stakeholders from Srikakulam and 98.1% and 78% of adults from rural Pondicherry were aware of the occasion of donation and prior pledging (Ronanki et al., 2014; Patil et al., 2015; Gupta et al., 2021). Ten (6.1%) believed that eye donation is a live donation, compromising donor vision, 37 (22.6%) thought that eye donation disfigures the face, and 35 (21.3%) were unaware how the donated cornea is used, which has also been reported as a barrier to eye donation in the past (Acharya et al., 2019).

Addressing these misconceptions is imperative to enhance donations. Grief counselling addresses these doubts and myths just before consent and enhances donation. But such misinformation also needs to be addressed in the community. Only one voluntary donation during the study period emphasises the need for the latter. However, voluntary donation requires a larger group to agree, that too without any professional counselling, thus CAIs need to be family-centred.

Regarding eligibility to donate, most participants were not aware of any restrictions to eye donation, notably different from a study from South India, where the awareness was much higher (Ronanki et al., 2014). Seventy-five (45.7%) participants were aware of the nearest eye bank, similar to the published literature (Ronanki et al., 2014; Patil et al., 2015; Gupta et al., 2021). Only 44 (26.8%) were aware of the time until corneas could be donated. It is noteworthy that even those aware of eye donation might not know the eligibility to donate, the technicalities of pledging, or the nearest eye bank.

This technical and logistical information is specifically important for voluntary donation. This suggests that CAIs must be carefully curated to not just motivate donation but also deliver necessary logistical information free from medical jargon. The same is reiterated by the highly dispersed cumulative knowledge and perception scores. While a few had a thorough knowledge of the technicalities of eye donation, the majority had a limited understanding of the same.

The study also identified eye care professionals (namely ophthalmology consultants, residents, nurses, and optometrists) and mass media as the most common sources of eye donation-related information. Existing literature also reports mass media to be a major source of information (Patil et al., 2015).

While 86 (52.4%) participants expressed willingness to donate, only 12 (7.31%) donations were made. Gogate and Gogate (2011), in their

letter to the Indian Journal of Ophthalmology, discussed this disparity and documented that while the willingness to donate eyes has always been reported to be high, the actual donations have been extremely low. The results of the Chi-square test revealed that while awareness was associated with the "willingness to donate", it had no association with actual donations. The findings of the current study are in line with the existing evidence suggesting that while CAIs and increased awareness may contribute towards increasing "willingness to donate", they may not impact actual donations (Tandon et al., 2004; Gogate and Gogate, 2011; Sharma et al., 2017; Latha et al., 2019; Marmamula et al., 2022), especially among those grief-counselled post-death (Patil et al., 2015; Farooqui et al., 2018). Literature assessing the same in tissue/ organ donations other than the eye also reported similar results (Feeley and Moon, 2009; Deedat et al., 2013; Gogate and Gogate, 2011), in their attempt to explain the aforementioned, identified that while willingness to donate stems from a belief in doing something "good," the same belief is difficult to maintain in traumatic situations of the loss of a loved one.

The major motivators to donation were grief counselling, doing a noble deed, pleasure in helping a blind individual, and the belief that donated eyes can give eyesight to a blind individual. Several studies in the past have also reported similar conclusions (Tandon et al., 2004; Farooqui et al., 2018; Latha et al., 2019). It is also worth noting that emotions and beliefs are the second most important motivators and thus must be respected during grief counselling. This study also suggests that while Grief counselling is an effective method of enhancing eye donations, its impact can be further enhanced by reiterating how noble eye donation is and how it may help a blind individual see the world.

The current study identified objections by family members other than the one counselled to be the most common barriers to donation, similar to the existing literature (Thybo and Eskesen, 2013). Addressing this barrier raises the dilemma of whether grief counselling should also need to be family-centred. While counselling 2-3 individuals instead of one might seem a suitable alternative, practically identifying and communicating with even one stable next-of-kin within hours of death is challenging. Furthermore, members of the family looking into the discharge and distant relatives residing close by might arrive after counselling. Such influences might be difficult to predict or address, further raising concerns as to how objections by accompanying family members can be addressed.

Religious beliefs and the belief of the deceased being born blind in the next life emerged as the next most common reasons behind the denial to donate. Religious beliefs have been reported as a major determinant of willingness to donate on multiple occasions in the past as well (Patil et al., 2015; Singh et al., 2018; Marmamula et al., 2022). Religion might be the most delicate barrier to address, although the "Catalyst" approach suggested by Gogate and Gogate (2011) might help. They suggest involving persons of faith since they have significant influence and the potential to enhance donation (Gogate and Gogate, 2011).

The authors acknowledge the potential selection bias in identifying the most stable

next-of-kin. Furthermore, a case-control study design between donors and non-donors without grief counselling might give more reliable information regarding the impact of awareness on donation. However, this might compromise donation since potential donors who might have donated after counselling would not have been approached. Thus, the current study was conducted to generate maximum data with minimum donation compromise. Awareness being analysed as a categorical variable might be another limitation of the current study.

CONCLUSION

The current study observed no significant association between eye donation and the pre-existing awareness of the next-of-kin. Although awareness was associated with willingness to donate eyes, but did not necessarily translate to consent and retrieval of eye tissue. Major motivators identified in the study were grief counselling, nobility of eye donation, and its benefits to the recipient.

ACKNOWLEDGEMENTS

This study was conducted under the Indian Council of Medical Research (ICMR) Short-Term Studentship (STS) 2022. The authors acknowledge ICMR and the Eye Donation Counsellors of Rishikesh Eye Bank, Mr. Alok, Miss Bindiya, Mr. Pawan, and Mr. Sandeep, and the Eye Bank Manager, Mr. Mahipal Chauhan, for their support and assistance throughout the project.

REFERENCES

Acharya M, Dave A, Verma B, et al., (2017). Trends and Determinants of Familial Consent for Corneal Donation in Chinese. Cornea; 36(10): e28. DOI: 10.1097/ICO.0000000000001091 PMID: 27861305

Acharya M, Farooqui JH, Dave A, et al., (2019). Eye donation in north India: Trends, awareness, influences, and barriers. Indian Journal of Ophthalmology; 67(10): 1570-1574. DOI: 10.4103/ijo.IJO_2151_18 PMID: 31546482

Charan J, Biswas T, (2013). How to calculate sample size for different study designs in medical research? Indian Journal of Psychological Medicine; 35(2): 121-126. DOI: 10.4103/0253-7176.116232 PMID: 24049221

Dandona R, Dandona L, Naduvilath TJ, et al., (1999). Awareness of eye donation in an urban population in India. Australian and New Zealand Journal of Ophthalmology; 27(3-4): 166-169. DOI: 10.1046/j.1440-1606.1999.00196.x PMID: 10484181

Deedat S, Kenten C, Morgan M, (2013). What are effective approaches to increasing rates of organ donor registration among ethnic minority populations: A systematic review. BMJ Open; 3(12): e003453. DOI: 10.1136/bmjopen-2013-003453 PMID: 24362010

Drzyzga K, Krupka-Matuszczyk I, Drzyzga Ł, et al., (2016). Quality of Life and Mental State After Sight Restoration by Corneal Transplantation. Psychosomatics; 57(4): 414-422. DOI: 10.1016/j.psym.2016.02.013 PMID: 27063813

Farooqui JH, Acharya M, Dave A, et al., (2018). Awareness and knowledge about eye donation and the impact of counselors: A North Indian perspective. Journal of Current Ophthalmology; 31(2): 218-219. DOI: 10.1016/j.joco.2018.09.006 PMID: 30815229

Feeley TH, Moon S, (2009). A meta-analytic review of communication campaigns to promote organ donation. Communication Reports; 22(2): 63-73. DOI: 10.1080/08934210903266073

GBVI: Global Cause Estimates, IAPB Vision Atlas, (2018). Available at: http://atlas.iapb.org/global-burden-vision-impairment/gbvi-global-cause-estimates/ (accessed 20.02.2022).

Gogate B, Gogate P, (2011). Eye donation: mere awareness and willingness not enough. Only a catalyst can improve corneal harvesting rates. Indian Journal of Ophthalmology; 59(4): 332-333. DOI: 10.4103/0301-4738.83606 PMID: 21731263

Gupta S, Bhattacharya S, Kole S, et al., (2021). Awareness Regarding Eye Donation and Effects of COVID-19 on Its Perception: A Community-Based Cross-Sectional Study From India. Experimental and Clinical Transplantation; 19(7): 717-722. DOI: 10.6002/ect.2020.0543 PMID: 34229568

Harwood RH, Foss AJ, Osborn F, et al., (2005). Falls and health status in elderly women following first eye cataract surgery: a randomised controlled trial. British Journal of Ophthalmology; 89(1): 53-59. DOI: 10.1136/bjo.2004.049650 PMID: 15615745

Homepage. Eye Banking Association of India [Internet]. (cited 20.02.2022). Available from: https://www.ebai.org/.

Karunakaran CE, Amalorpavanathan J, (2018). Hospital awareness rather than public awareness is key to promote organ donation. National Medical Journal of India; 31(4): 193-195. DOI: 10.4103/0970-258X.258214 PMID: 31481924

Latha NV, Kumar PJ, Praveena KK, et al., (2019). Awareness and post-counselling acceptance of eye donation in a tertiary care centre in Northern Kerala. International Journal of Research in Medical Sciences; 7(11): 4107-4110. DOI: 10.18203/2320-6012.ijrms20195019

Marmamula S, Priya R, Varada R, et al., (2022). Awareness on Eye Donation in the North-eastern State of Tripura, India - The Tripura Eye Survey. Ophthalmic Epidemiology; 29(4): 460-464. DOI: 10.1080/09286586.2021.1905199 PMID: 33813928

Patil R, E RP, Boratne A, et al., (2015). Status of eye donation awareness and its associated factors among adults in rural Pondicherry. Journal of Clinical and Diagnostic Research; 9(2): LC01-LC04. DOI: 10.7860/JCDR/2015/10472.5533 PMID: 25859469

Porth JM, Deiotte E, Dunn M, et al., (2019). A Review of the Literature on the Global Epidemiology of Corneal Blindness. Cornea; 38(12): 1602-1609. DOI: 10.1097/ICO.0000000000002135 PMID: 31633620

Ronanki VR, Sheeladevi S, Ramachandran BP, et al., (2014). Awareness regarding eye donation among stakeholders in Srikakulam district in South India. BMC Ophthalmology; 14: 25. DOI: 10.1186/1471-2415-14-25 PMID: 24597749

Salamé N, Pitard A, Queguiner F, et al., (2003). Qualité de vie après greffe de cornée: étude rétrospective [Quality of life after corneal transplantation: a retrospective study]. Journal francais d'ophtalmologie; 26(10): 1016-1022. DOI: 10.1016/s0181-5512(03)00248-9 PMID: 14710809

Sharma B, Shrivastava U, Kumar K, et al., (2017). Eye Donation Awareness and Conversion Rate in Hospital Cornea Retrieval Programme in a Tertiary Hospital of Central India. Journal of Clinical and Diagnostic Research; 11(8): NC12-NC15. DOI: 10.7860/JCDR/2017/28266.10450 PMID: 28969178

Singh A, Gupta N, Ganger A, et al., (2018). Awareness Regarding Eye Donation in an Urban Slum Population: A Community-Based Survey. Experimental and Clinical Transplantation; 16(6): 730-735. DOI: 10.6002/ect.2017.0348 PMID: 29718211

Singh R, Gupta N, Vanathi M, et al., (2019). Corneal transplantation in the modern era. Indian Journal of Medical Research; 150(1): 7-22. DOI: 10.4103/ijmr.IJMR_141_19 PMID: 31411174

Symvoulakis EK, Markaki A, Anyfantakis D, et al., (2018). Organ Donation Awareness: Rethinking Media Campaigns. International Journal of Health Policy and Management; 7(12): 1165-1166. DOI: 10.15171/ijhpm.2018.71 PMID: 30544259

Tan DT, Dart JK, Holland EJ, et al., (2012). Corneal transplantation. Lancet; 379(9827): 1749-1761. DOI: 10.1016/S0140-6736(12)60437-1 PMID: 22559901

Tandon R, Verma K, Vanathi M, et al., (2004). Factors affecting eye donation from postmortem cases in a tertiary care hospital. Cornea; 23(6): 597-601. DOI: 10.1097/01.ico.0000126348.86287.e5 PMID: 15220737

Thybo KH, Eskesen V, (2013). The most important reason for lack of organ donation is family refusal. Danish Medical Journal; 60(2): A4585. PMID: 23347759

Tsigkos D, Tzelepi A, Kopsini D, et al., (2020). Interactive online survey raises awareness about cornea donation. BMJ Open Ophthalmology; 5(1): e000285. DOI: 10.1136/bmjophth-2019-000285 PMID: 32337091

Wong KH, Kam KW, Chen LJ, et al., (2017). Corneal blindness and current major treatment concern-graft scarcity. International Journal of Ophthalmology; 10(7): 1154-1162. DOI: 10.18240/ijo.2017.07.23 PMID: 28730125