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Knowledge and Attitude Regarding Eye Donation among Students of Kathmandu University School of Management; A Cross-Sectional Online Survey

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ABSTRACT

Background: The corneal blindness is the 4th most common cause of blindness all over the world lot of people were waiting for the corneal transplantation but there are only few donors. Availability of potential donors and attitude of eligible donors is the main factor that affects corneal supply.
Method: A descriptive cross sectional research design was carried out among 205 students with the mean age of 22.7 years using self-administered online questionnaire. Descriptive and inferential statistics were used for the analysis of the data. P value was set at 0.05.
Result: It has been found that only 4% of the respondents had good knowledge regarding eye donation and more than 50% had moderate knowledge and about 40% had poor knowledge however 90% know that eye can be donated any age above one year. However, regarding attitude, about 70% had good attitude. But still 35% respondents had uncertain about willing to donate eyes after death. Regarding association, only source of information, had significant association with knowledge regarding eye donation. Other variables had no significant association.
Conclusion: Based on the results of this study it has been concluded that most of the respondents had poor knowledge regarding eye donation. However, higher percentage of the respondents had good attitude. Information received from different source had significant association towards knowledge on eye donation but it seemed that though they received information from the media they could not answer correctly. It suggests that there is a need of community awareness program from health professionals.

Key Words: Attitude, Eye Donation, Knowledge, Students

INTRODUCTION

Blindness is defined as visual acuity of less than 3/60, or a corresponding visual field loss to less than 100, in the better eye with the best possible correction. Visual impairment includes both low vision and blindness. Any profound decrease in vision or blindness due to diseases of the cornea is termed corneal blindness. It is the 4th most common cause of blindness all over the world, accounting for over 5% of the total blind population.[1] Corneal visual impairment encompasses a wide variety of infectious and inflammatory eye diseases that cause scarring of the cornea. Significant scarring ultimately leads to functional vision loss. The 4th cause of blindness globally (5.1%), corneal blindness is one of the major causes of visual deficiency after cataract, glaucoma and age-related macular degeneration (AMD). Ocular trauma and corneal ulcerations are significant causes of corneal blindness. Traditional eye medicines have also been implicated as a major risk factor in the current epidemic of corneal ulceration in developing countries.[2]

Corneal transplants are successful site saving operations. More than 90 % of corneal transplant operation is successful and the first successful one was perform on 7th December 1905 by Eduard Zirm in Olomouc Eye clinic. [3] The corneal transplant is the most common type of human transplant worldwide. The success rate of corneal transplant was 95%. It restores visual function when the impairment cause by the corneal damages to provide acceptable quality of life of people living in that country where corneal transplant was performed.[4] Corneal blindness is one of the most important causes of blindness in India and this can be treated by corneal transplantation, but due to lack of cornea donation people continue to be on the waitlist. Only 10% of eye transplantation demands are met due to lack in availability of corneas. There are over 1.5 million people in India who suffer from corneal blindness out of which 80% cases related to blindness are preventable.[5]

One of the major causes for visual impairment and blindness in the developing world has been attributed to corneal disease. According to the 2010 global blindness estimate, it accounts for around 4%of the total burden of 50 million. To enhance the awareness of corneal donations further, raising the level of public education on eye donation was the most important first primary step. Eye donation is an act of donating one's eye after his/her death. Only corneal blinds can be benefitted through this process no other blinds. Hence, this pledge of eye donation is purely an act of charity, for the benefit of the society and is totally a voluntary work.[6] The study done in India, showed that the mean percentage of the knowledge scores among adolescents were 57%, and the mean percentage of the attitude scores among adolescents were 70.5%. There was a positive correlation between knowledge and attitude among adolescents.[7]

The Nepal eye bank at Tilganga institute of ophthalmology is an unprecedented facility in Nepal. The concept of the eye bank was support by the international federation of eye and tissue bank (IFETB) and was started from September 13th, 1994 AD. The first Donor was Chini Maya Tuladhar and the first corneal transplantation took place on 19th. The number of people pledging for eye donation in Nepal eye bank till now is 7, 11,052.[8]

A study done in Eastern Nepal to find out awareness regarding eye donation among eye health workers. The result showed that 60.5% participants knew that eyes can be donated after death ideally within 6-8 hours of death.78.5% respondents believed donated eye gives good sight to blind. Lack of awareness was cited as an important for people not donating eyes among 49.2% of participants.19.8% perceived objections from family members followed by dislike of separating eye among15.7% respondents and 15.3% respondents had religious belief. Among religious belief, 11.1 % respondents believed of being born blind in next birth and not going heaven if they donate their eye.[9]

METERIALS AND METHODS

A descriptive cross-sectional research design was used to assess the knowledge and attitude regarding eye donation among students of Kathmandu university school of management (KUSOM), ward no 8, Pinchhen, Balkumari, Lalitpur Municipality, Nepal.

The participation of this study were all students who studying Bachelor in business administration (BBA) and Master in business administration (MBA). Data collection procedure was done online through Google form, Assuming the high non response rate in online data collection we administered the Google form to all students i.e. 600 though calculated sample size was 377. However, sample size for the final data analysis was 205 that represents 34% response rate. Researcher had distributed questionnaire to all students through individual email address.

Sample size (n) = $\frac{z2pq}{e2}$

Where,
n=required sample size
z= confidence level at 95%
p=estimated predicted or anticipated rate for a given indicator in the study area 57%
q= 1-p
e= margin of error at 5 %(standard value of o.o5)

Sample size (n) = $\frac{1.96^2 \times 0.57 \times (1-0.57)}{0.05^2}$ **= 377**
(Heyke M. Chacko, Jasmine Mathew 2014)

Formal permission was taken from the concerned college authority before data collection. The purpose of the study was explained and written consent was taken from each respondent before data collection. Anonymity was assured through mentioning respondents as code number and hiding the identification of respondents and clear instruction was given to respondents not to write their names in questionnaire. Confidentiality was maintained by assuring that provided information was used only for study purpose. The proposal was approved from Nepal Health Research Council (NHRC). The data was collected after ethical approval from NHRC and formal permission was taken from Kathmandu University, School of Management. Data was collected online through using Google form in the personal email. The information regarding the study was given online through Google form by the principal investigator. Students had explained about the study objectives and invited to participate. The approximate time to fill questionnaire was 20 to 25 minutes those who return filled questionnaire was considered having given consent for the study.

The research instrument was developed based on the objectives of the study and was prepared on the basis of extensive literature review. Semi-Structured self-developed self-administered questionnaire was used to measure awareness and attitude of eye donation among college students. The data collection instrument was divided into three parts:

Part I Socio-demographic information (Age, Education, Gender, Ethnicity and Religions)

Part II Knowledge related questions regarding eye donation which consists of 20 questions with multi-response, multiple choice options, ‘yes’ or ‘ no’ questions and open ended questions where 7 questions are multi responses, 7 questions are multiple choice, 4 questions are ‘yes’ or ‘no’ and 2 are open ended questions .

Part III attitude related question towards eye donation which consists 12 items in 3 point Likert scale where 1 denotes Disagree, 2 denotes Neutral and 3 denotes Agree. Eight items are positive statements and 4 items are negative statement.

For knowledge scoring each score of ‘one’ was given for each correct response and a score ‘zero’ was given for an incorrect response. Total score ranges from o to 45. The knowledge was categorized in three categories.
Poor knowledge: score <50%
Moderate knowledge: score 50-79%
Good knowledge: score >79%

Total score of attitude ranges from 12 to 36. Attitude was categorized into two categories: Good Attitude and Poor attitude based on the median value calculated (Hussen MS, Belete GT. 2018).

The content validity of study instrument was maintained by consulting subject experts. Pre-testing among 10% of the total size that is similar students of BBA, MBA from another college. Necessary modification in the questions was done accordingly. All the data received from the online system were checked for completeness. The data was analysed using SPSS 16 version. Descriptive statistics (frequency, percentage, standard deviation and mean) was used to describe the demographic data and find out the knowledge and attitude level. Inferential statistics (Chi-square test and Fisher’s exact-test) was used to determine

association between knowledge and demographic variables.

RESULTS

Table 1 show that all respondents were from age group 18-31years. The mean age was 22.71±2.65 standard deviation. More than half 61.0% of respondents were studying bachelor, most of the respondents were female 64.9% , Nearly half 45.9% of the respondents were from Newar ethnicity and more than 80.5% respondents were Hindu religion whereas 2.0% were Christian.

Table 1.Socio Demographic Characteristics, N=205

Characteristics	Frequency	Percentage
Age		
18-31 Mean age 22.71 SD ±2.653	205	100
Education		
BBA	125	61.0
MBA	80	39.0
Gender		
Male	72	35.1
Female	133	64.9
Ethnicity		
Newar	94	45.9
Bramin	54	26.3
Chhetri	32	15.6
Others	25	12.2
Religion		
Buddhist	28	13.7
Hindu	165	80.5
Christian	4	2.0
Others	8	3.9

Respondents Knowledge regarding Eye donation

Table 2. Meaning of eye donation, part of eye used &benefit to donate eye, N=205

Characteristics	Frequency	Percent
Meaning of eye donation		
Donation of eyes just before death	11	5.4
Donation of eyes after death	158	77.1
Donation of eyes anytime during life	36	17.6
The part of eye used for eye donation is		
The whole eye ball	21	10.2
The cornea(black central part of eyeball)	105	51.2
The retina (innermost layer of eye ball)	13	6.3
Both cornea and retina	66	32.2
Eye donation can benefit to		
Corneal blind person(blind due to defect in black part of eyeball)	95	46.3
Retinal blind person(blind due to inner part of the eye)	15	7.3
Cataract blind person(Motiyabindu in nepali)	9	4.4
Any type of blind person	86	42.0

Table no 2 shows 77.1 % know eye donation means donation of eyes after death, similarly 51.2 % know that the part of eyes cornea is used for eye donation and only 46.3% respondents know that corneal blind person is benefit by eye donation

Table 3.1 reveal that knowledge about eye can be donate by people of any age above one year was 88.7% followed by high blood pressure can donate eye , high blood sugar and people having glasses can donate eyes was 31.9%, 27.55% and 38.2% respectively.

Similarly knowledge about eye cannot donate by people with infection of cornea was 90.6% and only 39.9 % know about people with Hepatitis B cannot donate eyes.

According to place for eye donation, almost all 99.0% of respondents said hospital is the place for donation eyes and only 4.4% said Graveyard (buried area).

Table 3.1 Knowledge according to criteria for eye donation, N=205

Characteristics	Frequency	Percent
Eyes can donate by *		
People of any age above 1 year	181	88.7
People with high blood pressure	65	31.9
People with high blood sugar(Diabetes)	56	27.5
People wearing glasses	78	38.2
Eyes cannot donate by *		
People with HIV/AIDS	97	47.8
People with Hepatitis B	81	39.9
People with infection of cornea	184	90.6
People with blood cancer	95	46.8
Death due to unknown cause	102	50.2
Eye can be donation in *		
Hospital	203	99.0
House	29	14.1
Mortuary	39	19.0
Graveyard (buried area)	9	4.4

Note multiple responses*

Table 3.2 reveals that one third 75.1% know that put wet cotton on eye lids after death and only 11.7% know that switch off the fan during event of death of person who willing to donate eyes. Maximum 86.3% of respondents said that Nepal Eye Donation Society is the approachable organisation for eye donation and 67.8% said eye bank is approachable organisation for eye donation. More than half 59.5% of the respondents have knowledge that eye should be donate within 6-8 hours after death. Almost all 93.7% of respondents have knowledge on donation consent can be

given by donor himself or herself when alive and 76.1% of respondents said that donation consent can be given for deceased person by the donor's family members.

Table 3.2 Knowledge according to criteria for eye donation. N=205

Charecteristics	Frequency	Percent
the event of death of person who willing to donate eyes will do *		
Switch off the fans	24	11.7
Put wet cotton on eye lids	154	75.1
Pillow under the head	35	17.1
Safe from sun light	129	62.9
Approach for eye donation *		
Eye bank	139	67.8
Hospital	83	40.5
Eye specialist	60	29.3
Nepal Eye Donation Society, Till Ganga	177	86.3
Doctors	25	12.2
After death, eyes should be donated		
Within 6-8 hours	122	59.5
Within 10 - 24 hours	70	34.1
Few days later	7	3.4
Any time after death	6	2.9
Consent can give for eye donation by		
Donor by himself or herself when alive	192	93.7
Donors family members	12	5.9
Health worker	1	.5
Consent can give for the eye donation of deceased person by		
No one	46	22.4
Any one	3	1.5
Family member	156	76.1

Note multiple responses*

Table 4 knowledge regarding source of information among eye donation, N=205

characteristics	Frequency	Percent
Source of information regarding eye donation*		
Internet	106	51.7
Newspaper	4	2.0
Television/Radio	35	17.1
Friends and relatives	46	22.4
Health worker	14	6.8

Note multiple responses*

Table 4 shows that more than half of respondents 51.7% got information about eye donation from Internet followed by 2.0% from newspaper, 17.1% from television/radio, 22.4% by friends and relatives and 6.8% by health worker.

Table 5 shows the level of knowledge regarding eye donation. The result indicate that nearly two third of the respondents (61.5%) have moderate knowledge, more than one third (34.6%) of the respondents have poor knowledge and only few of the respondents (3.9%) have good knowledge.

Table 5 Respondents level of knowledge on Eye Donation, N=205

Level of knowledge	Percentage	Frequency
Poor knowledge <50%	71	34.6
Moderate Knowledge 50-79%	126	61.5
Good knowledge >79%	8	3.9

Regarding the attitude of respondents toward eye donation, table No.6 shows that 89.3% respondents agree that eye can be donated after death and gives vision to corneal blind people. Almost respondents 93.3% agree that eye donation is a noble work and 76% respondents agree that living person pledge to donate eyes. More than half of the respondents 55.6% willing to pledge eyes and 65.4% respondents willing to donate eyes after death. Half respondents 50.2% agreed that eyes are never bought or sold. Almost respondents 95.6% agreed that awareness regarding eye donation is important.86.8% respondents disagreed that donation of eye lead to blindness in the next birth and more than half respondents 53.2% disagreed that all blind people were cured by eye transplantation. 70.7% of respondents disagreed that during transplantation whole eye is used and 59.5% respondents disagree that eye donation disfigures the face of donor.

Table 6 Attitude towards Eye Donation, N=205

Statement	Agree		Neutral		Disagree	
	No	%	No	%	No	%
Eye can be donated after death	183	89.3	14	6.8	8	3.9
Eye donation gives vision to blind people	183	89.3	20	9.8	2	1
Eye donation is a noble work	191	93.2	12	5.9	2	1
Living person pledge to donate eyes	156	76.1	35	17.1	14	6.8
Willing to pledge your eyes?	114	55.6	74	36.1	17	8.3
Willing to donate your eyes after death	134	65.4	61	29.8	10	4.9
Eyes are not bought or sold	103	50.2	62	30.2	40	19.5
Awareness regarding eye donation is important	196	95.6	7	3.4	2	1
Donation of eyes lead to blindness in the next birth	10	4.9	17	8.3	178	86.8
All blind people were cured by eye transplantation	12	5.9	84	41	109	53.2
During transplant whole eye is used	12	5.9	48	23.4	145	70.7
Eye donation disfigures the face of donor	14	6.8	69	33.7	122	59.5

Table 7 shows that there is association between knowledge regarding eye donation and source of information which shows p-value is less than 0.05 and there is no association between other socio-demographic variables like gender, ethnicity and religion.

Table 7 Association between knowledge score and Demographic variable regarding Eye Donation, N=205

Demographic Variables	Level of Knowledge			P-value Fisher's exact test
	Poor n (%)	Moderate n (%)	Good n (%)	
Gender				
Male	23 (31.9)	47 (65.3)	2 (2.8)	0.652
Female	48 (36.1)	79 (59.5)	6 (4.5)	
Academic				
BBA	49(39.2)	72(57.6)	4(3.2)	0.211
MBA	22(27.5)	54(67.5)	4(5)	
Ethnicity				
Newar	36 (38.3)	53(56.4)	5(5.3)	0.577
Bramin	15 (27.8)	38(70.4)	1(1.9)	
Chhetri	11 (34.4)	19(59.4)	2(6.3)	
Others	9 (36)	16(64)	0(0)	
Religion				
Buddhist	10 (35.7)	16 (57.1)	2 (7.1)	0.61
Hindu	59 (35.8)	101 (61.2)	5 (3)	
Christian	1 (25)	3 (75)	1 (25)	
Others	1 (12.5)	6 (75)	1 (12.5)	
Source of Information				
Internet	52 (49.1)	53 (50)	1 (0.9)	0.000
Newspaper	1 (25)	3 (75)	0 (0)	
Tv/Radio	8 (22.9)	26 (74.3)	1 (2.9)	
Friends/Relatives	10 (21.7)	32 (69.6)	4 (8.7)	
Health worker	0 (0)	12 (85.7)	2 (14.2)	

Note: p≤0.05: significant at 95% confidence interval

DISCUSSION

In this study respondents of mean age was 22.71±2.65 standard deviation. Most of the respondents were female 64.9%, nearly half 45.9%of the respondents were from Newar ethnicity and more than 80.5% respondents were Hindu religion whereas 2.0% were Christian.

Present study findings showed that more than three fourth 77.1 % had knowledge on eyes can be donate only after death which is consistent with descriptive study done in Uttarakhanda India with sample 375 in school children showed 77.3%.[26] and contrast with cross sectional study done in KIST college, Nepal with sample 185 dental students showed only 31.4%[6].Finding of present study showed half of the respondents 51.2% were aware that cornea of the eyes is used for eye donation whereas three fourth of respondents 74.6% were aware in study done in uttarakhanda India [26] and in cross sectional study done in KIST college, Nepal with sample 185 dental students showed nearly three fourth 71.9% [6]and present study nearly half 46.3% respondents know that corneal blind person is benefit by eye donation.

Present study finding on knowledge on eye can be donate by people of any age above one year was more than four fifth 88.7% and study consistent with descriptive study done in Uttarakhanda India with sample 375 in school children showed almost all 96%.[26] and with cross sectional study done in KIST college, Nepal with sample 185 dental students showed nearly two third 60.5% [6].

In this study knowledge on high blood sugar and people having glasses can donate eyes were one fourth 27.5% and more than one third38.2% respectively and this result is contrast with study done in descriptive study of Uttarakhanda India with sample 375 in school children showed more than four fifth 89.5% and almost all 93.8%respectively.[26]

In present study knowledge about eye cannot donate by people with infection of cornea was 90.6% and people with Hepatitis B cannot donate eyes were 39.9%

,this result contrast with study conducted in Uttarakhanda India with sample 375 in school children showed76.5% [26].

In this study, almost all 99.0% of respondents said hospital is the place for donation eyes. One third 75.1% know that put wet cotton on eye lids after death and only 11.7% know that switch off the fan during event of death of person who willing to donate eyes. Maximum 86.3% of respondents said that Nepal Eye Donation Society is the approachable organisation for eye donation and 67.8% said eye bank is approachable organisation for eye donation, study contrast with cross sectional study carried out in KIST Medical college among 185 dental students, Nepal[6] shows more than four fifty 82.7% did not know whom to contact for eye donation.

More than half 59.5% of the respondents have knowledge that eye should be donate within 6-8 hours after death ,this study contrast with cross sectional study carried out in KIST Medical college among 185 dental students ,Nepal shows only 37.8%[6]

Almost all 93.7% of respondents had knowledge on donation consent can be given by donor himself or herself when alive.

Regarding source of information in Present study shows that more than half of respondents 51.7% got information about eye donation from Internet followed by 2.0% from newspaper, study with Odisha cross sectional descriptive survey done in Odisha among 485 respondents, shows that they read about eye donation in newspapers 38.4%,television internet 21%[32] and also cross sectional study carried out in KIST Medical college among 185 dental students ,Nepal shows that 7.7% got information from newspaper and 24.3% from internet.

Present study shows the level of knowledge regarding eye donation. The result indicate that nearly two third of the respondents (61.5%) have moderate knowledge, more than one third (34.6%) of the respondents have poor knowledge and only few of the respondents (3.9%) have good knowledge. Similar study was done among 681participants in Saudi Arabia that result shows 56.1 % had poor knowledge, 40.9% had satisfied knowledge and only 2.95 had good knowledge [30]. Another study done in Mangalore, India shows contrast results done in 100 adolescents that 48% had good knowledge and only 1% had poor knowledge[7] and another study shows almost all 95.1% aware about eye donation and most of them were willing to donate their eyes in cross sectional study carried out in KIST Medical college among 185 dental students, Nepal[6]. Similarly descriptive cross-sectional study was carried out among 400 students of nursing college of Belagavi city India showed that 13% had poor knowledge, 57% had average and 30% had good knowledge about eye donation[32]

In Present study shows that among 205 respondents 65.9 % had good attitude regarding eye donation and 34% had poor attitude regarding eye donation. Similarly study result supported that A community-based, cross-sectional study was conducted on 760 adults in Gondar town, Northwest Ethiopia shows that 59.9% had good attitude and 40.1% had poor attitude regarding eye donation.[17] Similarly descriptive cross-sectional study was carried out among 400 students of nursing college of Belagavi city India showed that 14.25% had poor Attitude, 71.75% had average and 14% had good Attitude about eye donation[32].

Present study shows that there is association between knowledge regarding eye donation and source of information which shows p-value is less than 0.05 and there is no association between other socio-demographic variables like gender, ethnicity and religion. Similarly descriptive study done in 100 adolescents in Mangalore, India also shows that there is no significant association between knowledge score and demographic variables[7].

CONCLUSION

This study has been concluding that most of the respondents had poor

knowledge regarding eye donation. However, higher percentage of the respondents had good attitude. Information received from different source had significant association towards knowledge on eye donation but it seemed that though they received information from the media they could not answer correctly. It suggests that there is a need of community awareness program from health professionals.

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