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Original Research Article

Knowledge and attitude of law, medicine, and mass-communication students towards deceased organ donation: a cross-sectional study from Kathmandu, Nepal

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ABSTRACT

Background: With the global increase in the incidence organ failure and subsequent advancement in the medical technology, organ transplantation is growing as the best choice of treatment among the patients with various kinds of organ failure. However, the rate of deceased organ donation is relatively low in South-East Asia regions, including Nepal. This has created a mismatch between the demand and supply of organs for transplantation. World Health Organization encourages organ transplantation from a deceased organ donor as there is no risk to the donor. Thus, this paper aimed to assess knowledge and attitude of literate group specifically towards deceased organ donation.
Methods: This was a cross-sectional study conducted among 299 students selected conveniently from medicine, law, and mass communication streams from 9 different colleges (3 colleges from each stream) of Kathmandu. Data was collected through a self-administered questionnaire. Knowledge level was classified into three different categories based on obtained scores and attitude was analyzed based on five-point Likert scale.
Results: Almost half (48.8%) of the respondents while only 7% had high level of knowledge on the organ donation and transplantation. Similarly, 95% of the people had positive attitude towards organ donation. However, there was a weak correlation between knowledge and attitude of the respondents. None of the respondents carried an organ donation card.
Conclusions: There is a need to plan robust strategies to educate people on organ donation so that they can make pragmatic decisions to register their names for deceased organ donation.

Keywords: Attitude, Deceased organ donation, Knowledge, Kathmandu, Nepal

INTRODUCTION

Organ donation is defined as the removal of tissues from the human body, from a living or dead person, for the purpose of transplantation as a treatment.[1] Today, transplanting solid organs is a common therapeutic strategy for patients with end-stage organ failure with promising effects for survival and quality of life.[2] However, increase in the incidence of organ failure and relatively constant organ donation rates has widened discrepancy between the number of patients on the waiting list for organ transplantation and the available number of organ donors.[3]

The shortage of organs is a global public health problem. Even in developed countries, where rates of deceased

organ donation is relatively satisfactory, it is still struggling to meet the required demand.[4]

Although there is no recent robust data, it is estimated that, in Nepal, about 3000 people develop kidney failure annually, while the incidence of liver failure is 1,000. Similarly, an estimated 30% of the diabetic population in Nepal might benefit from pancreas transplantation.2 Solid organ transplantation started in Nepal with a kidney transplant in 2008 at the Tribhuwan University Teaching Hospital.[5] Subsequently, few other government and private hospitals instigated kidney transplantation to meet the need. Nevertheless, the annual number of kidney transplantation is relatively low as compared to approximately 3,000 people requiring kidney transplantation each year. The Human Organ Transplantation Centre in Bhaktapur alone conducts nearly 150 kidney transplants per year.[6] The first ever liver transplant from a live donor and also first kidney transplant from a brain-dead donor in Nepal was conducted in the same center not too long ago in 2016 and 2017 respectively.[7,8]

The problem of organ shortage and organ trafficking can be solved by promoting cadaveric organ transplantation.[9] Although, brain dead donor organ transplant has already been introduced in Nepal, the rate of transplantation from deceased organ donors is not satisfactory; thus, almost all kidneys and liver come from living donors. Young deaths due to road traffic accident or cardiovascular event provide a best option for high-quality organ yield.[10] In Kathmandu alone, road accidents leave around 1000 people brain-dead annually, whose organs, if procured could save thousands of lives. It would also help curb organ trafficking, gender biasness, donor risk as seen in live donor organ transplantation.[11]

Though, Nepal has swiftly paved its way in kidney transplantation, organ donation, especially cadaveric organ donation is yet to get momentum in Nepal. The prerequisites for the success of a transplantation program include awareness, positive attitude towards organ donation and consent by relatives for organ donation in the event of brain death.[12]

Many studies have shown that knowledge, attitude, and behavior are the key factors that influence rates of organ donation.[13] Most of the studies from developed countries show that motivation to donate organs is associated with the appropriate awareness on the subject.[14]

There are not even a handful of research articles published on this public health issue in Nepal. Medical, law and mass-communication professionals can play pivotal role in promoting atmosphere for enhancing organ donation and procurement rates. Assessment of knowledge, attitude and practices on organ donation is essential for better understanding of the community on different aspects of organ donation. It will further help us in improving health education initiatives thereby removing the hurdles behind organ donation. Thus, this study aims to assess knowledge and attitude of post-graduate students from medical, law and mass communication fraternities towards cadaveric organ donation.

METHODS

This cross-sectional study was conducted among Medicine, Law and Mass communication students selected conveniently from a total of 9 colleges which were selected via lottery method, namely: Medical Colleges: National Academy of Medical Sciences (NAMS), Tribhuwan University Teaching Hospital (TUTH), and Kathmandu University (KU), Law colleges: Nepal Law campus (NLC), National Law College (NaLC), and Chakraborty Habi Law College. Mass Communication colleges: Ratna Rajya Campus (RR), Madan Bhandari Memorial College (MBM), and Kantipur City College (KCC).

The study was conducted from December 2016 to May 2017. The initial sample size was 440 with a response rate of 10%, which was calculated based on a similar study conducted in Turkey.[15] A self-administered questionnaire with 10 questions each was used to measure knowledge and attitude towards decreased organ donation. The number of questionnaires distributed in medicine, law and mass communication was 140, 170 and 130, respectively. The respondents were further screened to get the final sample size for analysis based on the responses to the following questions.

1. Can organs be donated? Yes or No.

2. If "Yes", when can the organs be donated? While alive/ After death/Both (Before and after death)

They were taken for further analysis only if the response to the first question was "Yes" and "both" to second question.

To assess knowledge level, for each correct answer, respondent was awarded with score "1" and for the wrong answer or "Don't know" response, "0" score was given. There were three multiple choice questions. Hence, the knowledge scores were aggregated and ranged from 0-20. The respondent's obtained total score was rated as following [16]

Low level of knowledge: <or equal to 50% (0-10); Medium level of knowledge: 51%-75% (11-15); High level of knowledge: >75% (16-20)

To measure the attitude towards deceased organ donation, a 5-point Likert scale was used ranging from strongly disagree to strongly agree which was later changed to dichotomous outcome. The total score ranged from 10 to 50. The median value "3" on the 5-point Likert scale was taken as a cut off value, which in percentage is 60%.

There were positive as well as negative statements. Positive statements were marked as 5, 4, 3, 2, 1 for strongly agree, agree, neutral, disagree and strongly disagree respectively, while for negative statements, reverse markings were done. Based on the cumulated score, which was converted into percentage, respondents who scored above 60% were considered as having "Positive" attitude, while those scoring below 60% were considered as having "Negative" attitude.

Before starting data collection, a written informed consent was obtained from all the participants after explaining them about the research topic and its importance. Respondents spent 30 minutes, on an average, to complete the questionnaire.

Ethical approval

Ethical approval was obtained from the Institutional Review Committee of B.P. Koirala Institute of Health sciences, Dharan, Nepal.

Statistical analysis

The collected data was, it was entered in Microsoft Excel 2007 which and was subsequently converted into Statistical Package for Social sciences (SPSS) version 11.5 for further analysis. Frequency, percentage, mean, and standard deviation were calculated. Graphical and tabular presentations were used wherever required. Pearson correlation test was used to test association at 95% confidence interval (C.I.).

RESULTS

Out of 440 questionnaires, all the respondents were aware that organs can be donated. However, only 299 respondents could correctly answer that organs can be donated both- before and after death. Thus, the final sample size taken for further analysis was 299.

Table 1: Selection of final sample size for further analysis.

Statement	N	%
Can organs be donated?		
Yes	440	100
No	0	0
If Yes, when can the organs be donated?		
After death	98	22.27
Both (after and before death)	299	67.95
Forms that had response "before death" or were incomplete or both	43	9.77

Socio-demographic characteristics of the respondents

Most of the respondents (37.5%) were from medicine, followed by law (35.5%) and Mass communication (27.1%). Majority (78.3%) of them were in between the age group of 20-30 years. More than half (54.8%) of the respondents were male. Majority (89%) of the respondents followed Hinduism. 68.2% were single. Likewise, nearly three-fourth (73.9%) of the respondents lived in nuclear family and most of them (70.5%) had adequate monthly income (Table 2).

Table 2: Socio-demographic characteristics of the respondents (n=299).

Characteristics	Category	Frequency (N)	Percent (%)
Stream of education	Law	106	35.5
	Mass commu-nication	81	27.1
	Medical	112	37.5
Age	20-30 years	234	78.3
Mean±SD= 28.52±3.70	31-45 years	65	21.7
Sex	Male	164	54.8
	Female	135	45.2
Religion	Hindu	266	89
	Buddhist	15	5
	Muslim	3	1
	Christian	15	5
Marital status	Single	204	68.2
	Married	95	31.8
Type of family	Nuclear	221	73.9
	Joint	78	26.1
Total monthly income	Inadequate (≤325 USD)	88	29.4
Mean=623.6 USD	Adequate (>325 USD)	211	70.5

Knowledge regarding organ donation and transplantation

Out of initial 440 respondents, most (68%) knew that organs could be donated both, before and after death. These people were selected as the final sample. Nearly 42% correctly answered that our law permits only close relatives to be a living organ donor. 64.2% were unaware of the recent amendment in the old transplant act of Nepal. Majority (77%) reported that buying and selling organs for the purpose of organ transplantation is illegal in Nepal (Table 3). When asked about organs that can be donated while alive, 94.6% of respondents opted for kidney, followed by liver (50.2%). Similarly, for open-ended questions on organs that can be donated after death, most responses were for cornea (90%) followed by heart (70.2%), kidney (63.2%) and liver (54.8). For question related to organs transplantable in Nepal, majority (78.9%) of responses were for cornea followed by kidney (86.9%) and liver (37.8%). 45.2% of the respondents correctly mentioned at least one hospital

conducting organ donation and transplantation in Nepal (Table 3).

Table 3: Knowledge regarding organ donation and transplantation (n=299).

Statement	Frequency (N)	Percent (%)
When can the organs be donated?		
Both (after and before death)	299	100
The main purpose of organ donation is to use it for organ transplantation in a person with organ failure.		
True	272	91
False	5	1.7
Do not know	22	7.4
The law of Nepal permits which of the following to be a live organ donor to a person needing transplantation?		
Anyone	143	47.8
Only close relatives	125	41.8
Do not know	31	10.4
Recently, Organ Transplant Act of Nepal has been revised.		
True	103	34.4
False	4	1.3
Do not know	192	64.2
It is legal to buy and sell organs for the purpose of organ transplantation.		
Yes	27	9
No	230	76.9
Do not know	42	14
What are the organs which can be donated while alive? (choose all that apply)		
Cornea/Eye	103	34.4
Liver	150	50.2
Kidney	283	94.6
Heart	23	7.7
Others (Lungs)	1	0.3
Others (Intestine)	4	1.3
What are the organs that can be donated after death? (open ended question)		
Cornea/Eye	269	90
Liver	164	54.8
Kidney	189	63.2
Heart	210	70.2
Lungs	54	18.1
Pancreas	27	9
Intestine	16	5.4
Skin	27	9
Which of the following organs are transplantable in Nepal? (choose all that apply)		
Heart	55	18.9
Lungs	17	5.3
Liver	132	37.8
Kidney	270	86.9
Cornea/Eyes	236	78.9
Can you name the hospital(s) where organ donation and organ donation can be done? (open ended question)		
Human Organ Transplant Center	135	45.2
Tribhuwan University Teaching Hospital	81	27.1
Grande International Hospital	11	3.7
Bir Hospital	42	14

Classification of knowledge level of the respondents

Almost half (48.8%) of the respondents had low level of knowledge, while 44.1% had moderate level of knowledge and only 7% had high level of knowledge on organ donation (Table 4).

Attitude of the respondents towards deceased organ donation

More than nine-tenth (93.3%) of the respondents felt that deceased organ donation can help reduce organ scarcity for organ transplantation. Regarding health care system of

Nepal, 41.1% respondents found it trustworthy, while 38.8% were ambivalent. Nearly 61% think that there are lesser risks associated with deceased organ donation. The idea of providing monetary incentives to promote deceased organ donation was declined by 40.5%. The idea of adding organ donation chapters in curriculum to promote awareness regarding organ donation was backed up by 92% of respondents. Similarly, the concept to initiate the provision of facility for voluntary registration for deceased organ donation on issuing driving license was supported by 72.9%. More than nine-tenth (93%) of the respondents agreed to the concept of bestowing full rights of making decision for organ extraction from a deceased organ to the family members and not the doctors (Table 5).

Table 4: Classification of knowledge level of respondents

Classification	Frequency (n)	Percentage (%)
Low level of knowledge	146	48.8
Moderate level of knowledge	132	44.1
High level of knowledge	21	7.0

Table 5: Attitude towards deceased organ donation (n=299).

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	N (%)	N (%)	N (%)	N (%)	N (%)
Organ donation is a noble act.	2	1	14	131 (43.8)	151
	-0.7	-0.3	-4.7		-50.5
Deceased organ donation must be encouraged to reduce organ scarcity for organ transplant.	2	2	16	171 (57.2)	108
	-0.7	-0.7	-5.4		-36.1
The health care system of Nepal is not trustworthy.	4	56	116 (38.8)	102	21
	-1.3	-18.7		-34.1	-7
Easy availability of organ donation cards can help to increase voluntary registration for deceased organ donation.	4	18	52	185	40
	-1.3	-6	-17.4	-61.9	-13.4
There are higher risks associated with deceased organ donation than in living organ donation.	69	112	69	39 (13.0)	10
	-23.1	-37.5	-23.1		-3.3
Organ donor's family must be given some incentives to encourage deceased organ donation.	45	76	52	96	30
	-15.1	-25.4	-17.4	-32.1	-10
Incorporating chapters on organ donation in schools/colleges will help increase voluntary organ donation.	6	5	13	157	118
	-2	-1.7	-4.3	-52.5	-39.5
There should be a provision for voluntary registration of one's name for organ donation after his death while issuing driving license.	8	27	46	151	67
	-2.7	-9	-15.4	-50.5	-22.4
If someone agrees to donate his organs after death, the health professionals will not work hard to save his life.	69	134	56	34	6
	-23.1	-44.8	-18.7	-11.4	-2
If a donor card has not been signed, the doctor should have full right to remove organs without the family's approval.	195	83	12	7	2
	-65.2	-27.8	-4	-2.3	-0.6

Table 6: Classification of attitude towards deceased organ donation (n=299).

Attitude	Frequency (N)	Percentage (%)
Positive	284	95.0
Negative	15	5.0

Classification of respondents' attitude towards deceased organ donation

Majority (95%) of respondents had positive attitude towards deceased organ donation (Table 6).

Co-relation between knowledge and attitude score

The Pearson co-relation coefficient (r) was 0.251 showing a weak positive co-relation between knowledge and attitude of the respondents, and was statistically significant (Table 7).

Sources of information on organ donation and transplantation

Majority (80.6%) of the respondents reported that their source of information were Tv/Radio/Internet followed by Newspapers (51.8%), Health Care Personnel (29.4%), Relatives/Friends (16.1%) and Organ Transplant Centers (7.7%) (Figure 1).

Table 7: Correlation between knowledge and attitude score.

Variables	Karl Pearson Co-relation Coefficient (r)	P value
Knowledge **Attitude**	0.251	0.01

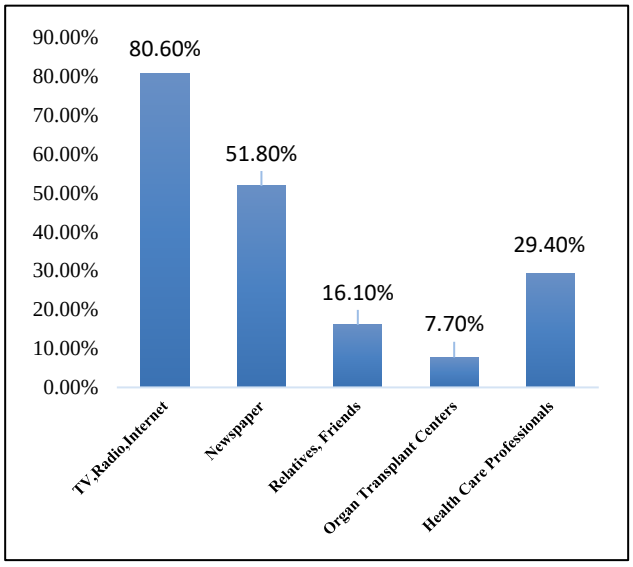

Figure 1: Sources of information on organ donation and transplantation.

Almost half (50.5%) of the respondents reported that they had heard the term "brain death", and most of these were from the medical stream followed by law and mass-communication (Figure 2).

Familiarity with deceased organ donation registration procedure

Only 3% of the respondents reported of being familiar of the procedure of registering their names for deceased organ donation (Figure 3).

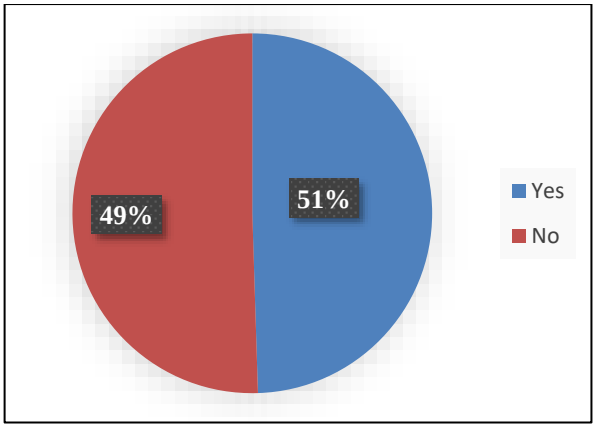

Figure 2: Familiarity with the term "Brain death".

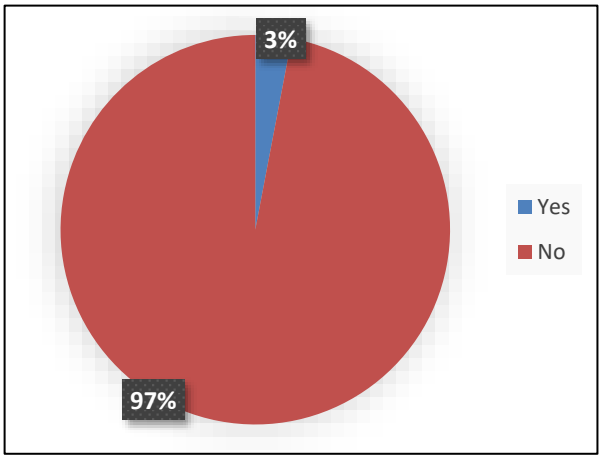

Figure 3: Familiarity with deceased organ donation registration procedure

DISCUSSION

The respondents in this study are the post graduate students from medical (37.5%), law (35.5%) and mass communication (27.1%). This composition corresponds to a study done in Turkey, where the composition of respondents was, medical (26%), law (35%), nursing (9.6%) and communication (10.26%).[15]

In the present study, nearly half (48.8%) of the respondents had low level of knowledge on organ donation. The knowledge level of respondents in similar kind of sample characteristics differs across various studies based on the scoring system used to assess knowledge level and type and country where study was conducted.[9,17,18] Not having a well validated universal tool to assess knowledge on organ donation is a limitation.

All participants (100%) were aware that organs can be donated and of this, nearly 68% said that organs can be donated both, before and after death. These results fairly correspond with the study done in South India where all the respondents cited that they knew about organ

donation and 60.5% of these reported that organs can be donated before and after death.[17]

In the present study, kidney and liver were the most common responses to the question when asked about organs that can be donated before death, while cornea, heart, kidney, liver respectively were common responses for organs that can be donated after death. These results correspond fairly with other studies done where cornea and kidney were the most common responses followed by either liver or heart.[1,10,19-23] Thus, there was high level of awareness regarding donation of eye, kidney, heart, and liver as compared to other organs.

In our study, 64.2% were admitted that they did not know about the recent revision of transplant act of Nepal. This is in line with a study done among medical staff in Morocco where 68.2% admitted to have no knowledge about the existing organ donation laws in their country.[14] Likewise, a study done in Ahmedabad, India, despite having a good sample of highly educated respondents, 74.41% were unaware of the Transplant Act of India.[24] Contrary to this, another study done in Chennai, India, only 43.4% were unaware of the same.[19]

In the present study, 95% of the respondents had a positive attitude towards cadaveric organ donation. A study done in India among Nurses, 78.33% had positive attitude towards organ donation.[25] In the present study, a vast majority (95%) had a positive attitude towards organ donation. This is quite high as compared to reports from India, 37%, and Pakistan, 75.2%.[22,26]

In the present study, 94.3% of the respondents agreed that organ donation is a noble act. This is in line with a study done in Iran where 94.2% of the respondents had the same view.[27]

In the present study, 41% of the respondents said that they do not find health care system of Nepal trustworthy. A study done among 341 participants from different faculties in Turkey showed that 37.3% did not have confidence in health care policy of their country.[15]

Vast majority (92%) of the respondents in our study felt that organ donation chapters should be made the part of school curriculum to promote organ donation. Similar results were replicated in studies done in Kerala and Telangana, all situated in India, where 91%, 82.4% and 88.7% of the respondents respectively reported the same.[9,17,18]

Only 3% of the respondents in this study agreed that doctors should be given full rights to make decision about organ donation after patient's death. Similar findings were found in studies done in Turkey and Pakistan where respondents least supported the idea of giving power to the doctors to make decision on organ donation upon someone's death and believed that the person himself should make this decision, and if this is not applicable, the decision power should be entitled to his family.[22,23]

In the present study, there was a weak correlation between the knowledge and attitude score which was statistically significant. This corresponds with the study done in Nepal among nursing students where knowledge and attitude were weakly associated.[2] A study done in Iran showed that there was a negative correlation between attitude and awareness.[27] Similarly, a study in India also showed that although the knowledge level was high, attitude was quite poor among the respondents.[28]

In this study, TV, radio including internet were the major sources of information on organ donation and transplantation. Media has been the major source of information as reported by respondents from different countries around the world.[1,19,21,22,29]

Similarly, 29.40%. of the respondents reported health care professionals as the source of information. Similar result was found in studies done in Pakistan and South India.[17,29] Contrastingly, a study done among general population in Ahmedabad, India about 48% of the people cited medical fraternity as the source of information on organ donation and transplantation.[23]

Only 3% of the respondents in this study were aware of the procedure to register their names for cadaveric organ donation. While a study done among students from various specialties in Chennai, India, 35% of the respondents reported of having knowledge on organ donation card.[19] This might be due to the wide variation in sample size and because of the wider development of organ donation and transplantation in India in comparison to Nepal.

CONCLUSION

Most respondents in this study had a positive attitude towards organ donation. However, there was a weak correlation between knowledge and attitude score and none of the respondents carried an organ donation card. This may mean that though people have positive outlook towards organ donation, they lack sufficient knowledge on the topic to make a rationale decision to register their names as a potential donor after death. Similarly, not having enough idea on organ donation registration process could also be a hindering factor. Thus, massive awareness, knowledge, and exploration of other influencing factors in other studies is a must.

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