



## RESEARCH ARTICLE

### PERCEPTION AND KNOWLEDGE REGARDING CORNEA DONATION AMONG MEDICAL STUDENTS OF KING ABDULAZIZ UNIVERSITY IN JEDDAH, SAUDI ARABIA

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#### ABSTRACT

**Background:** Corneal diseases constitute a significant cause of visual impairment and blindness in the world. The only treatment available for corneal blindness is cornea transplantation. The number of corneal transplants done is far less than the actual requirement. This is actually due to the inadequate numbers of corneas collected. Medical students can be involved in the motivation of patients and relatives to pledge their eyes for cornea donation.

**Aim:** The aim of the study was to assess the awareness and perception of medical students towards cornea donation in Saudi Arabia.

**Method:** A descriptive cross-sectional study was conducted among 543 undergraduate medical students during the period of 24 January to 12 February 2016. Proportionate random sampling technique was used to obtain data using a pretested self-administered questionnaire. Data obtained were analyzed using SPSS version 16.0.

**Result:** Almost all (99.2%) students had heard about eye donation but only 17.7% of students knew that cornea is the only part can be donated of the eye. 3.1% of students knew that the ideal time of collecting corneas from donors is within 6 hours of donors' death. The main source of information on cornea donation was mass media among 41% of students. No students have ever pledge for cornea donation. Lack of awareness (68.5%) and Objection by family members (19.9%) were the main reasons for not pledging. About 74.2% students were willing to donate their corneas to save vision of people in need.

**Conclusion:** our results showed that majority of medical students have low or no knowledge on cornea donation. There were many gaps identified in their knowledge which can be bridged only by building awareness programs and campaigns to clear their misconceptions and weak knowledge about cornea donation

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## INTRODUCTION

Cornea transplantation, also known as corneal grafting, is a surgical procedure where a damaged or diseased cornea is replaced by donated corneal tissue (the graft). When the entire cornea is replaced it is known as penetrating keratoplasty and when only part of the cornea is replaced it is known as lamellar keratoplasty.

The most common indication for corneal transplant is pseudophakic bullous keratopathy, followed by keratoconus, corneal degeneration, keratoglobus and dystrophy, as well as scarring due to keratitis and trauma ([http://www.organdonation.nhs.uk/newsroom/fact\\_sheets/cornea\\_transplantation\\_fact\\_sheet.asp](http://www.organdonation.nhs.uk/newsroom/fact_sheets/cornea_transplantation_fact_sheet.asp); [http://www.who.int/blindness/global\\_data/final](http://www.who.int/blindness/global_data/final)). Corneal eye disease is the fourth most common cause of blindness (after cataracts, glaucoma and age-related macular degeneration) and affects more than 10 million people worldwide. In such situation restoration of vision is possible only through corneal transplantation (<http://www.eyecharity.com/news/archives/062014>. Accessed 11/3/2015). The prognosis for visual restoration and maintenance of ocular health with corneal transplants is generally very good. More

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than 90 percent of corneal transplant operations are successful (Guerin *et al.*, 2008). There is no upper age limit to cornea donation; people of all ages can donate their cornea. The eye banks match recipients with corneas from similar aged donors (<http://www.restoreisgt.org>. 28/01/2015). Corneas have to be removed within six hours of death from the donors, and transplanted to a recipient within three to seven days (Waziri-Erameh Joseph *et al.*, 2007). Corneal tissue donation and transplantation program in the Kingdom of Saudi Arabia (KSA) was established in 1983, since then, more than 25,000 corneal transplantations were performed (Shaheen, 2009). At the King Khalid Eye Specialist Hospital alone, corneal transplants help approximately 350 patients every year. Despite these statistics, research indicates that transplantation of locally harvested corneas is still very low compared to the demand. It is worth mentioning that there are more than 10 corneal transplant centers in KSA, of which King Khalid Eye Specialist Hospital-Riyadh (KKESH), being the most active corneal transplant center in the Kingdom. It has 566 patients in the waiting list and performed 879 corneal transplantations harvested abroad, in addition to 701 corneas distributed to other eye care centers in the Kingdom. (Directory of the Regulations of Organ Transplantation in the Kingdom of Saudi Arabia) Though there has been a progress in cornea donation in the kingdom, a move to promote corneal donation will significantly help to prevent blindness and correct various eye ailments. According to an estimate, 10 percent of the visually-handicapped people in Saudi Arabia could regain their eyesight through cornea transplantation (<http://www.npcb.nic.in/index1.asp?linkid=51&langid=1>). Well-aware medical students could be expected to influence eye donation rates. For that reason this study was conducted to assess the perception and knowledge of medical students towards cornea donation and their willingness to pledge their eyes for corneal donation (Sadana *et al.*, 2014).

## MATERIALS and METHODS

A descriptive cross-sectional study was conducted among 543 undergraduate medical students in King Abdulaziz University (KAU), during the period of 24 January to 12 February 2016. Proportionate random sampling technique was used to obtain data. The study population includes all undergraduate KAU medical students who were present at the time of study and were willing to participate in the study; they were randomly selected from second to sixth year. In order to maintain confidentiality, data were collected anonymously with the approval of the Research Ethical Committee of the College of Medicine, in King Abdulaziz University. A pretested self-administered questionnaire was administered to each of the study participants after obtaining their informed consent. The questionnaire included questions on their socio-demographic details, awareness regarding eye donation, sources of information, reasons for donating and not donating cornea, part of eyeball that is used for transplantation, within how much time after death eyes need to be removed, age limit for eye donation, who cannot donate their corneas, and opinion of medical students regarding donating their corneas. Data obtained were analyzed using SPSS version 16.0.

## RESULTS

Out of 543 medical students, 290 were males and 253 were females, with age range from 18 to 23 years. Almost all students (538, 99.2%) had heard about eye donation, but

only 96 (17.7%) students knew that cornea is the only part can be donated of the eye. Awareness about the cornea donation was almost equivalent in males (46,48%) and females (42, 43.8%). Table 1 depicts the source of awareness regarding cornea donation among medical students. It shows that the main source of information on cornea donation was mass media among 220(41%) students. No students have ever pledged for cornea donation. Table 2 shows the reasons cited by the study participants why they haven't pledged for corneal transplant. Lack of awareness (372, 68.5%) and objection by the family members (108, 19.9%) were the main reasons for not pledging.

**Table 1. Source of awareness regarding cornea donation among participants**

Source of information	Number (%) [n= 538]
Mass media	220 (41%)
Family member/friend	97 (18%)
Health worker	91 (16.9%)
Books	130 (24.2%)

**Table 2. Distribution of perceived reasons for not pledging for corneal donation**

Reason	Number (%) [n= 543]
Lack of awareness	372 (68.5%)
Objection by the family	108 (19.9%)
Dislike of separating eye from the body	20 (3.7%)
Unsuitability to donate eye because of health problem	10 (1.8%)
Not yet considered	33 (6%)

Most participants (403, 74.2%) were willing to donate their cornea to save vision of blind people. Nobility in the act of corneal donation was the main motivational force for cornea donation according to 345 (85.6%) students. Table 3 reveals the level of knowledge about some basic concepts related to eye donation among medical students. Only 17 (3.1%) students knew that the ideal time of collecting cornea from the donor is within 6 hours of donor's death. 168(31%) students rightly responded that practically anybody from the age of one can be a cornea donor and there is no maximum age limit for corneal donation. And 259 (47.7%) students responded that individual who is blind due to retinal or optic nerve disease can't donate his cornea.

## DISCUSSION

Our study findings showed a relatively low level of awareness on cornea donation among medical students of King Abdulaziz University. This was also found among medical students of Taibah University (Nojood Hameed, 2015), Madina, where only 35.8% of medical students were aware of cornea donation. However, a higher level of awareness was reported in urban population in India (Dandona *et al.*, 1997) (73.8%), among Singaporean (Yew *et al.*, 2005) adults (80.7%) and among hospital staff (97%) in another study in India (Singh *et al.*, 2002). These differences could be attributed to high social engagement and professional relationships i.e. affiliation to an organization or school, or family member who had donated cornea. This study also reveals a weak knowledge about some basic concepts related to cornea donation among medical students. We found that, only 3.1% of students knew that the ideal time of collecting cornea from the donor is within 6 hours of donor's death, and only 31% of students know that anybody from the age of one can be a

Table 3. Level of knowledge about some basic concepts related to eye donation

Knowledge about cornea donation		Number (%)
Which part of eyeball is the transplanted structure	Whole eyeball	81 (14.9%)
	Cornea	96 (17.7%)
	Lens	127 (23.3%)
	Retina	95 (17.5%)
	Don't know	143 (26.3%)
Corneas need to be collected for donation within how much time after death of the donor	2 hours	132 (24.3%)
	6 hours	17 (3.1%)
	1 day	19 (3.5%)
	Don't know	375 (69%)
	After 10 years of age	25 (4.6%)
Age limit for corneal donation	Birth to 75 years of age	104 (19.2%)
	Anybody after 1 year of age	168 (31%)
	Don't know	246 (45.3%)
Who cannot donate their corneas	People who die due to AIDS	120 (22%)
	Who is blind due to retinal or optic nerve disease	259 (47.7%)
	People who were positive for hepatitis	70 (12.9%)
	Don't know	94 (17.3%)
Transplantation should be done within _____ of removal from donor	Up to 7 days	100 (18.4%)
	6 hours	162 (19.8%)
	Don't know	281 (51.7%)
	Yes	77 (14.2%)
Do you know where to donate cornea in KSA	No	466 (85.8%)

cornea donor and there is no maximum age limit for corneal donation. In contrast to results of a study on medical and nonmedical students in New Delhi (Singh *et al.*, 2007), India, which reported that 63.3% of medical students knew that corneas should be collected within 6 hours of donors' death. However, a cross sectional study in nursing college of Bangalore (Gupta *et al.*, 2009), India, even though the awareness level was 83%, the study reported that only 32.9% of students knew about the appropriate time of collecting corneas from donors. Also, in this study we found that 74.2% of students were willing to donate their cornea to save vision of patients in need. And the main reason for not pledging their cornea for donation till now, was found to be lack of awareness (68.5%) and objection by family members (19.9%). In a similar study (Golchet *et al.*, 2000), 83% of studied students were willing to donate their cornea and they've reported age and the place of eye removal as major limitations of cornea donation. In other studies, students believed that age and spectacle use could impact the ability to donate cornea. Furthermore, age limits of eye donors and blood grouping were thought to represent a barrier for donation in another study (Dhaliwal, 2002). A study in South India (Priyadarshini *et al.*, 2003) revealed that 30% of the subjects thought that cornea donation causes disfigurement to the face. A study conducted in nursing college in Dehradun (Gupta *et al.*, 2009) showed that 82.5% of the participants were willing to donate their corneas or had already pledged to donate their eyes and 32% of the participants had opinion that cornea donation will cause disfigurement of face. Although, majority of students were found to have low knowledge on cornea donation, mass media was the main source of information among 41% of students. Which have been also reported by the students of other similar studies as the major sources of information. This study appeared to have a number of strength points. The study questionnaire was comprehensive and addressed almost all important items related to cornea donation.

Also, the study questionnaire has been validated by an ophthalmologist. To the best of our knowledge, this study is the first to study the knowledge and perception on cornea donation among medical students in Jeddah, Saudi Arabia. However, a wider study on university level is important to measure the amount of need for an awareness program to encourage

donation among students and community members in Saudi Arabia.

### Conclusion

The study revealed that though the majority of medical students were aware about cornea donation, there were many gaps identified in their knowledge about basic information on cornea donation which needs to be bridged. This finding highlights the need to increase the awareness of university students, particularly those in health sciences faculties, as these students represent the future health care providers and can encourage patients, their families, and community members to donate their corneas after death. This can be achieved by applying health awareness programs of educational materials, lectures, and campaigns on the importance of cornea donation, enabling the younger generation to contribute by participating in creating awareness to act as future motivators for enhancing cornea donation rates.

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