



St. PAULS HOSPITAL MILLENIUM MDICAL COLLEGE

ASSESMENT ON KNOWLEDGE WILLINGNESS TO DONATE EYE AND ASSOCIATED FACTORS AMONG MEDICAL STUDENTS.

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List of tables

Table 1: Sex of participants	11
Table 2: Religion of participants	11
Table 3; Ethnicity of participants	11
Table 4: intake year of participants	12
Table 5 knowledge on part of eye donated	13
Table 6 knowledge on use of donated eye	13
Table 7 knowledge on ideal time to collect	13
Table 8: factors associated with willingness	14
Table 9: reasons for willingness	14
Table 10 reason for unwillingness	14

Abbreviations

AAU- Addis Ababa University

SPHMMC- St' Pauls millennium medical college

SNNPR- South Nations and Nationalities People Republic

Table of Contents

List of tables.....	II
Abbreviations	III
Table of Contents	IV
Abstract.....	V
1 Introduction.....	1
1.1 Background of the study.....	1
1.2 Problem statement	2
1.3 Significance of the study.....	3
2 Literature review	4
3 Objective.....	8
3.1 General objective.....	8
3.2 Specific objective	8
4 Methods and materials.....	9
4.1 Study setting.....	9
4.2 Study design.....	9
4.3 Study population	9
4.4 Sample size determination and sampling procedure	9
4.5 Data collection and analysis.....	10
4.6 Variables of the study.....	10
4.7 Operational definitions	10
5 Results of the study.....	11
5.1 Demographic.....	11
5.2 Knowledge about eye donation.....	13
5.3 Willingness to donate eyes	13
6 Discussion.....	16
7 Conclusion and recommendation.....	19
8 Recommendation.....	19
9 Strength and limitation.....	20
10 References	21
11 Annexes	22
11.1 Questionnaire	22

Abstract

Background- Corneal diseases are second only to cataract as major causes of blindness worldwide. According to a national survey done in 2006, 1.6% of Ethiopians were found to have blindness and 3.7% had low vision. Trachomatous and other corneal opacities ranked as the second leading causes of blindness (19.3%) next to cataract (49.9%) and the third leading cause of low vision. Corneal transplantation is the major option for restoration of vision for these large numbers of corneal blind people. However, it is largely dependent on voluntary eye donation and attitude of medical professionals to eye donation is quite important because they are in close contact with the prospective donor and their relatives.

Aim- to assess the knowledge and associated factors for willingness on corneal donation among medical students in SPHMMC.

Methods- a student based analytic cross-sectional study was conducted and data collection was carried out with self-administered questionnaires and a total of 262 participants were selected by stratified sampling process and 245 participants have responded. A stratified sampling process with proportional allocation was used to select participants and data was fed using SPSS template and cross tabulation and odds ratios was done using SPSS 20.0 software.

Results- A total of 245 students have participated and there were 23 non respondents. From the 245 students, 147 were male and 98 were females. The minimum age of participates is 18 and the maximum was 26 and the mean was 21.2 with standard deviation of 1.889 and the highest number of students with the same age is 22 years and have a 20.4% prevalence among participants. Most of the participants are Christian at a prevalence of 80.4% and Muslims comprise 15.1% and 4% have chosen other religions. Among the study participants' students from Amhara have the highest quota at 28.6% and students from Oromia (15.9) and SNNPR (11.4) follow. 8% of the participants are married and 5.7% of the participants are in a relationship and the others are single. 2006 intake students have the highest number of participants (51) and the lower number of participants was from the senior batch but the difference in part is attributable to the initial allocation of quotas to each batch. From the participants 94.7% of the participants was aware of eye donation and 57 of the participants had correctly answered all the three questions designed to assess their basic knowledge about corneal donation and 51.6% of the participants agreed to donate their corneas upon their unfortunate death. **Intake year (P= 0.04) and awareness (P= 0.007) had significant associations with knowledge and intake year (P=0.012), awareness (P=0.016) and having knowledge (P=0.014) had significant associations with willingness to donate cornea.**

Conclusion- despite having good awareness, participants have less than satisfactory level of knowledge and willingness. And having awareness and intake year of students and knowledge were associated with willingness but only awareness was associated with willingness on multinomial regression.

1 Introduction

1.1 Background of the study

The cornea is the transparent front part of the eye that covers the iris, pupil and anterior chamber and is a complex structure which, as well as having a protective role, is responsible for about three-quarters of the optical power of the eye. The normal cornea is free of blood vessels; nutrients are supplied and metabolic products removed mainly via the aqueous humour posteriorly and the tears anteriorly, with a downhill anterior–posterior oxygen gradient. The cornea is the most densely innervated tissue in the body, with a sub epithelial and a deeper stromal plexus, both supplied by the 1st division of the trigeminal nerve. For this reason, corneal abrasions and disease processes such as bullous keratopathy are associated with pain, photophobia and reflex lacrimation. (1) (2)

The average corneal diameter is 11.5 mm vertically and 12 mm horizontally. It is 540 μm thick centrally on average, and thicker towards the periphery. Central corneal thickness varies between individuals and is a key determinant of the conventionally measured intraocular pressure level. The cornea is composed of 5 distinct layers- the epithelium, bowman layer, the stroma, Descemet membrane and the endothelium. (1)

Corneal 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. Keratoplasty simply means surgery to the cornea. The graft is taken from a recently dead individual with no known diseases or other factors that may affect the chance of survival of the donated tissue or the health of the recipient. (2)

1.2 Problem statement

Corneal diseases are second only to cataract as major causes of blindness worldwide. According to a national survey done in 2006, 1.6% of Ethiopians were found to have blindness and 3.7% had low vision. Trachomatous and other corneal opacities ranked as the second leading causes of blindness (19.3%) next to cataract (49.9%) and the third leading cause of low vision.

Corneal transplantation is the major option for restoration of vision for these large numbers of corneal blind people. The success of corneal transplantation service is, however, dependent on many factors. Establishment of an efficient eye bank and acquiring the qualified professionals is the basic one. **Furthermore, procurement of the adequate and quality donor corneas is a challenge, which depends on the availability of suitable donors and requires the presence of voluntary eye donation.**

1.3 Significance of the study

The health practice of an individual is influenced by the cultural milieu in which one lives which is more so with organ donation. **Among many factors that can affect this include religion and traditional beliefs and practices.** It is therefore important to understand whether these factors would affect their willingness to donate their organs. Ethiopia is geographically, culturally, ethnically diverse country. There are more than 80 ethnic groups and Christianity and Islam are the chief religions. There is scarcity of information on public attitudes towards eye donation and associated factors in the developing world, particularly in sub Saharan Africa. According to studies done in the developed nations, the decision to be an organ donor may be influenced by multiple factors; relational ties, religious beliefs, cultural influences, family influences, body integrity, previous interactions with the health care system. Well informed medical students could be expected to influence eye donation rates and if they don't have proper awareness educating them early in their courses may lead to better procurement rates for donor corneas since they will be the one to teach and change the attitude of people in their community about corneal donation and organ donation in general.

2 Literature review

Diseases affecting the cornea are a major cause of blindness worldwide, second only to cataract in overall importance. The epidemiology of corneal blindness is complicated and encompasses a wide variety of infectious, congenital, metabolic, dystrophic and inflammatory eye diseases that cause corneal scarring, which ultimately leads to functional blindness. In addition, the prevalence of corneal disease varies from country to country and even from one population to another. While cataract is responsible for nearly 20 million of the 45 million blind people in the world, the next major cause is trachoma which blinds 4.9 million individuals, mainly as a result of corneal scarring and vascularization. But recent researches put glaucoma as the second leading cause with its own burden of 6.9 million people. Ocular trauma and corneal ulceration are significant causes of corneal blindness that are often underreported but may be responsible for 1.5–2.0 million new cases of monocular blindness every year. Causes of childhood blindness (about 1.5 million worldwide with 5 million visually disabled) include xerophthalmia (350 000 cases annually), ophthalmia neonatorum, and less frequently seen ocular diseases such as herpes simplex virus infections and vernal keratoconjunctivitis. Even though the control of onchocerciasis and leprosy are public health success stories, these diseases are still significant causes of blindness affecting a quarter of a million individuals each. Traditional eye medicines have also been implicated as a major risk factor in the current epidemic of corneal ulceration in developing countries. Since it is difficult to treat corneal blindness once it has occurred, public health prevention programmes are the most cost-effective means of decreasing the global burden of corneal blindness. (3)

Ethiopia lacked accurate recent national estimates of blindness and low vision. Ethiopia is believed to have one of the world's highest rates of blindness. Nevertheless, except for a few small scale studies in various parts of the country (3-5) no systematic nationwide assessment was ever done in Ethiopia.

Based on a national health survey done by Addis Continental Institute of Public Health on the assessment of the presenting visual acuity, the national prevalence of blindness is 1.6% (1.1% for urban and 1.6% for rural populations) and that of low vision is 3.7% (2.6% for urban and 3.8% for rural populations). Blindness and Low vision are more prevalent among females. The major causes of blindness are cataract and trachomatous corneal opacity. The major causes of low vision are cataract and refractive error. Prevalence of childhood blindness is 0.1% and accounts for over 6% of the total blindness burden in Ethiopia. The national prevalence of Bitot's spots is 0.7%. The official

blindness prevalence estimate used for planning purposes prior to this survey was 1.25%, which was derived based on the various small scale studies in the country and the national blindness survey conducted over two decades ago. However, there is uncertainty about the reliability of the estimate and as such it is not believed to be useful in monitoring progress made in preventing blindness and low vision. (4)

Ethiopia launched the Vision 2020 Initiative in September 2002. The long-term aim of this important initiative is to develop a sustainable comprehensive health care system to ensure the best possible vision for all people and thereby improve their quality of life. Blindness is not only incapacitating to the individual but also can adversely affect several aspects of poverty reduction strategies. Approximately 80% of blindness in Ethiopia was believed to be avoidable; i.e., preventable or curable. (4)

Because of the difficulty of treating corneal blindness once it has occurred, public health prevention programmes are the most cost-effective means of decreasing the global burden of corneal blindness. Specific causes of corneal blindness like xerophthalmia, trachoma, onchocerciasis and traumatic corneal abrasion can be prevented by specific public health interventions. Xerophthalmia can be prevented by vitamin A supplementation, measles vaccination and nutritional advices. Trachoma is prevented by improvements in water supply and by full implementation of SAFE (surgery for trichiasis, antibiotics for infection, facial cleanness and environmental improvement to control transmission) strategy. Onchocerciasis is prevented by mass distribution of ivermectin and measures to control Simulium fly. Traumatic corneal abrasion is a common event and is the major risk factor for microbial keratitis in low- and middleincome countries. Simple topical antibiotic prophylaxis for a few days while the epithelium heals can protect the eye from developing potentially blinding infection. (5)

But for those who unfortunate enough to get the proper health intervention corneal transplantation still remains the only means to get their vision back. Establishment of an efficient eye bank, acquiring the qualified professionals and quality donor corneas is a challenge, which depends on the availability of suitable donors and requires the presence of voluntary eye donation.

The first cornea transplant was performed in 1905 by Eduard Zirm (Olomouc Eye Clinic, now Czech Republic), making it one of the first types of transplant surgery successfully performed. Another pioneer of the operation was Ramon Castroviejo. Russian eye surgeon Vladimir Filatov's attempts at transplanting cornea started with the first try in

1912 and were continued, gradually improving until on 6 May 1931 he successfully grafted a patient using corneal tissue from a deceased person. He widely reported another transplant in 1936, disclosing his technique in full detail. In 1936, Castroviejo did a first transplantation in an advanced case of keratoconus, achieving significant improvement in patient's vision. Advances in operating microscopes enabled surgeons to have a more magnified view of the surgical field, while advances in materials science enabled them to use sutures finer than a human hair. (2)

Currently, there is only one eye bank in the country involved in collection and storage of donor corneas, the Eye Bank of Ethiopia. Corneal transplantation is performed in six university referral hospitals in the country (AAU, SPHMMC, JIMMA, GONDER, HAWASA, ARBA-MINCH) with the same eye bank expected to provide the available corneas for the institutions. Between 130 and 150 corneas are harvested every year and used in 90– 120 transplants. However, the annual harvesting rate of corneas for transplantation is minimal compared with the requirement, and this has hampered the effective utilization of the service. The challenges include awareness gap on the subject, cultural and religious perspectives. Understanding the reasons why people do or do not donate is critical to devise policies to address this undersupply. (6)& (7)

Although many researches are done with similar settings abroad and one was done in Indian medical school found out that although the students have good level of awareness (96%) about eye donation there was less than satisfactory willingness to donate (67%). Nobility was the main inspiring force for donation and objection by family and religious factors were the main restrictions for not donating. (8)

In another study done in Nigeria among doctors in Delta state 75.9% of the participants knew about eye donation and almost half of the participants knew what part of the eye was used for donation and what the ideal time was to collect donated eye but only 1/3 of the participants were willing to donate their eyes. The main reasons for unwillingness were poor knowledge of donation process to take a decision and family objection. (9)

And finally according to a domestic research done in Wolkite Town while only 1/3 of the participants were aware of eye donation a staggering number of participants (57.9%) pledged to donate their eyes with the main reason being that they will be pleased to help the blind and the main reason for not giving being the belief that it is important to have an intact body after passing away.

The above researches have clearly depicted that awareness have a significant role in willingness to donate in the rural study but the high level of awareness in medical professionals is not associated with a satisfactory willingness pointing to the significance of other demographic factors for the good attitude and willingness to donate. Having a good attitude for organ donation is important among health practitioners because they are the one to address the wide community the issue and can a target to address the low rate of donation.

3 Objective

3.1 General objective

✓ To assess the knowledge willingness of students of SPHMMC to donate their cornea and important factors associated with their decision to donate or not to donate cornea.

3.2 Specific objective

✓ To assess if demographic factors like age, sex, religious and educational status (year in medical school) affects the decision to donate their cornea.

✓ To establish how much aware are SPHMMC students are about corneal donation to assess their knowledge about corneal donation.

✓ Finally, I want to describe the reasons behind the willingness and unwillingness to donate corneas.

4 Methods and materials

4.1 Study setting

The research was conducted in SPHMMC, which is one of the innovative institutions in health care and teaching. The hospital has been teaching medicine for the last 10yrs. and has been able to graduate medical doctors for the last 3 consecutive yrs. The hospital teaches students from all parts of the country and more recently has started giving scholarships for students from South Sudan making it the ideal ground to conduct a research among such a diverse population of students.

4.2 Study design

A student community based cross-sectional study has been conducted and hopefully assessed the current awareness, knowledge and willingness to donate corneas.

4.3 Study population

The study population was the students who are currently attending undergraduate education of medicine and according to the recent registrars document there are 796 students.

4.4 Sample size determination and sampling procedure

Sample size has been calculated based on the findings of previous research done in Maharashi Markendeshwar Institute of medical science (Mullana (Ambala), India and research using EPI INFO 7 software's population survey statistic calculator.

The research was published on the Indain Journal of community health. 2012 Jul; 24(3) and the result showed that although there is a good awareness about corneal donation but still less than satisfactory willingness to donate corneas (67%). So using a p-value of 0.05 and 95% confidence interval from this research sample size calculated becomes 238 and with additional 10% non-respondant rate sample size was calculated 262.

Population survey or descriptive study
For simple random sampling, leave design effect and clusters equal to 1.

Population size:	796		Confidence Level	Cluster Size	Total Sample
Expected frequency:	67	z	80%	123	123
Confidence limits:	5	z	90%	184	184
Design effect:	1.0		95%	238	238
Clusters:	1		97%	273	273
			99%	338	338
			99.9%	435	435
			99.99%	499	499

A systematic sampling technique has been used and every 3rd student was chosen and to keep the demographic aspect of participants as random as possible specific quotas of participants were chosen in regard to sex and proportion of students of a batch in relation to total number of students making it a stratified sampling process.

4.5 Data collection and analysis

Data has been collected with self-administered questionnaires among participants and filled by the researcher on a SPSS template prepared according to the questionnaire content and analysed by using SPSS v20.0 statistical software.

4.6 Variables of the study

Dependant variables-

- Willingness to donate cornea and reasons to donate or not to donate
- Knowledge about corneal donation.

Independent variables-

- Demographic- age, sex, religion, ethnicity, batch number or intake year,
- Awareness and means of first information about eye donation- which can be either from media (electronic or print media) and education (seminar, lecture and conference).
- Knowledge- part of the eye donated, use of the donated eye and the ideal time to collect donated eye after death.

4.7 Operational definitions

- ✓ Willingness to donate eye- the personal preference to donate cornea upon death of the individual in the future.
- ✓ Knowledge about corneal donation- the knowledge about what part of the eye is donated and what its used for and the optimal time to harvest the tissue after death answering all the three questions correctly was used to say the participant was knowledgeable.

5 Results of the study

5.1 Demographic

A total of 245 students have participated and there were 14 non respondents. From the 245 students, 147 were male and 98 were females. The minimum age of participants is 18 and the maximum was 26 and the mean was 21.2 with standard deviation of 1.889 and the highest number of students with the same age is 22 years and have a 20.4% prevalence among participants.

Most of the participants are Christian at a prevalence of 80.4% and Muslims comprise 15.1% and 4% have chosen other religions.

Among the study participants' students from Amhara have the highest quota at 28.6% and students from Oromia (15.9) and SNNPR (11.4) follow.

8% of the participants are married and 5.7% of the participants are in a relationship and the others are single. 2006 intake students have the highest number of participants (51) and the lower number of participants was from the senior batch but the difference in part is attributable to the initial allocation of quotas to each batch.

<i>Sex of participants</i>	<i>Frequency</i>	<i>%</i>
<i>Male</i>	147	60
<i>Female</i>	98	40

Table 1: Sex of participants

<i>Religion of participant</i>	<i>Frequency</i>	<i>%</i>
<i>Christian</i>	198	80.8
<i>Muslim</i>	37	15.1
<i>Others</i>	10	4.1
<i>Total</i>	245	100

Table 2: Religion of participants

<i>Ethnicity or origin of participants</i>	<i>Frequency</i>	<i>%</i>
<i>Amhara</i>	70	28.6
<i>Addis Ababa</i>	48	19.6
<i>Oromia</i>	39	15.9
<i>SNNPR</i>	28	10.8
<i>Tigray</i>	20	8.2
<i>Somalia</i>	11	4.5
<i>Beshangulgumuz</i>	10	4.1
<i>Afar</i>	9	3.7
<i>Gambella</i>	6	2.4
<i>Harari</i>	2	0.8
<i>Dire Dawa</i>	2	0.8

Table 3: Ethnicity of participants

Batch number	Planned to be collected/ quota	Collected
2004 intake	31	30
2005 intake	37	36
2006 intake	53	51
2007 intake	41	40
2008 intake	44	39
2009 intake	56	48
Total	262	245(14 missing/non respondents)

Table 4: Intake year of participants

A staggering 94.7% of the participants are aware of eye donation after death and the predominant source of information seems to be the media and the electronic media is the largest source of awareness (61.5%), from the education source (22.5%) lectures given to students during their basic science and clinical years stood above seminars given on the matter.

Table 5: Means of first information

Means of first information		Valid %
Media	Electronic	61.5
	Print	15.8
Education	Lectures	20.5
	seminars	1.7
Others		0.4

5.2 Knowledge about eye donation

Among the participants 58.8% of them correctly indicated that the cornea is the part of the eye donated and 64.1% knew that the donated eye is used for corneal transplant. Nearly twenty-seven (26.9%) of the students answered that the ideal time to collect the pledged eye part from the deceased individual was within 6 hours.

Knowledge was not related to sex($P=0.6$), religion($P=0.056$), ethnicity ($P=0.46$) and marital status($P=0.714$). Intake year ($P= 0.04$) and awareness ($P= 0.007$) had significant associations with knowledge and participants who heard about eye donation from educational sources(lectures) have a higher level of knowledge (31.2%).

PART OF DONATED EYE	VALID %/FREQUENCY
CORNEA	58.8/144
LENS	13.1/32
RETINA	2.4/8
CORNEA AND ANY PARTS ABOVE	6.9/17
I DON'T KNOW	18.8/46
TOTAL	100/245

Table 5 knowledge on part of eye donated

USE OF THE DONATED EYE	VALID%(FREQUENCY)
REPLACE THE WHOLE EYE	2.4%(6)
LENS TRANSPLANT	13.5%(33)
RETINAL TRANSPLANT	2%(5)
CORNEAL TRANSPLANT	64.1%(157)
I DON'T KNOW	18%(44)
TOTAL	100%(245)

Table 6 knowledge on use of donated eye

IDEAL TIME TO COLLECT DONATED EYE	VALID%(FREQUENCY)
WITHIN THE FIRST 2 HOURS	17.1%(42)
WITHIN THE FIRST 6 HOURS	26.9%(66)
WITHIN THE FIRST 24 HOURS	9%(22)
WITHIN THE FIRST 48 HOURS	4.5%(11)
ANY TIME AFTER DEATH	1.6%(4)
I DON'T KNOW	40.8%(100)
TOTAL	100%(245)

Table 7=knowledge on ideal time to collect

5.3 Willingness to donate eyes

The general willingness to donate seems equivocal among the participants (YES=51.8, NO=48.2). The predominant reason for the willingness to donate was the pleasure to help

the blind (70) and the other significant reasons were the nobleness of the act and to be example to others and others have written that they won't be needing their eyes when they die. The main reason for not donating was because participants needed more information to decide (29) and a more significant others gave no reason for their unwillingness (35) and having a defective cornea and the idea of being wrongfully declared dead are some of the specific reasons participant students gave.

VARIABLE	COR(95% CI)	AOR(95% CI)	P-VALUE
KNOWLEDGE	2.04(1.1-3.7)	0.616(0.326-1.164)	0.014
BATCH	1.23(1.06-1.44)	0.857(0.727-1.009)	0.012
NUMBER			
HEARD OF	6.53(1.4-30.15)	4.08(1.01-22.63)	0.047
EYE			
DONATION			

Table 8: factors associated with willingness

Sex(P=0.137), religion(P=0.726), ethnicity(P=0.62), marital status (P=0.119) didn't have any significant association on willingness to donate. But intake year(P=0.012), awareness(P=0.016) and having knowledge(P=0.014) had significant associations with willingness to donate cornea.

REASON FOR WILLINGNESS	CHOSEN ON MULTIPLE RESPONSE VARIABLE	
A NOBLE ACT	24	9.9%
INFLUENCED BY KNOWLEDGE IN ACADEMICS	17	6.9%
PLEASURE TO HELP THE BLIND	70	28.6%
INSPIRED BY STORIES	4	1.6%
EXAMPLE TO OTHERS	11	4.2%
OTHER REASON	4	1.6%

Table 9: reasons for willingness

REASON FOR UNWILLINGNESS	CHOSEN ON MULTIPLE RESPONSE VARIABLE	
AGAINST RELIGION	20	8.3%
AGAINST CULTURE	7	2.9%
FAMILY MEMBERS WILL OBJECT	10	4.1%
SACREDNESS OF THE BODY	9	3.7%
MIGHT BE USED FOR ILLEGAL USE	8	3.3%
DISLIKE THE BASIC IDEA OF ORGAN DONATION	4	1.7%
WILL DISFIGURE BODY POST-MORTEM	2	0.8%
REQUIRE MORE INFORMATION	29	12%
NO REASON	35	14.5%
OTHERS	4	1.6%

Table 10 reason for unwillingness

6 Discussion

Although the study was conducted among homogenous group of people who have the rudimentary idea of organ donation and its importance, theoretically it provides a better understanding of the factors associated organ donation as it is expected of them to have a basic awareness if not knowledge. Most of the participants were males, Christians, single, with an age range from 18-26 and most participants per batch Is obtained from the 2006 batch.

As expected from medical students 94.7% of the participants were aware of eye donation and they indicated that electronic media 61.5% was by far the largest source of information. Compared to a study done Delta state in India among medical doctors, awareness was 75.9% and the print media (30%) of them heard it first from it, while according to a research done in Wolkite town among the residents of the town the awareness level was 30.9% and almost all the participants heard about it form electronic media sources.

Pertaining the knowledge of the participants, only 26.9% of the participants knew the specific details about corneal donation and not to underestimate their knowledge they have answered a good percentage the three questions.

58.8% of the participants knew cornea is part of the donated 64.1% & 27% of the participants knew what the cornea was used for and the correct time to collect it respectively.

Compared to the New Delhi study which had answered 57.4%, 52.7% & 39.8% on the respective parameters which is somewhat comparable to this study.

Knowledge about organ donation is subjected to be affected by different demographic states of the participants like the overall economic status of the country, the educational and media coverage aspects and more specifically other cultural and religious beliefs.

On this study as the number of years a participant spends, the more likely he or she has more knowledge as they would be subjected to routine lectures about eye donation. (P=0.004)

And not surprisingly awareness about the subject matter is also related to knowledge (OR=1.42, CI=95%, P=0.016 on regression bivariate analysis) as their first information creates a curious state about the matter and can have the proper knowledge when they are

given lectures. And those who mentioned they got their first information from lecture had a higher level of knowledge.

Although the mass media remains one of the main source of information for both medical and non-medical personnel and it done its good for information, lectures, seminars, and others means of further information and knowledge sources should be available to the medical professionals so that they can integrate the burden of corneal blindness with the need for corneal donation and give the proper motivation and understanding to the community in addition to the mass media.

Willingness

Compared the study in India, participants were more willing to donate their eyes (51.8%) than the 33% willingness seen in India but still it was surpassed by the 57.9% willingness rate seen Wolkite town whom didn't even have the knowledge and were scarce in awareness.

According to my study intake year or batch number (OR= 1.23 ,95% CI: 1.06-1.44, P=0.012), awareness (OR=6.53, 95%CI:1.4-30.15, P=0.016) and knowledge (OR=2.04, 95.5% CI: 1.1-3.7, P=0.03) about corneal donation had significant associations with the willingness to donate corneas. But on multiple regression analysis only awareness was found to be associated with willingness (OR=5.62, 95.5% CI: 1.2-26.1).

By far the major reason to the willingness to donate corneas was the pleasure to help the blind followed by the nobility of the act and the others mentioned being influenced by knowledge in academics.

On the study from India the assumption of helping the blind and the nobility of the act were the main reasons but in the Wolkite town study people were pleased to help the blind, as it would do good to humanity and also they won't need their eyes they are dead so they are willing to donate them.

Unwillingness

Most of the participants gave no reason and the other significant proportion mentioned needing more information to decide. And some of the other reasons were the act being against religion and sometimes family members will object.

Compared to the Indian study in which the main reasons were requiring more information for decision (40%) and the other reasons were that family members may

object and being against religion was the other less significant but worth mentioning reason. In the Wolkite study most of the reasons the participants gave were more connected to the spiritual aspect of death and the need for intactness of the body and it was against religion and the others suggested their family members will object.

7 Conclusion and recommendation

In conclusion the willingness to donate corneas among the medical students is not satisfactory as their knowledge even though only awareness for the matter is the only factor associated with willingness. The main reasons for willingness were the pleasure to help the blind and the nobleness of the act and knowledge in academics wasn't a significant reason as the above two. The main reason for unwillingness were needing more information to decide and significant others have mentioned no reason both of which look amendable reasons after proper understanding of the issue.

Since these students are the ones to go out to the public and are the ones to convince the population about organ donation in general so having the proper understanding is critical to change people's view in relation to the burden of corneal blindness.

8 Recommendation

Analysing the results from the research shows that the main reason for not donating was the need to have more information which is an amendable and a logical scepticism towards the issue of organ donation. So it is possible to change their opinion by using academics to show them how important it is to have a good attitude towards organ donation in general on a personal level to help them change the common misconceptions and cultural and religious restrictions on the matter in the long run.

9 Strength and limitation

Strength

The main strength of the study was the participants had a good level of awareness and it helps to analyse if other demographic factors have effect on the willingness for donation and to test if students' attitude can be changed by knowledge in academics. Also the data collection process was simple and was not time consuming as the participants were attending classes.

Limitation

Since the population in the study were all students in a particular area and have a good educational background their homogenous background might result in falsely high levels of willingness, but that was not the case in this study.

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11 Annexes

11.1 Questionnaire

Socio-demographic factors.

Age	
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Sex	1. Male
	2. Female

Religion	1. Cristian
	2. Muslim
	3. Other

Ethnicity(or state of origin)	1. Tigray
	2. Afar
	3. Amhara
	4. Oromia
	5. Somali
	6. Benshangulgumuz
	7. SNNPR
	8. Gambela
	9. Harari
	10. Dire Dawa
	11. Addis Ababa

Marital status	1. Single
	2. Married
	3. In relationship

Batch number or intake year	1. 2004 E.C
	2. 2005 E.C
	3. 2006 E.C
	4. 2007 E.C
	5. 2008 E.C
	6. 2009 E.C

2. Awareness about eye donation and means of first information.

Have u ever heard of eye donation by any means?	1. Yes	
	2. No	

If the answer to the above question is yes would you please specify from where you got the first information about eye donation.	Media	1. Print media
		2. Electronic media
	Education	3. Lecture
		4. Seminar
	5. If other specify-	

3. Knowledge about eye donation.

What part of the eye do you think is donated?	1. Cornea
	2. Lens
	3. Retina
	4. Optic nerve
	5. Cornea and any of the eye parts above
	6. I don't know

What do you think the donated eye used for?	1. Replace the whole eye
	2. Lens transplant
	3. Retinal transplant
	4. Corneal transplant
	5. I don't know

What do you think is the ideal time to collect the donated part from a deceased and willing to donate individual?	1. Within first 2 hours
	2. Within first 6 hours
	3. Within first 24 hours
	4. Within first 48 hours
	5. Any time after death
	6. I don't know

4. Willingness to donate eye.

Are you willing to donate your eye?	Yes
	1. No

If your answer for the above question is 'yes' would you, please specify what is the reason for donating your eye. (You can select more than one item)	1. A noble act
	2. Pleasure to help the blind
	3. Inspired by article, magazine or heard story.
	4. Influenced by knowledge in academics
	5. Example to others
	6. If other reason please specify-

If your answer for the above question is 'no' would you, please specify what is the reason for not donating your eye. (You can select more than one item)	1. Against religion
	2. Against cultural belief
	3. Family members will object
	4. Sacredness of the body
	5. May be used for illegal use or trade
	6. Dislike basic idea of eye donation and organ donation post mortem.
	7. Will disfigure the face post-mortem
	8. Require more information for decision
	9. If other reason please specify-
	10. No particular reason