

Original Research Article

Knowledge, attitude and practices of South Indian rural population regarding eye donation, programmatic implications to enhance eye donation rates

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Abstract

Background: In India, as per the latest available estimates the prevalence of blindness is about 1%. The major causes include Cataract (62.6%), refractive Error (19.70%), corneal blindness (0.90%). Corneal transplantation from the donor's eyes is one of the important strategies to address the corneal blindness. But there is a huge gap with respect to the number of corneas required and the number of corneas donated or being collected in India. This can be attributed to multitude of factors including poor knowledge, socio cultural barriers, religious perceptions etc.

Aim: To assessing the knowledge, attitude and practices regarding he eyed donation among rural population.

Materials and methods: A hospital based cross sectional study was conducted in the Department of Ophthalmology, Dhanalakshmi Srinivasan Medical College and Hospital. The study had included 403 patients above 18 years of age, belonging to both genders, living in a rural area. The data was collected using a structured questionnaire. Informed written consent was obtained from all the study participants. Data was analyzed using Microsoft excel and IBM SPSS software version 21.

Results: In the current study, 43% of the study population was willing to pledge their eyes and another 45% of the study population was willing to consider pledging the eyes, with some more information. Only 12% of the study population had explicitly refused to pledge their eyes. Majority of them 85.75% agreed that Its a service to humanity, everyone needs to do it.

Conclusion: The awareness level regarding the eye donation is poor among the rural population. The key gaps in the knowledge are in willingness to pledge and actual pledging.

Key words

Eye donation, Visual Impairment, Blindness, Knowledge and Attitude in Eye Donation.

Introduction

Globally, the number of people with visual impairment and blindness is about 2.2 billion, out of which about least 1 billion cases are preventable in nature or can be treated effectively. The predominant contributors of this are unaddressed refractive error cataract, glaucoma, corneal opacities, diabetic retinopathy and trachoma. Major portion of this preventable blindness is contributed by low- and middle-income regions. The prevalence of blindness in these regions is estimated to be fourfold higher than in high-income regions [1]. In India as per the latest available estimates the prevalence of blindness is about 1%, translating into huge absolute numbers. The major causes include Cataract (62.6%), refractive Error (19.70%), corneal blindness (0.90%). The national blindness control program has envisaged bringing down the burden of blindness to 0.3% by 2020. A variety of initiatives have been undertaken to address different causes of blindness in the country [2-4].

Corneal transplantation from the donor's eyes is one of the important strategies to address the corneal blindness. But there is a huge gap with respect to the number of corneas required and the number of corneas donated or being collected in India [5]. This can be attributed to multitude of factors including poor knowledge, socio cultural barriers, religious perceptions etc. Many studies conducted across the globe have documented varied levels of knowledge regarding various aspects of eye donation depending on the population studied, geographic locality, educational levels [6, 7].

Another key aspect of vital programmatic implication is the gap between willingness to donate the eyes and actual donation. Many

studies in the past have documented huge gap between the willingness and practice with respect to eye donation. Considering the fact that majority of the Indian population still resides in rural area, enhancing the eye donation rates among them is vital in bridging the gap. But there is very limited number of studies conducted on rural population exploring the factors associated with eye donation [8]. Understanding the patterns of eye donation and factors associated with it can provide vital inputs to clinicians and policy makers to devise appropriate behavioral change interventions to enhance eye donation rates. This can have huge positive impact on addressing the corneal blindness. Hence the current study was conducted with an objective of assessing the knowledge, attitude and practices regarding eye donation among rural population.

Materials and methods

The current study was a hospital based cross sectional study conducted in the Department of Ophthalmology, Dhanalakshmi Srinivasan Medical College and Hospital. The study setting was the outpatient department of a tertiary care teaching hospital. The study population included patients and their attendants hailing from surrounding villages, visiting the study setting for outpatient services. The study had included adults above 18 years of age, belonging to both genders, living in a rural area. People below 18 years and people currently living in urban areas were excluded from the study.

The required sample size was calculated assuming the expected proportion of the people who are willing to donate eyes, but not donated as 50% (The proportion yielding the highest sample size) with 5% precision and 95% confidence level. As per the above-mentioned

calculation, the required sample size was 384. To account for a non-participation rate/ loss to follow up rate of a about 5%, another 19, subjects will be added to the sample size. Hence the final required sample size would be 403. The data collection for the study was conducted between March to December 2019. All the study subjects were included in the analysis by convenient sampling.

The data was collected using a structured questionnaire. Informed written consent was obtained from all the study participants and only those subjects willing to provide informed consent were included in the studies. All efforts were made to maintain the confidentiality of the personal information. The study was approved by institutional human ethical committee. Socioeconomic status of the study population was assessed by 2019 update of modified Kuppuswamy socioeconomic classification.

Data was analysed using Microsoft excel and IBM SPSS software version 21. Numeric variables were summarized by mean and standard deviation. Categorical variables were summarized by frequency and proportion. Since the study was not testing any hypothesis, no statistical test of significance was applied.

Results

A total of 400 subjects were included in the final analysis. Demographic characteristics of the study population were presented in **Table - 1**. Majority of the study population were older adults aged between 51 to 60 years, followed by 41 to 50 year age group. The proportion of subjects aged below 40 years and above 60 years was respectively.

Majority of the population were males 55.75% in the age group 51 to 60 years (35.75%). Secondary high school education was reported in 39.75% of the subjects, followed by primary education in 32.25%. Higher percentage of the population was farmers 28.25%, house wives were 23.75%, skilled workers were 22.25%.

When considering the socio-economic status, 43.25% belonged to upper lower class, 28.25% were from lower middle class and 11.75% from upper middle class (**Table - 1**).

Table - 1: Demographic characteristics of the study population (N=400).

Demographic parameter	Number	%
Age group (Years)		
18 to 30	24	6.00
31 to 40	43	10.75
41 to 50	101	25.25
51 to 60	143	35.75
61 and above	89	22.25
Gender		
Male	223	55.75
Female	177	44.25
Education		
Illiterate	23	5.75
Up to Primary	129	32.25
Up to secondary/ higher secondary	159	39.75
diploma/graduate	76	19.00
Post graduate	13	3.25
Occupation		
Farmer/ Agricultural worker	113	28.25
House wife	95	23.75
Self-employed (Business)	19	4.75
Skilled workers	89	22.25
private employee	73	18.25
Government employee	11	2.75
Socio economic status		
Upper	13	3.25
Upper middle	47	11.75
Lower middle	113	28.25
Upper lower	173	43.25
Lower	54	13.5

Considering the knowledge among subjects regarding eye donation majority 66.75% of them know that eyes can be donated after death. 39.75% agreed that the ideal time window to collect the donated eyes after the death was 24 hours. Donated eyes can provide vision for two people was reported by 46.8% of the subjects.

More than half of the participants 53.75% agreed that donated eye can be collected only at hospital. 47.25% answered that person who underwent a cataract/other eye surgery cannot donate the eyes. TV add/programme (28%) was the main source of information regarding eye donation, followed by 24.25% who had no information regarding donation process, 15.75% had known through social media. Majority of them 49.25% are not aware of the process of eye donation (**Table - 2**).

Table - 2: Knowledge and attitude regarding the eye donation among the study population (N=400).

Knowledge	No.	Propo rtion
Can your eyes be donated for use after you're your death?		
Yes	267	66.75
No	36	9.00
Don't know	97	24.25
What is the ideal time window to collect the donated eyes after the death of a person?		
Before death	12	3.00
within 6 hours	132	33.00
within 24 hours	159	39.75
time doesn't matter	37	9.25
Don't know	60	15.00
Donated eyes can provide vision to?		
Single person	131	32.8
two people	187	46.8
Not sure	82	20.5
Donated eye can be collected at?		
Only hospital	215	53.75
Home/Hospital	127	31.75
Not really sure	58	14.5
Can a person who underwent a cataract/other eye surgery donate the eyes?		
Yes	127	31.75
No	189	47.25
Not sure	84	21
What was the source of information regarding eye donation		
TV add/programme	112	28
News paper	37	9.25
Social Media	63	15.75

Friend/family member	47	11.75
Movie	25	6.25
other sources	19	4.75
Not aware	97	24.25
Are you aware of the process of eye donation?		
Yes	47	11.75
Partially aware	156	39
Not at all aware	197	49.25

When attitude and perceived barriers for eye donation among the study population were considered majority of them 85.75% agreed that its a service to humanity, everyone needs to do it. Very few of them 5.75% were not sure whether they will be used properly or not (**Table - 3**).

Table - 3: Attitude and perceived barriers for eye donation among the study population (N=400).

Attitude	No.	%
It's a service to humanity, everyone needs to do it	343	85.75
My religion forbids me from donating eyes	11	2.75
The dead bodies should not be mutilated	7	1.75
Am not sure whether they will be used properly	23	5.75
Can be donated, but some additional rituals have to be performed	16	4.00

In the current study 43% of the study population was willing to pledge their eyes and another 45% of the study population was willing to consider pledging the eyes, with some more information. Only 12% of the study population had explicitly refused to pledge their eyes (**Figure - 1**).

In our study only 3.25% of the study subjects had already pledged their eyes, whereas as 43.25% were willing to donate eyes (**Figure - 2**).

Discussion

Understanding the patterns of knowledge, attitude and the gaps in actual willingness to

practice gap is highly essential to enhance the eye donation rates. The current study had explored the above-mentioned aspects among south Indian rural population. Majority of the study population were older adults and males were higher than females. The educational levels showed majority of them to be educated till secondary schooling. Majority of the study

population were farmers or housewives. Many of the previous studies which have explored knowledge and attitudes on eye donation were focused on university students, medical and paramedical staff, school children etc. The population of these studies was relatively younger with higher educational levels and belonged to better socioeconomic strata [7, 9-13].

Figure – 1: Pattern of willingness to pledge the eyes among study population.

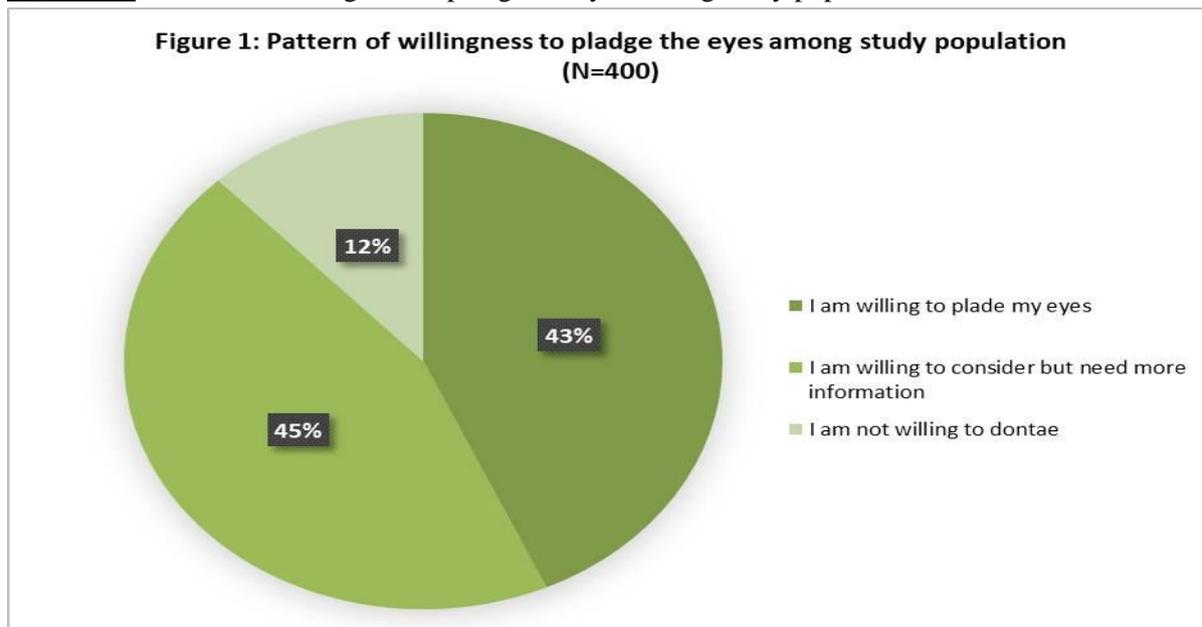
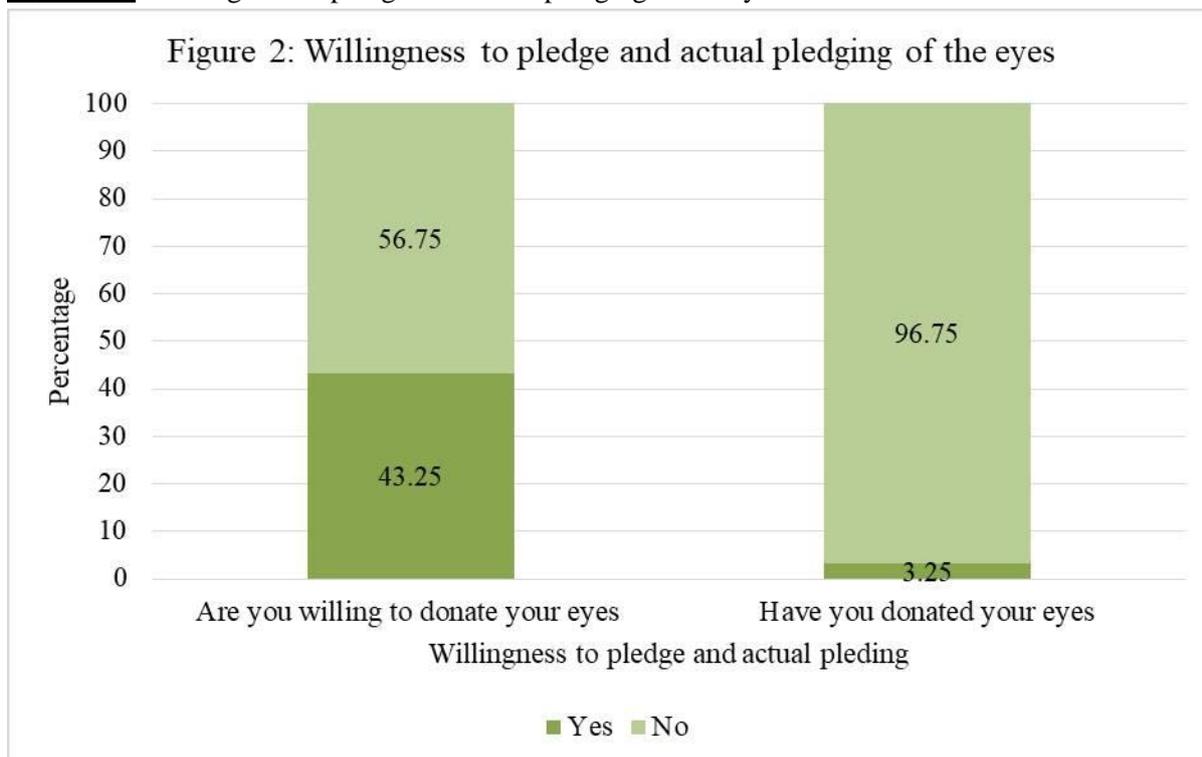


Figure – 2: Willingness to pledge and actual pledging of the eyes.



A study by Krishnaiah S, et al. [8] conducted in south Indian state of Andhra Pradesh had reported only 30.7% of rural population to be aware of eye donation. Older age, female gender and poor education/ socio economic status were associated with poor awareness levels. In another study conducted by Patil R., et al. [6], in rural Pondicherry, 80.6% subjects were aware about eye donation. Education and occupation had significant association with awareness. Main source of information about eye donation was television (65.2%). The employed persons had significantly more awareness about the correct timing to donate eyes. Education and occupation were found to be the predictors for awareness about eye donation. In our study TV advertisement or program was the major source of information. In study Krishnaiah S, et al. [8], media comprised the major source of information about eye donation. In many previous studies mass media was the major source of information regarding eye donation [14, 15].

In our study 43% of the study population was willing to donate their eyes and another 45% were willing to consider it after acquiring more information. In study by Krishnaiah S., et al. [8] 32.9% were willing to pledge their eyes and 50.6% request for more information to make a decision. The proportion of people who have already pledged their eyes was only 3.25%. Huge gap was observed in the actual willingness to donate and pledging in our study. Similar findings were reported by Patil R., et al. [6] where authors reported poor pledging rates, in spite of good awareness. In the current study 5.75% of the participants have reported concern regarding the proper utilization of the donated cornea. Acharya M., et al. [5] have reported 41% of their study participants to be willing to donate the eyes. The foremost concern before decision-making was transparency in how the cornea would be used among 32.25% of the study population. Religious concerns and other myths were contributing factors for unwillingness to donate eyes in minor portion of the subjects.

Conclusion

The awareness level regarding the eye donation is poor among the rural population. The key gaps in the knowledge are in the actual procedure of pledging the eyes. This was reflected in the huge gap observed between the willingness to pledge and actual pledging. The key limitation is the cross-sectional descriptive nature of the study precluding testing of any hypothesis. Generalizability of the findings is limited, as hospital-based recruitment of the study participants makes the study population not a true representative of the whole population. There is a strong need to decentralize the pledging process and make it more accessible to the rural population. There is also a need to focus the IEC activities and behavioral change communication initiatives to dispel the myths regarding the eye donation and make people aware of the process of eye donation.

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References

1. Bourne RRA, Flaxman SR, Braithwaite T, Cicinelli MV, Das A, Jonas JB, et al. Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and meta-analysis. *Lancet Glob Health*, 2017; 5(9): e888-e97.
2. Dandona L, Dandona R, John RK. Estimation of blindness in India from 2000 through 2020: implications for the blindness control policy. *Natl Med J India*, 2001; 14(6): 327-34.
3. Vashist P, Gupta N, Rathore A. Sentinel surveillance of blindness: an initiative of the national programme for control of blindness in India. *Indian J Community Med.*, 2012; 37(3): 139-41.
4. Verma R, Khanna P, Prinja S, Rajput M, Arora V. The national programme for

- control of blindness in India. *Australas Med J.*, 2011; 4(1): 1-3.
5. Acharya M, Farooqui JH, Dave A, Chaku D, Ganguly KK, Das A, et al. Eye donation in north India: Trends, awareness, influences and barriers. *Indian J Ophthalmol.*, 2019; 67(10): 1570-4.
 6. Patil R, E RP, Boratne A, Gupta SK, Datta SS. Status of eye donation awareness and its associated factors among adults in rural pondicherry. *J Clin Diagn Res.*, 2015; 9(2): Lc01-4.
 7. Singh A, Gupta N, Ganger A, Vashist P, Tandon R. Awareness Regarding Eye Donation in an Urban Slum Population: A Community-Based Survey. *Exp Clin Transplant.*, 2018; 16(6): 730-5.
 8. Krishnaiah S, Kovai V, Nutheti R, Shamanna BR, Thomas R, Rao GN. Awareness of eye donation in the rural population of India. *Indian J Ophthalmol.*, 2004; 52(1): 73-8.
 9. Dave A, Patel NV, Acharya M, Chaku D, Das A, Mathur U, et al. Awareness regarding eye donation among staff of a tertiary eye care hospital in North India. *Int Ophthalmol.*, 2019 Nov 25. doi: 10.1007/s10792-019-01225-2. [Epub ahead of print]
 10. Dhaliwal U. Enhancing eye donation rates. Training students to be motivators. *Indian J Ophthalmol.*, 2002; 50(3): 209-12.
 11. Gupta A, Jain S, Jain T, Gupta K. Awareness and perception regarding eye donation in students of a nursing college in bangalore. *Indian J Community Med.*, 2009; 34(2): 122-5.
 12. Lal B, Usgaonkar U, Narvekar H, Venugopal D. Awareness and knowledge on eye donation among Allied Health Sciences, medical, and nursing students in Goa. *J Curr Ophthalmol.*, 2018; 30(3): 255-62.
 13. Paraz CM, Truong HT, Sai DK, Cajucom-Uy HY, Chan CL, Kassim SM. Knowledge and attitudes toward corneal donation among Singaporean youth: a cross-sectional study. *Eye Vis (Lond).*, 2016; 3: 17.
 14. Arya SK, Gupta N, Malik A. Eye donation awareness among medical and paramedical staff in a medical institute. *Nepal J Ophthalmol.*, 2014; 6(2): 177-84.
 15. Bhandary S, Khanna R, Rao KA, Rao LG, Lingam KD, Binu V. Eye donation - awareness and willingness among attendants of patients at various clinics in Melaka, Malaysia. *Indian J Ophthalmol.*, 2011; 59(1): 41-5.