



Research Article

A Study of Knowledge, Attitude and Practice About Eye Donation Among Continuous Rotatory Medical Internship and Postgraduates in A Teaching Hospital

Dr. J. Acsah Supriya¹, Dr. M. Loganathan¹

¹Department of Ophthalmology, Sri Venkateshwara medical college hospital and research centre, puducherry.

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Corresponding Author:

Dr. J. Acsah Supriya

Department of Ophthalmology, Sri Venkateshwara medical college hospital and research centre, puducherry.

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ABSTRACT

Background: Corneal blindness is a major public health issue in India, and corneal transplantation relies on voluntary eye donation. Healthcare professionals, especially medical interns and postgraduates, play a vital role in promoting eye donation, yet their own knowledge, attitudes, and practices (KAP) are not well characterized.

Methods: A cross-sectional study was conducted among 300 Compulsory Rotatory Medical Interns (CRMI) and postgraduate students in a teaching hospital. Data were collected using a pre-tested, semi-structured online questionnaire assessing demographic details and 21 KAP items related to eye donation. Knowledge scores were compared between groups using the Mann-Whitney U test.

Results: Postgraduates demonstrated significantly higher knowledge scores (mean: 8.80 ± 2.70) than interns (mean: 6.49 ± 3.23 ; $p < 0.001$). Most participants (88.7%) knew key facts about donor selection, but only 31.7% correctly identified the time frame for corneal tissue retrieval. While 100% displayed willingness to donate and 72% expressed a very positive attitude, 60.7% rarely or never facilitated eye donation. Significant knowledge gaps and an attitude-practice disconnect were evident.

Conclusions: Substantial differences exist in eye donation knowledge and advocacy between medical interns and postgraduates. Targeted educational interventions—integrating structured modules and counseling practice—are essential to bridge gaps and improve eye donation rates.

Keywords: Eye donation, corneal blindness, medical education, knowledge-attitude-practice, interns, postgraduates, India, healthcare advocacy, corneal transplantation.

INTRODUCTION

Corneal blindness is a leading cause of visual disability worldwide, particularly in developing countries such as India, where it significantly impairs social functioning and productivity. Corneal transplantation remains the definitive treatment for restoring sight, yet its success depends entirely on the availability of donor corneal tissue. Despite the presence of eye banks and advances in surgical techniques, the demand for donor corneas continues to exceed supply, highlighting an urgent need to promote eye donation.^{1,2}

Efforts to bridge this gap rely heavily on increasing public awareness, correcting misconceptions, and encouraging consent for eye donation. In this context, health care professionals play a pivotal role not only as potential donors but also as advocates who can influence the attitudes and decisions of patients and families. Medical professionals at the internship and postgraduate level, being the future backbone of health services, are particularly well-positioned to counsel individuals and promote donation. However, their effectiveness depends largely on the adequacy of their own knowledge, attitudes, and practices regarding eye donation.³⁻⁵

Studies conducted across India have shown that while medical students often express positive attitudes towards donation, knowledge gaps and a lack of readiness to pledge remain common. Such discrepancies may hinder their ability to advocate effectively and address patients' concerns. Therefore, assessing the awareness and practices of this group is essential to developing targeted educational interventions that can strengthen advocacy and ultimately improve corneal donation rates.

The present study was undertaken to assess the knowledge, attitude, and practice of eye donation among Compulsory Rotatory Medical Interns (CRMI) and Postgraduates (PGs) in a teaching hospital setting, with the objective of evaluating their level of awareness and its potential impact on alleviating blindness.

METHODOLOGY

This cross-sectional study was conducted at a teaching hospital in Puducherry over an eight-month period to evaluate the knowledge, attitude, and practice (KAP) regarding eye donation.

The study population included 300 participants comprising 150 CRMI students currently enrolled in the hospital's continuous rotatory internship program and 150 postgraduate students pursuing medical specialization, enrolled through convenient sampling following their consent. Ophthalmology postgraduates were excluded to avoid bias owing to their specialized knowledge. Students unwilling or refusing to provide adequate information were also excluded from the study.

Data were collected through a pre-tested, validated, semi-structured questionnaire administered online via Google Forms. The questionnaire comprised 21 items divided into three sections: 11 knowledge-based questions, 5 attitude-based questions, and 5 practice-based questions related to eye donation. Additionally, demographic variables including age and gender were recorded. The instrument was designed to capture comprehensive KAP aspects relevant to eye donation among medical trainees.

Collected data were entered into Microsoft Excel and analyzed using SPSS version 23.0 (IBM Corp., Armonk, NY). Descriptive statistics were used to summarize continuous variables as mean \pm standard deviation (SD) and categorical variables as frequencies and percentages. The Mann-Whitney U test was applied to compare KAP scores between CRMI and PG groups. A p-value ≤ 0.05 was considered statistically significant.

RESULTS

Demographic Characteristics

A total of 300 participants were enrolled, equally divided between Compulsory Rotatory Medical Interns (CRMI, n=150) and Postgraduates (PG, n=150). The gender distribution was balanced, with 52.7% females in the CRMI group and 47.3% females among postgraduates. Age ranged from 23 to 34 years, with a mean age of 25.43 ± 1.69 years for CRMI and 28.44 ± 3.16 years for PG students. There was no statistically significant difference in gender distribution between the groups (p = 0.853).

Knowledge Regarding Eye Donation

Assessment of knowledge revealed that PG students had significantly higher scores (mean 8.80 ± 2.70) compared to CRMI students (mean 6.49 ± 3.23) (p < 0.001).

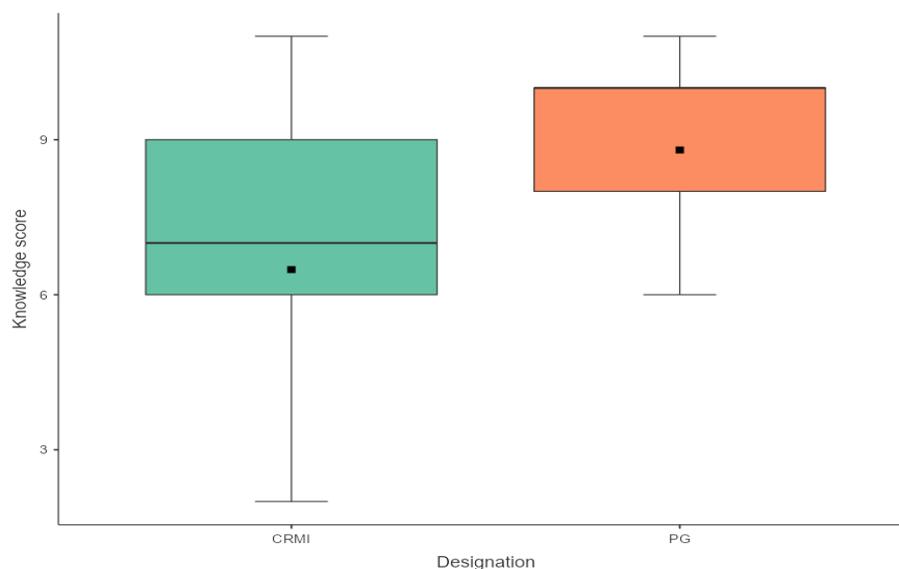


Figure 1: Comparison of knowledge score between the CRMI and PG

Most participants (88.7%) correctly identified that donor and recipient can be chosen, and 84.0% understood the anonymity of donor-recipient identities. However, knowledge gaps were noted in specific areas such as the correct timing for corneal tissue retrieval, where only 31.7% correctly recognized the six-hour window post-death. Awareness of the cornea as the eye part donated was reported by 65.3%, with misconceptions about whole eye and lens donation prevailing in others. Approximately 83.3% knew the appropriate contact for eye donation, while only 42.0% were familiar with the Cornea Retrieval Programme.

Table 1: Knowledge assessment among the study population

Variable	CRMI		PG		Total		p-value
	n	%	n	%	n	%	
Donor chooses recipient	128	48.1	138	51.9	266	88.7	0.319
Donor-recipient anonymity	118	46.8	134	53.2	252	84	0.081
Next of kin consent	115	46.7	131	53.3	246	82	0.109
Patients considered for donating	118	45	144	55	262	87.3	<0.001
Time for tissue retrieval	20	21.1	75	78.9	95	31.7	<0.001
Know where to donate	118	47.2	132	52.8	250	83.3	0.085
Refer deceased for donation	79	39.9	119	60.1	198	66	<0.001
Part donated	73	37.2	123	62.8	196	65.3	<0.001
Contraindication for donation	88	40.7	128	59.3	216	72	<0.001
Process name	68	36.6	118	63.4	186	62	<0.001
Chi-square test was applied							

Attitude Towards Eye Donation

The majority (72.0%) expressed a very positive attitude towards eye donation, and all participants indicated willingness to donate their eyes. Participants rated the general population's awareness as moderate (71.7%), and recognized the medical community's role in promoting eye donation as very important (69.7%). Half (50%) had received some formal training during medical education on eye donation.

Practice Regarding Eye Donation

Despite positive attitudes, 60.7% reported rarely or never facilitating eye donation during patient encounters. About 48.7% had never discussed eye donation with patients or their families during clinical rotations, indicating a gap between attitude and practice. Challenges in facilitating eye donation were encountered by 44% of participants, with varying degrees of success in addressing them. A majority (92%) agreed that integrating eye donation awareness into medical curricula would enhance readiness and participation.

Table 2: Practice assessment among the study population

Variable	CRMI		PG		Total		p-value
	n	%	n	%	n	%	
Rarely/Never promote donation	142	94.7	150	100	292	97.3	0.14
Received training on eye donation	150	50	150	50	300	100	
Haven't encountered barriers	64	38.1	104	61.9	168	56	<0.001
Discussed eye donation with patients	67	45.9	79	54.1	146	48.7	0.151
Agree on curricular integration	67	45.9	79	54.1	146	48.7	0.151
Chi-square test was applied							

DISCUSSION

The present study provides valuable insights into the knowledge, attitude, and practice patterns regarding eye donation among medical trainees at different levels of their professional development. The findings reveal significant disparities between CRMI and postgraduate students, highlighting critical areas for educational intervention and policy development.

Knowledge Assessment: Experience and Training Matter

The significantly higher knowledge scores among postgraduate students (8.80 ± 2.70) compared to CRMI students (6.49 ± 3.23) ($p < 0.001$) aligns with previous literature demonstrating the positive correlation between clinical experience and eye donation awareness. This finding is consistent with studies by Robert et al., who reported that 74.1% of fresh medical graduates had adequate knowledge, yet noted substantial room for improvement in specific domains. Similarly, research from Tamil Nadu showed that postgraduate doctors achieved significantly higher knowledge scores, particularly ophthalmology postgraduates, indicating that specialized training enhances understanding.⁶⁻⁸

The knowledge gaps identified in our study, particularly regarding the six-hour window for corneal tissue retrieval (correctly known by only 31.7% participants), mirror findings from other Indian studies. A study among Gujarat medical students found that only 21.9% knew the ideal donation timeframe, while research from Chengalpattu reported similar

deficits in temporal awareness. This consistent pattern across multiple studies suggests systemic educational gaps rather than institution-specific issues.^{9,10}

Encouragingly, 88.7% of participants correctly understood donor-recipient selection processes, and 84.0% recognized the anonymity principle, indicating strong foundational awareness. However, misconceptions persist regarding anatomical aspects, with only 65.3% correctly identifying the cornea as the transplanted tissue. This finding is particularly concerning given that 25.3% believed whole eyes or lenses are donated, potentially leading to misinformation when counseling patients or families.

Attitude-Practice Disconnect: The Implementation Gap

Despite universal willingness to donate eyes (100%) and predominantly positive attitudes (72.0% very positive), actual practice scores revealed substantial deficits. This attitude-practice disconnect has been consistently reported in Indian literature. Gupta et al. found that while 95.1% of medical professionals were aware of eye donation, only 6% were willing to pledge their eyes.¹¹ Our study extends this understanding by demonstrating that even among willing participants, 97.3% rarely or never actively promote donation during patient encounters.

The barriers identified in our study resonate with broader literature on eye donation obstacles. Family objections, reported as a major concern by 78.3% in a Chennai study, align with our finding that 44% of participants struggled to address donation-related challenges. Research from Delhi demonstrated that family consent remains the primary determinant, with cultural and religious factors significantly influencing decisions.^{12,13}

Educational Implications and Curriculum Integration

The finding that all participants received some formal training, yet significant knowledge gaps persist, raises questions about the effectiveness of current educational approaches. Recent implementation of Competency-Based Medical Education (CBME) in India has introduced structured eye donation competencies, including simulation-based counseling exercises.¹⁴ However, our results suggest that traditional didactic approaches may be insufficient.

Studies demonstrating the effectiveness of targeted interventions support calls for enhanced educational strategies. Jha et al. showed that orientation sessions significantly improved undergraduate knowledge levels across multiple domains. Similarly, research from Turkey demonstrated that educational training increased corneal donation knowledge scores from 10.93 to 20.79, with sustained improvements at 4-6 weeks follow-up.^{15,16}

Clinical Practice Integration: Beyond Awareness

The relatively low engagement in actual eye donation facilitation (60.7% never/rarely promote) despite high awareness levels highlights the need for practical training components. This finding parallels observations from northern India, where health professionals demonstrated sufficient knowledge but alarmingly low willingness to actively participate in donation processes.¹¹

The significant difference in knowledge between CRMI and postgraduate students ($p < 0.001$) suggests that clinical exposure and specialized training enhance understanding. This is supported by studies showing that healthcare professionals working in institutions with active eye banks demonstrate better knowledge and practices. The implication is that early exposure to eye banking activities during medical training could bridge the knowledge-practice gap.⁸

Systemic Considerations: Hospital Corneal Retrieval Programs

Our findings have important implications for Hospital Corneal Retrieval Programs (HCRP), which rely heavily on healthcare professionals for identification and counseling of potential donor families. Studies from various Indian centers have shown that HCRP can achieve 60-70% potential retrieval rates, but success depends critically on staff knowledge and motivation.^{17,18}

The role of Eye Donation Counselors (EDCs) in facilitating donations, as demonstrated in Delhi studies showing 57.5% conversion success, underscores the importance of specialized training. However, our study suggests that medical trainees could serve as valuable first-line advocates if adequately prepared through enhanced educational interventions.¹⁹

Limitations

While our study provides comprehensive insights into KAP patterns among medical trainees, several limitations warrant consideration. The cross-sectional design precludes assessment of knowledge evolution over time, and the single-institution setting may limit generalizability. Future multi-center studies tracking knowledge progression through different training phases would provide valuable longitudinal insights.

The exclusion of ophthalmology postgraduates, while methodologically sound to avoid bias, prevents understanding of specialty-specific knowledge patterns. Future research should examine how specialized training influences advocacy effectiveness and patient counseling outcomes.

Policy and Educational Recommendations

Based on these findings, we recommend implementing structured eye donation modules in medical curricula, incorporating both theoretical knowledge and practical counseling skills. The significant knowledge gaps identified suggest need for periodic assessments and refresher training programs. Integration of eye donation competencies into residency training programs could enhance postgraduate knowledge and practice patterns.

Furthermore, institutions should consider establishing formal partnerships with eye banks to provide hands-on exposure to donation processes, tissue handling, and recipient outcomes. Such experiential learning could bridge the attitude-practice gap by demonstrating tangible impacts of donation advocacy.

The study's findings contribute to the growing body of evidence supporting targeted educational interventions to enhance eye donation rates. While awareness campaigns have achieved broad recognition, converting this awareness into effective clinical practice requires systematic, competency-based training approaches that address both knowledge deficits and practical implementation skills.

CONCLUSION

This study demonstrates that while postgraduate medical trainees exhibit significantly higher knowledge regarding eye donation compared to interns, persistent gaps exist in both awareness of crucial procedural aspects and the practical promotion of eye donation. Despite universally positive attitudes and willingness to donate, actual practice lags behind, highlighting the need for more effective educational interventions and policies targeting behavioral change. Integrating structured modules on eye donation and corneal retrieval into medical curricula, alongside practical counseling skills training, may address the attitude-practice gap. Strengthening hospital-based awareness programs and clinical exposure to eye donation processes will further empower future health professionals as advocates, ultimately supporting efforts to alleviate corneal blindness in India

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