

**KNOWLEDGE AND ATTITUDE OF NURSING STUDENTS  
REGARDING ORGAN DONATION IN POKHARA , NEPAL**

**ABSTRACT**

**Background:** Organ donation and transplantation is a boon to the medical industry as it has helped in saving the lives of critically ill patients with organ failure but the shortage of organ donors is an emerging health problem in Nepal. Improving the knowledge and attitudes of health care professionals and nurses could help to promote organ donation. The study aimed to assess the knowledge and attitude of nursing students regarding organ donation.

**Method:**

A cross-sectional study was conducted among 126 nursing students of proficiency certificate level. Pokhara Nursing Campus was selected among the seven nursing colleges through a simple random sampling technique. All the students of the first, second and third year of selected college were enrolled in the study. A semi-structured self-administered questionnaire was used to collect data. The data was collected and analyzed in the Statistical Package Social Sciences (SPSS) version 16 and descriptive statistics such as frequency, percentage, mean and standard deviation were calculated.

**Result:**

The study showed more than half (54.8%) of nursing students had satisfactory knowledge. The mean knowledge score and standard deviation were found to be  $16.54 \pm 3.17$ . Most (88%) of the nursing students had a positive attitude towards organ donation with a mean attitude of  $41.30 \pm 4.05$ .

**Conclusion:** Nursing students had satisfactory knowledge and a positive attitude towards organ donation. Knowledge on organ donation should be incorporated in the school curriculum to increase knowledge level and develop attitude on donating organs.

**Key Words:** *Organ donation, Knowledge, Attitude, Nursing students*

## INTRODUCTION

Organ donation is the act of donating biological tissue or an organ from a living or dead person to another living recipient as treatment without compensation.<sup>1-3</sup> With time and technology, the progress in transplantation medicine and surgery is notable. Understanding and development of immunologic pathways had made the possibility of transplant several major organs successfully. A ray of hopes can be seen among the organ failure patients on end stage.<sup>4</sup> Donation and transplantation of different organs or tissues include kidney, heart, livers, pancreas, corneas, bone, tendons, etc.<sup>5</sup> Government of Nepal had established a Shahid Dharmabhakta National transplant Center – SDNTC at Bhaktapur which helps citizens with organ failures to sustain quality lives and improve life expectancy. Liver transplant, brain death donor kidney transplant, dialysis and kidney transplant, open heart surgery were managed in the center. About 132 kidney transplant was performed in the Fiscal year 2016/17 in HOTC.<sup>6</sup>

Organ transplantation is one of the most remarkable endeavors. Organ donation is a boon to the medical industry with which many lives of critically ill peoples are saved. Organ donation and transplantation save many lives however, donating an organ is complex and multifactorial issues involve ethical, legal, medical, organizational and societal factors.<sup>7</sup> Influential factors such as knowledge, religion play an important role in people's attitude towards organ donation. Superstitious beliefs have generated fear and mistrust in minds of peoples especially terminally ill patients.<sup>8</sup>

The shortage of organs has been due to the reluctance of many family members to donate due to the fear of surgery causing loss to their health.<sup>5</sup> There has been a lack of initiative from the government so there is a great need for education and motivation both from people, as well as government since main reason for organ shortage, is just because of improper or incomplete knowledge of people in donating their organ.<sup>9</sup> The important reason for organ shortage is the lack of knowledge regarding organ donation among the public. The attitude regarding organ donation can be positive if they are provided adequate information to sort out misconceptions.<sup>7</sup>

A nurse, as a motivator can motivate the patient as well as family members to increase organ donation if she has adequate information about it. The student nurses are the future nurses and they should have adequate knowledge and a positive attitude regarding organ donation for counseling the relatives and creating awareness regarding the importance of organ

donation, which could save the life of other people waiting for receiving an organ.<sup>10</sup> The study aims to assess the knowledge and attitude of nursing students on organ donation.

## **METHODS AND MATERIALS**

A cross-sectional study was conducted among 126 nursing students enrolled at the diploma level. A simple random sampling technique was used to select the diploma level nursing college. Among the seven nursing colleges, Pokhara Nursing campus was randomly selected. In Pokhara Nursing campus, 135 students were studying in the first, second and third year at diploma level; where 126 students participated in the study and nine were absent on the day of data collection.

A semi-structured self-administered questionnaire was developed for the study based on all aspects of organ donation. A questionnaire was divided into three parts: 1) Demographic information 2) Questions related to knowledge regarding organ donation 3) Questions related to attitude regarding organ donation.

**a. Knowledge:** The score was varied from 0-28 points and was classified into three levels as Bloom's cut-off point.<sup>11</sup> High level or good knowledge for 80-100 percentage, Moderate or Satisfactory knowledge for 60-80 percentage, and low level or Poor knowledge for less than 60 percent obtained by respondents.

**b. Attitude:** To assess the overall attitudes among the Nursing students, a five-point Likert scale was made which consisted of 12 statements. Among which 6 statements were positive and 6 negative based on mentioned classification. For positive statements, the score was given as 5 for strongly agree, 4 for agree, 3 for neither agree nor disagree, 2 for disagree, and 1 for strongly disagree. This scoring was reversed for negative statements. These scores were summed up for a total score that ranged between 12-60. The attitude score was categorized into three levels. The categorization was made by merging strongly agree and agree as positive attitude, neutral as neutral attitude and strongly disagree and disagree as negative attitude.

Investigator clearly explained the purposes and the benefits of the research and informed written consent was obtained from the respondents before data collection. Respondents were assured that all the information given during data collection will be used only for the academic purpose of an investigator. The study was conducted only after the approval of

research committee at the Department of Nursing, Pokhara University. Administrative approval was obtained from the authorities. Respondents were allowed to refuse their participation in the study at any time. Anonymity was maintained during data collection.

After the completion of data collection, questionnaires were edited and coded, then data were entered by using EPI data and analyzed using statistical package for social sciences (SPSS) V.16.0.

## RESULTS

**Table 1: Demographic Characteristics of the Respondents (n=126)**

Variables	Frequency (n)	Percentage (%)
<b>Age</b>		
15-19	79	62.7
20-24	43	34.1
25 and Above	4	3.2
<b>Religion</b>		
Hinduism	100	79.4
Buddhism	24	19.0
Christianity	2	11.6
<b>Ethnicity</b>		
Relatively advantaged janajatis	82	65.1
Upper caste groups	35	27.8
Disadvantaged janajatis	9	7.1
<b>Occupation of Father</b>		
Service	76	60.3
Business	30	10.3
Abroad	12	9.5
Farmer	8	6.40
<b>Occupation of Mother</b>		
Housewife	102	81.0
Service	16	12.7
Business	8	6.3
<b>Previous work experience</b>		
No	123	97.6
Yes	03	2.4

Table 1 reveals that the highest proportion (62.7%) of the respondents were between the age group 15-19 years, a majority (79.4%) of respondents followed Hinduism and almost all (97.6%) respondents do not have any work experiences.

**Table 2: Knowledge regarding general organ donation (n=126)**

Variables	Frequency (n)	Percentage (%)
<b>Meaning of organ donation</b>		
Yes	104	82.5
No	24	17.5
<b>Purpose of organ donation</b>		
Yes	117	92.9

No	9	7.1
<b>Criteria of organ donation</b>		
Yes	30	23.8
No	96	76.2
<b>Contract-Indication*</b>		
Malignancies	87	69.6
Systemic infectious	86	68.8
Leukemia	82	65.6
Newborn	47	37.6
<b>Organs that can be donated*</b>		
Kidney	125	99.2
Eyes	108	85.7
Heart	76	60.3
Liver	49	38.9
Pancreas	17	13.5
Small intestine	16	12.7
Skin	14	11.1
<b>Organs transplanted in Nepal</b>		
Eye	91	72.8
Kidney	65	52.0
Heart	20	16.0
Liver	01	0.8
<b>Sources of information*</b>		
Television	88	27.5
Newspaper or magazine	59	18.4
Internet/online resources	57	17.8
Friend or colleague	52	16.2
Radio	35	10.9
Heard from a doctor	29	9.1

**\*Multiple Response**

Table 2 shows that majority (82.5%) of respondents answered the meaning of organ donation as the removal of human organs for transplantation. Similarly, most (92.9%) of respondents answered correctly that the purpose of organ donation was to save one's life. Meanwhile, a majority (69.6%) of the respondent answered malignancies as the contraindication for organ donation followed by systemic infections (68.8%) and Leukemia (65.6%).

**Table 3: Knowledge regarding Specific Organ Donation (n= 126)**

Variables	Frequency (n)	Percentage (%)
<b>Part of eye donated</b>		
Cornea	98	77.8
Others	28	22.2
<b>Age limit for eye donation</b>		
0-20 years	04	3.2
20-40 years	72	57.1
40-80 years	08	6.3
Above 80 years	42	33.3
<b>Time duration for eye donation</b>		
4 hours	46	36.5
8 hours	35	27.8
10 hours	10	7.9
12 hours	35	27.8
<b>Time for kidney donation</b>		
2 hours	31	24.6

2-10 hours	30	23.8
10-24 hours	55	43.7
24-48 hours	10	7.9
<b>Time for heart donation</b>		
1-2 hours	67	53.2
2-5 hours	40	21.7
5-8 hours	19	15.1
<b>Involvement of risk</b>		
Yes	105	83.3
No	07	5.6
Don't know	14	11.1
<b>Most important risk (n=105)</b>		
Infection	59	46.8
Bodily weakness	24	19.0
Bleeding	17	13.5
Anxiety and depression	05	4.0
<b>Symptoms of organ rejection*</b>		
Pain at the site of transplant	100	79.4
Changes in heart rate	77	61.1
Irritability	57	45.2
Flu-like symptoms	55	43.6
Swelling	50	39.7
Weight changes	27	21.4

**\*Multiple Response**

Table 3 shows that more than third fourth (77.8%) of respondent answered cornea as the part of eye to be donated. More than Fourth fifth (83.3%) of respondents answered that organ donation involves risks and few (5.6%) of them answered organ donation does not involve any risk, whereas as (11.1%) answered they don't know about risk regarding organ donation. Nearly half (46.8%) of the respondents answered infection as the most important risk associated with organ donation and only (4%) answered anxiety and depression as the most important risk associated with organ donation.

**Table 4: Respondents Attitude Regarding Organ Donation (n=126)**

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Organ donation allows something positive to come out of a person's death.*	68 (54%)	51(40.5%)	6(4.8%)	-	1 (0.8%)
I consider organ donation a frightening activity.	6 (4.8%)	46(36.5%)	37(29.4%)	25(19.8%)	12(9.5%)
I believe that organ donation is an unselfish act.*	54(42.9%)	44 (34.9%)	11(8.7%)	8(6.3%)	9(7.1%)
I think the body will be disfigured when the organs are removed.	2(1.6%)	6(4.8%)	33(26.2%)	64(50.8%)	21(16.7%)
I think organ and tissue donation is a safe, effective procedure.*	3(2.4%)	34(27.0%)	57(45.2%)	29(23.0%)	3(2.4%)
I think preservation of an intact body after death is important.	37(29.4%)	39(31.0%)	33(26.2%)	8(6.3%)	9(7.1%)

I want to donate my organs after my death.*	46(36.5%)	36(28.6%)	29(23.6%)	14(11.1%)	1(0.8%)
I think there will be premature termination of medical treatment for registered donors.	12(9.5%)	15(11.5%)	66(47.6%)	35(27.8%)	4(3.2%)
I feel uncomfortable, when I think or talk about organ donation.	9(7.1%)	24(19%)	24(19%)	31(24.6%)	38(30.2%)
My religion does not allow me to donate or receive organs.	3(2.4%)	2(1.6%)	10(7.9%)	35(27.1%)	76(60.3%)
I believe I have learnt enough about organ donation.*	12(9.5%)	37(29.4%)	42(33.3%)	25(19.8%)	10(7.9%)
I am confident in approaching relatives of potentials organ donors diagnosed brain dead.*	3(2.4%)	15(11.9%)	78(61.9%)	15(11.9%)	15(11.9%)

Table 4 shows that more than half (54%) of the respondents strongly agreed to the statement "Organ donation allows something positive to come out of a person's death". Majority (64%) of the respondents agreed to donate their organs after their death while (0.8%) strongly disagreed. Likewise, in terms of negative statements (36.5%) agreed to the statement "I consider organ donation a frightening activity" while only a few (9.5%) strongly disagreed.

**Table 5: Respondents' Level of Knowledge and Attitude Regarding Organ Donation (n=126)**

Variables	Frequency (n)	Percentage (%)
<b>Level of knowledge</b>		
Good knowledge	04	3.2
Satisfactory knowledge	69	54.8
Poor knowledge	52	42.1
Min: 10 and Max: 22, Mean±SD 16.54±3.17		
<b>Level of attitude</b>		
Positive attitude	112	88.9
Neutral attitude	05	4.0
Negative attitude	09	7.1
Min: 30 and Max: 50, Mean±SD 41.30±4.05		

Table 5 illustrates that nearly third-fourth (69%) of respondent had satisfactory knowledge regarding organ donation and only (4%) percentage had good knowledge regarding organ donation. More than fourth fifth (88.9%) of respondents had positive attitude regarding organ donation, while only (7.1%) had negative attitude towards organ donation.

## Discussion

The knowledge and attitude of the nursing students regarding organ donation were observed in the study. The study found that almost all of the respondents heard about organ donation which contradicts the findings of the study done in Bangladesh which showed 64 percent of

respondents has no idea about ongoing organ donation and transplantation.<sup>12</sup> The contradiction might be due to the dissimilarities in the educational level of the respondents; the nursing students likely to know anatomy and physiology of the human body as well as the new technologies and therapies related to the medical field, while the schoolgirls of secondary level may not be aware of it.

In the present study, about 82.5 percent of the respondents knew the meaning of organ donation. Most of the respondents (92.9%) believed the purpose of organ donation is to save lives. This finding is supported by the finding of a cross-sectional online survey which showed most (96.2%) clinicians were very supportive of organ and tissue donation, 98.5 percent of respondents believed that organ and tissue donation can save lives.<sup>13</sup>

In this study, more than four-fifth (82.5%) of respondents knew regarding the meaning of organ donation which corresponds with the findings of another study done among nursing students of Chitwan medical college which showed three fourth (72%) of respondents knew the meaning of organ donation.<sup>4</sup> In the present study about more than half (54.8%) of respondents had satisfactory knowledge which contradicts with the findings of different studies which showed 82 percent and 74.5 percent of respondents had satisfactory knowledge on organ donation.<sup>1,4</sup> In the present study, a majority (88.9%) of respondents had a positive attitude which corresponds to the findings of another study done in Chitwan which showed 94 percent of respondents had a positive attitude.<sup>4</sup> Another study of India showed contradictory findings which showed only 43.5 percent had a positive attitude.<sup>1</sup>

The present study showed the source of information regarding organ donation for a majority of respondents (27.5%) was television and one in tenth (9.1%) had heard information from a doctor which corresponds with a finding of a study done in Saudi Arabia which shows more than 90% of respondents reported that the contribution of health care providers in providing them with knowledge about organ donation and transplantation was none or little.<sup>14</sup> This may be due to the reason that the practice of counseling and approaching the possible donors by health care professionals or doctors is very low in both settings.

The study showed the positive attitude regarding donating their organs after their death was 64 percent which is similar to the findings of studies done in Australia and Hongkong which showed 85 percent and 90 percent had a positive attitude towards organ donation.<sup>13,15</sup> Another study contradicts our findings which showed personal feelings of distress and negative attitudes to the issue of organ donation which may be transmitted to others.<sup>11</sup>

Similarly, in the present study more than half (60.4%) of the respondents agreed that preservation of an intact body after death is important. These findings support the finding of the study done in Qatar which showed 61.6 percent of nurses wanted to be buried with all their organs.<sup>14</sup>

The present study found a majority (47.6%) of the respondents showed a neutral attitude regarding termination of medical treatment for registered donors. The finding is similar to another study done in Hongkong which found inconvenience and lack of knowledge about organ donor registration and concerns about premature termination of medical treatment accounted discrepancies.<sup>15</sup>

Only 2.4 percent of the respondents strongly agreed that they were confident in approaching relatives of potential organ donors; this result is supported by another study which showed critical care staff cannot be considered ready to effectively handle requests for organ donation.<sup>16</sup>

The study has several limitations. The study design was not further supported by qualitative approaches. It would be stronger if we use analytical approaches to assess the level of knowledge and attitude regarding organ donation and complement the study with a qualitative data collection approach.

## **Conclusion**

The study concluded that nursing students had satisfactory knowledge about organ donation and a majority of the nursing students had a positive attitude towards organ donation. Nursing students who had positive attitudes should have a positive impact on organ transplants and act ideal for the couraging community. Knowledge on organ donation should be incorporated in the school curriculum to increase knowledge level and develop an attitude. Lectures should be held regularly to increase awareness of organ donation.

## **ETHICAL APPROVAL**

Ethical approval was obtained from the School of Health and Allied Sciences, Pokhara University. Administrative Approval was obtained from the Pokhara Nursing College, Tribhuvan University. Participants were fully informed regarding study objectives and written inform consent was obtained before the initiation of the data collection

Confidentiality of the data was fully maintained and collected data was used only for the research purpose.

## REFERENCES

1. Kaur S, Ghai S, Krishna N, Rana D, Kathania D, Kaur G, et al. Knowledge, Attitude and Perception Regarding Organ Donation among the Nursing Students. *Journal of Postgraduate Medicine, Education and Research*. 2015 Sep;49(3):105–10. [\[DOI\]](#)
2. Al-Bar MA, Chamsi-Pasha H. Organ Transplantation [Internet]. *Contemporary Bioethics: Islamic Perspective*. Springer; 2015. [\[Full Text\]](#)
3. Saleem T, Ishaque S, Habib N, Hussain SS, Jawed A, Khan AA, et al. Knowledge, attitudes and practices survey on organ donation among a selected adult population of Pakistan. *BMC Medical Ethics*. 2009 Jun 17;10(1):5. [\[Pubmed\]](#) [\[Full Text\]](#)
4. Karki S, Thapa S, Poudyal S. Knowledge and attitude of nursing students regarding organ transplantation. *Journal of Chitwan Medical College*. 2015;5(3):60–5. [\[DOI\]](#)
5. Escobar EM. Meeting the organ shortage:current status and strategies for improvement of organ donation. :23. [\[Full Text\]](#)
6. Human Organ Transplant Centre. Available from: <https://hotc.org.np/>
7. Chakradhar K, Doshi D, Srikanth Reddy B, Kulkarni S, Padma Reddy M, Sruthi Reddy S. Knowledge, Attitude and Practice Regarding Organ Donation among Indian Dental Students. *Int J Organ Transplant Med*. 2016;7(1):28–35. [\[Pubmed\]](#) [\[Full Text\]](#)
8. Meghana GS, Subramanian M, Atmakuri SA, S T, Bera P, J N. A study on knowledge, attitude and practice regarding organ donation and transplantation among final year health science students in Bengaluru, Karnataka, India. *International Journal Of Community Medicine And Public Health*. 2018 Mar 23;5(4):1529–34. [\[Pubmed\]](#) [\[Full Text\]](#)
9. Kumar L. Brain death and care of the organ donor. *J Anaesthesiol Clin Pharmacol*. 2016;32(2):146–52. [\[Full Text\]](#)
10. Vlaisavljevic Z, Zivanovic D. A nurse is an important factor in increasing organ donation. *International Journal of Health Services Research and Policy*. 2018 Aug 1;3(2):91–4. [\[DOI\]](#)
11. Regehr C, Kjerulf M, Popova SR, Baker AJ. Trauma and tribulation: the experiences and attitudes of operating room nurses working with organ donors. *J Clin Nurs*. 2004 May;13(4):430–7. [\[Pubmed\]](#) [\[Full Text\]](#)
12. Saha M, Hadiuzzaman KM, Faroque MO, Alam KS, Haque MA, Paul BK. Awareness about organ donation among school girls. *Mymensingh Med J*. 2011 Apr;20(2):287–91. [\[Pubmed\]](#) [\[Full Text\]](#)

13. Marck CH, Weiland TJ, Neate SL, Hickey BB, Jelinek GA. Personal attitudes and beliefs regarding organ and tissue donation: a cross-sectional survey of Australian emergency department clinicians. *Prog Transplant*. 2012 Sep;22(3):317–22. [\[PubMed\]](#) [\[Full Text\]](#)
14. Alsaied O, Bener A, Nour B, Mosalamani Y. Knowledge and attitudes of health care professionals toward organ donation and transplantation. *Saudi J Kidney Dis Transpl*. 2012;23(6):1304–10. [\[PubMed\]](#) [\[Full Text\]](#)
15. Chung CKY, Ng CWK, Li JYC, Sum KCY, Man AHY, Chan SPC, et al. Attitudes, knowledge, and actions with regard to organ donation among Hong Kong medical students. *Hong Kong Med J*. 2008 Aug;14(4):278–85. [\[PubMed\]](#) [\[Full Text\]](#)
16. Evanisko MJ, Beasley CL, Brigham LE, Capossela C, Cosgrove GR, Light J, et al. Readiness of critical care physicians and nurses to handle requests for organ donation. *Am J Crit Care*. 1998 Jan;7(1):4–12. [\[PubMed\]](#) [\[Full Text\]](#)

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