

## Organ Donation: An Intervention Study

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### Abstract

*Organ donation has become a source of hope for many individuals, potentially saving up to 8 lives and positively impacting over 50 people through a single donor. Living organ donation has emerged as a significant therapeutic option in the field of transplant medicine. It offers a lifeline to patients with terminal illnesses such as heart failure, end-stage lung disease, and kidney failure. Encouraging more positive attitudes towards organ donation could lead to an increase in posthumous donation pledges. The Indian government enacted the "Transplantation of Human Organ Act 1994", Act No. 42, which legalized organ donation and recognized brain death, thus making organ donation legally permissible. According to Dan Drew, Former mayor of Middletown, "Idea that you can contribute a piece of yourself to someone else so that they could be there for their kids at their wedding, they could be there when their kids go away for college and they could live a happy and fulfilling life, is incredibly satisfying extraordinary worthwhile experience". The shortage of organ donors stands as the foremost obstacle to organ transplantation in India. Numerous strategies have been proposed to tackle this challenge, with one particular method focusing on amplifying awareness regarding organ donation and transplantation within the broader public. This research aims to evaluate the level of knowledge and the attitudes held by medical students concerning organ donation and transplantation. The study's goal was to gauge the understanding and viewpoints of medical students regarding organ donation and transplantation.*

**Keywords:** Organ donation, transplantation, human organ, organ donor, transplant medicine

### INTRODUCTION

By making an organ donation, a person promises that after death, one or more of his or her organs would be used to help terminally sick people and give them a new lease on life. Two ways of organ donation are there: living related donors and cadaver organ donation [1, 2].

Human organs are desperately needed for transplantation. In reality, there are considerably more transplantable organs needed than there are available. Various laws have been created in an effort to control the scarce resources (transplantable human organs) and create an equitable system for allocating the organs where they will function best. This inequity and unethical conduct in commercial organ

transplantation have prompted the creation of these regulations. The Legal Aspects, in accordance with the Transplantation of Human Organ Act of 1994, pertain to the legal facets of the organ donation process [3].

The organ transplantation act is a law that regulates the removal, storage, and transplantation of human organs for medical needs as well as the avoidance of commercial deals in human organs and any issues that may arise in the process. The law was established due to continuous appeals from

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national organizations, medical experts, and social professionals, especially as the incidents of trafficking in human organs, especially kidneys, have increased. There has been an ongoing request to outlaw this unethical activity. The legal incapacity to authorize the extraction of organs from individuals who have undergone brain death has hindered the execution of such procedures [4].

The New York State Nurses Association believes that the registered nurse may assume an integral and valuable role in overcoming the shortage of suitable, viable organs and tissue for transplantation. The registered professional nurses should do the following in their capacities as clinicians, health educators, and counsellors: Give the public accurate information about donation. Participate in activities to identify possible donors, work closely with the healthcare facility, the organ procurement organization (OPO) and/or tissue bank, and members of the health team to seek consideration for such donation, provide clinical expertise, emotional support and objective and accurate information to families who are considering organ and tissue donation and advocate for patients and families in the informed choice process, recognizing and respecting their cultural and religious beliefs [5].

Studies and surveys show that the nurses lacked confidence in asking relatives for authorization to donate organs because they were unaware of the legal implications of organ donation. It was evident that many nurses were unable to recognize potential organ donors. The investigator carried out a research study to assess the efficiency of an educational initiative focusing on organ donation and its legal implications. The aim was to improve nurses' understanding and attitude towards organ donation, with the ultimate goal of increasing the pool of potential donors based on the findings from these assessments and statistical data. Organ shortage is a worldwide issue, and Asia lags behind many other regions. In India, for example, it is estimated that only 0.05 million organs are donated by deceased individuals, despite the country having one of the highest rates of traffic-related fatalities globally. In contrast, the United States has a donation rate of over 25 million, while Hong Kong's rate is less than 5 per million [6].

As of February 2021, the national transplant waiting list comprised 10,700 individuals, encompassing men, women, and children. In the year 2020, a total of 39,000 transplant procedures were carried out successfully. On a daily basis, 17 individuals lose their lives while awaiting an organ transplant.

- The World Health Organization reports that only 0.01% of India's population opts for posthumous organ donation. This poor performance can be attributed to factors such as insufficient public awareness, religious or superstitious beliefs, and stringent laws.
- Potential organ donations encompass the liver, kidney, pancreas, heart, lung, and intestine.
- Each one of us has the potential to save up to 8 lives through posthumous organ donation. Tissue donation, on the other hand, can positively impact the lives of over 50 individuals.

## **STATEMENT OF THE PROBLEM**

An investigation was conducted to evaluate the knowledge and opinions of 2nd-year BSc nursing students at PGIMS College of Nursing, Rohtak, regarding the impact of a structured teaching program centred on organ donation.

## **OBJECTIVES OF THE STUDY**

- To appraise the levels of knowledge and attitudes held by 2nd-year BSc nursing students regarding organ donation before and after the examination.
- To gauge the influence of the structured teaching program (STP) on the perspectives of organ donation within the BSc 2nd-year nursing students' group.
- To investigate the correlations between the knowledge and attitudes of 2nd-year nursing students pursuing a BSc degree regarding organ donation.
- To identify the connections between scores related to knowledge and attitude and specific demographic variables.

## **OPERATIONAL DEFINITIONS**

*Assess:* To make judgement or form an opinion about the knowledge, self-efficacy, awareness and level of clinical practice of nursing students.

*Knowledge:* It is the amount of information, understanding and skills that have been gained through learning and experience in nursing students.

*Attitude:* It refers to idea's opinion or perspective towards organ donation among nursing students.

*Awareness:* It is state of being conscious or to convince about an opinion (organ donation).

*Organ Donation:* It is the process when a person allows an organ (heart, kidney etc.) or healthy tissues (valves, cornea etc.) to remove from their body and donate to some other person to help them live a healthy life once again.

*Organ Transplantation:* During a medical procedure, a damaged or missing organ is replaced by extracting an organ from one body and transplanting it into the recipient's body.

*Socio-Demographic Variables:* In this study, it refers to the selected demographic characters or influencing factors such as the age, marital status, education, religion and residential status of the nursing students.

*Effectiveness:* It involves assessing the degree to which the outcomes desired in the study have been achieved through the implementation of a Structured Teaching Program on organ donation.

## **STRUCTURED TEACHING PROGRAM**

In this research, it pertains to a meticulously organized project that delivers essential information on organ donation tailored to specific needs.

## **ASSUMPTIONS**

The researcher assumes that:

- Insufficient understanding of the organ donation process might diminish students' confidence and awareness.
- Education may enhance the knowledge of nursing students regarding organ donation and will inspire them to donate.

## **HYPOTHESIS**

Hypotheses will be tested at 0.05 level of statistical significance:

- *H1:* Substantial alterations are expected in the pre-test and post-test knowledge scores of 2nd-year BSc nursing students concerning organ donation.
- *H2:* The pre-test and post-test attitudes about organ donation among 2nd-year BSc nursing students will alter significantly.
- *H3:* There may be a notable correlation between the scores for knowledge and attitude, and certain demographic factors that have been selected.
- *H01:* The pre-test and post-test knowledge scores related to organ donation among 2nd-year BSc nursing students are expected to align and demonstrate no significant disparities between them.
- *H02:* It is anticipated that there will be little to no significant distinction between the pre-test and post-test attitude scores regarding organ donation among 2nd-year BSc nursing students.
- *H03:* It is expected that there will be no noteworthy correlation between the scores for knowledge and attitude, and specific demographic factors that have been selected.

## DELIMITATION OF THE STUDY

- The study includes only 70 students from a nursing college.
- The study pertains to just one nursing college.
- The students who willingly participate in the study.
- Those students who are available during teaching time.

## RESEARCH METHODOLOGY

### Research Design

A pre-experimental design involving a single group with pre-test and post-test measurements was utilized for the study (Table 1).

### Research Approach

This study utilized a quantitative research approach as its methodological framework.

**Table 1.** Representation of Research design.

Pre-test	Treatment	Post-test
O <sub>1</sub>	X	O <sub>2</sub>

### Remarks

- O<sub>1</sub>: Pre-test before intervention,
- X: Intervention (Using Structured Teaching Program),
- O<sub>2</sub>: Post-test after intervention.

### Research Setting

BSc Nursing 2nd year students at the College of Nursing, PGIMS, Rohtak were the focus of this study, and it was carried out at that location.

### Variables

The primary emphasis of the study was on two types of variables: independent variables and dependent variables.

*Independent Variables:* In this study, the independent variable is the Structured Teaching Programme with a focus on organ donation.

*Dependent Variables:* This study considers the knowledge and attitude of staff nurses towards organ donation as the dependent variables.

### Demographic Variables

The demographic variables in my study were age, religion, marital status, education, residential status previous source of information.

*Population:* Target population is the BSc nursing 2nd year students in College of Nursing, PGIMS, Rohtak.

*Sampling Technique:* For this study, the samples were selected using a non-probability method called convenience sampling.

*Sample Size:* 70 samples were selected.

### Criteria for Sample Collection

#### Inclusive Criteria

- Students who are pursuing B.Sc. nursing from College of Nursing, PGIMS, Rohtak are included in study.

- The study included students who volunteered to participate, while excluding those who did not.
- Only students who were available and present during the study were included in the sample.

#### ***Exclusive Criteria***

- Students who are not pursuing BSc nursing from college of nursing, PGIMS, Rohtak are not included in study.
- Those students who opted not to participate in the study were excluded from the sample.
- Individuals who were not present during the study period were not considered part of the student sample.

#### **Development of Tool**

To achieve the study's aims and evaluate the students' background, knowledge, and attitudes, the researcher designed a demographic profile, a structured knowledge questionnaire, and an attitude scale. This tool was created by thoroughly and systematically reviewing the available literature [7, 8].

The tool was divided into three sections:

#### ***Section-A: Demographic Profile***

This section consists of 8 variables pertinent to BSc nursing 2nd year students including name, age, religion, marital status, secondary education of the students, occupation of father, residential status and previous source of information.

#### ***Section-B: Structured Knowledge Questionnaire on Organ Donation***

This section comprised 25 items related to organ donation. The items were formulated to encompass the following categories:

- 9 question related to general questions related to organ donation.
- 14-Related to legal aspects of organ donation.
- 2-Related to nurses' role in organ donation.

Every questionnaire provided four response options, with only one deemed correct. A correct response earned a score of 1, while an incorrect one received a score of 0. The highest possible score was 25. Respondents' knowledge among nursing students was categorized into the following groups based on their marks (Table 2):

**Table 2.** Interpretation of knowledge scores.

Description of the knowledge	Score
Inadequate	0–8
Average	9–16
Adequate	17–25

#### ***Section-C: 3-point Likert Attitude Scale on Organ Donation***

This section contains 15 statements aimed at gauging the attitude of nursing students towards organ donation. Out of this, 7 statements stating positive attitude regarding organ donation and 8 stating negative attitude regarding legal aspects of organ donation. Nursing students' attitudes toward organ donation were evaluated utilizing the Likert Scale. This scale allowed individuals to express their level of agreement, neutrality, or disagreement with specific statements (Table 3).

**Table 3.** Interpretation of attitude scores.

Description of the attitude	Score
Disagree	0–5
Neutral	6–10
Agree	11–15

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## DEVELOPMENT OF STP

2nd-year BSc nursing students at the College of Nursing, PGIMS, Rohtak, received an instructional program on "organ donation".

### The Teaching Programme was Organized in to Various Headings

1. Introduction about organ donation.
2. Theme of Organ Donation.
3. Definition of Organ Donation.
4. History and Statistics of Organ Donation.
5. Types of donors.
6. Organs for donation.
7. Preservation time for Organs One can Donate.
8. Eligibility criteria for organ donation.
9. Contraindication for organ donation.
10. Factors affecting organ donation.
11. Legal aspects of organ donation.
12. Requirements of successful organ donation.
13. Organ donation registries in India (How to Register if One Want to Donate?).
14. Role of Nurse in organ donation.
15. Summary.

## DATA COLLECTION

The formal permission was taken from the Principal of College and the class coordinator for the data collection according the convenient time and place. After obtaining the permission, the investigators met the subjects and established rapport with them. 70 samples were taken for the study. The informed consent was taken separately from each student. After informed consent, pre-test was administered. The structured teaching programmed was given regarding organ donation. Post-test was conducted using the same tool, with an interval of 7 days to assess the effectiveness of STP. Data collection occurred between June 21, 2021, and July 9, 2021, and the process concluded by acknowledging and expressing gratitude to the participants for their participation and cooperation [9, 10].

## ANALYSIS AND INTERPRETATION

The present article offers an analysis and interpretation of the data that was gathered in order to assess the efficacy of a structured teaching programme on improving the knowledge and attitude of second-year nursing students at the College of Nursing, PGIMS, Rohtak, with regard to organ donation.

### Section-A: Demographic Factors

Frequency and percentage distribution of subjects according to selected socio-demographic variable are observed in Table 4.

Data presented in Table 5 shows that majority of the subjects 53 (75.7%) were in age between 20 and 22 years. 17(24.2%) Subjects were in age between 17 and 19 years (Figure 1).

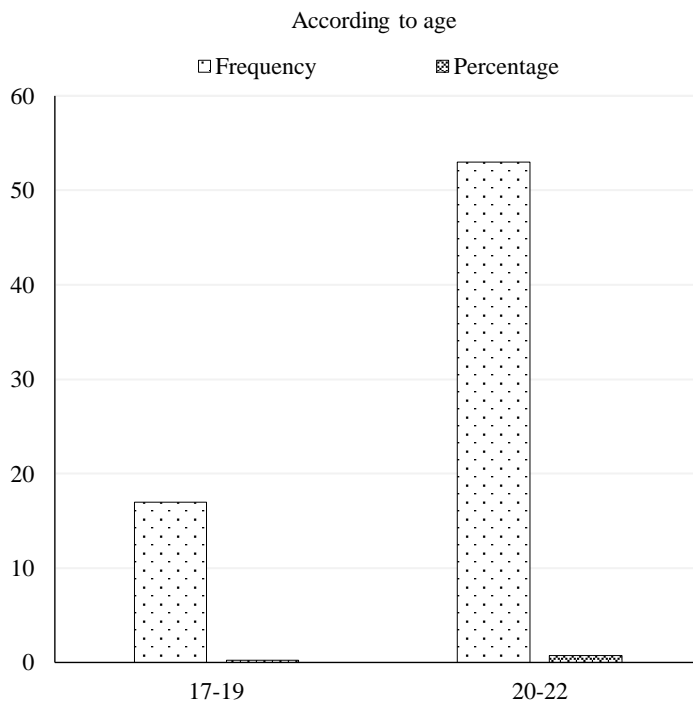
Table 6 and Figure 2 reveal that majority of 67(95.7%) subjects were unmarried and 03(4.28%) were married.

Table 7 and Figure 3 show that majority 43(61.4%) were in private schools and others 27(38.6%) were in government schools.

Table 8 and Figure 4 show that majority of the subjects 68(97.1%) were Hindus and one student was Muslim and one was from others (1.42%).

**Table 4.** Frequency and percentage distribution of subjects according to selected socio-demographic variables (N=70).

Sample Variables	Frequency	Percentage
<i>Age (in years)</i>		
17-19	17	24.2%
20-22	53	75.8%
<i>Marital Status</i>		
Married	3	4.28%
Unmarried	67	95.7%
<i>Sr. Secondary Education of the Students</i>		
Private	43	61.4%
Govt.	27	38.6%
<i>Religion of the Student</i>		
Hindu	68	97.1%
Muslim	1	1.42%
Others	1	1.42%
<i>Occupation of the Father</i>		
Private job	18	25.7%
Govt. job	18	25.7%
Others	34	48.5%
<i>Source of Knowledge</i>		
Newspaper	7	10%
Television	6	8.5%
Internet	57	81.4%
<i>Residential Status</i>		
Urban	33	47.1%
Rural	37	52.8%



**Figure 1.** Distribution of sample according to age.

**Table 5.** Frequency and percentage distribution of subjects according to age.

Sample Variables	Frequency	Percentage
<i>Age (in years)</i>		
17–19	17	24.2%
20–22	53	75.7%

**Table 6.** Frequency and percentage distribution of subjects according to marital status.

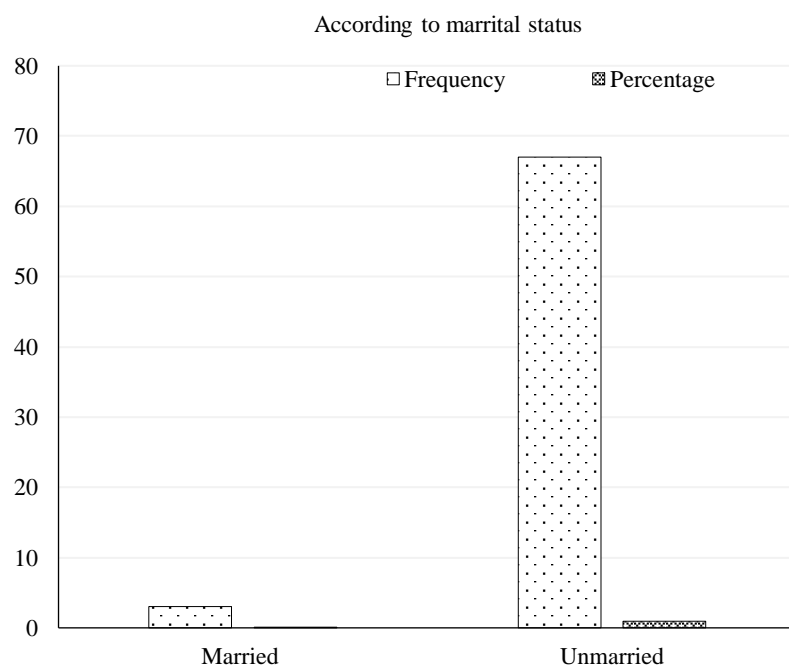
Marital status		
<i>F %</i>		
Married	3	4.28%
Unmarried	67	95.7%

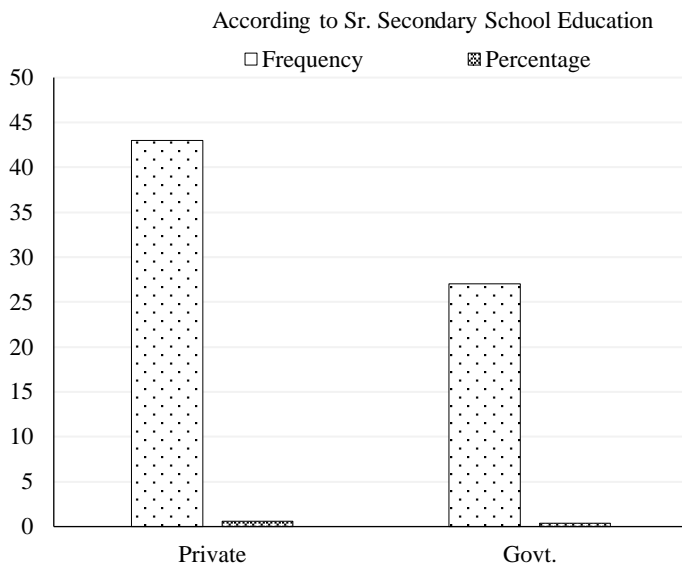
**Table 7.** Frequency and percentage distribution of subjects according to school of education.

Education of the Students f %		
Private	43	61.4%
Govt.	27	38.6%

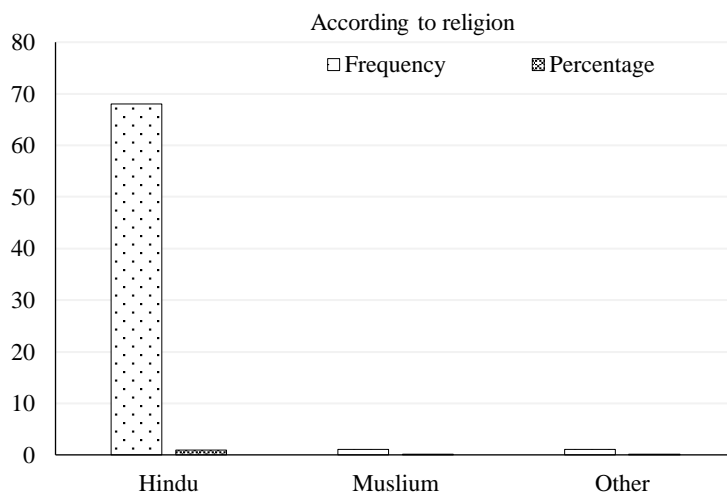
**Table 8.** Frequency and percentage distribution of subjects according to religion of the student.

Religion of the Student f %		
Hindu	68	97.1%
Muslim	1	1.42%
Others	1	1.42%

**Figure 2.** Distribution of sample according to marital status.



**Figure 3.** Distributions of sample according to Sr. secondary school education.



**Figure 4.** Distributions of sample according to religion.

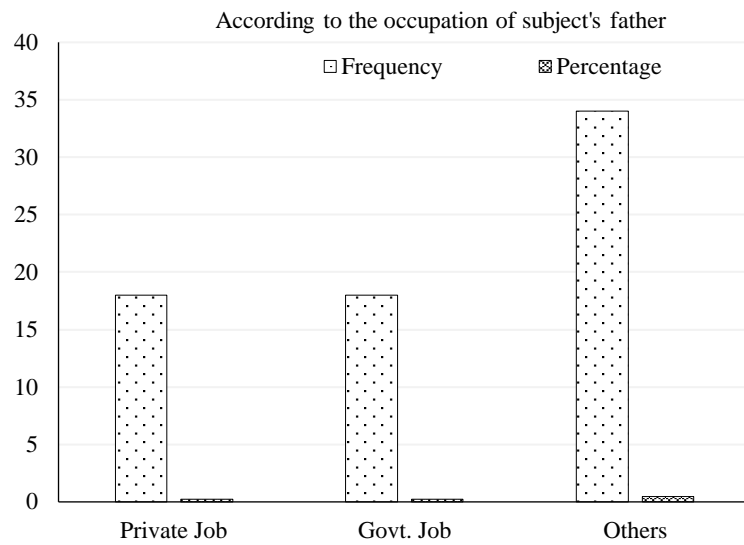
Table 9 and Figure 5 show that majority 34(48.5%) were neither government employees nor private sector employees or were from others category. Those who were in govt jobs were 18(25.7%). Same 18(25.7%) were having private jobs.

Table 10 and Figure 6 show that majority 57(81.4%) source of knowledge was from the Internet and rest were from Television 6(8.5%) and 7(10%) from newspaper.

Table 11 and Figure 7 depict that majority of sample 37(52.8%) belong to rural area and the rest were from urban area 33(47.1%).

**Table 9.** Frequency and percentage distribution of subjects according to occupation of father.

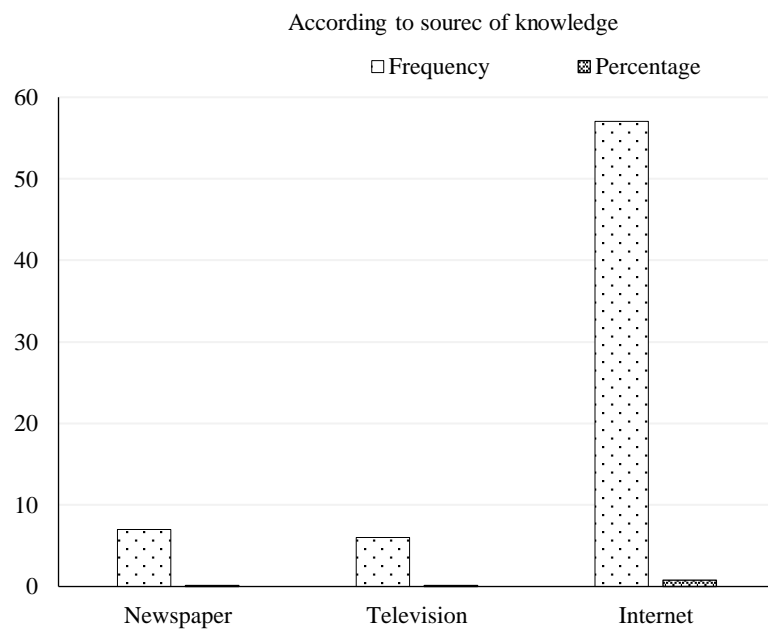
Occupation of the Father f %		
Private job	18	25.7%
Govt. job	18	25.7%
Others	34	48.5%



**Figure 5.** Distribution of sample according to the occupation of subject’s father.

**Table 10.** Frequency and percentage distribution of subjects according to source of knowledge.

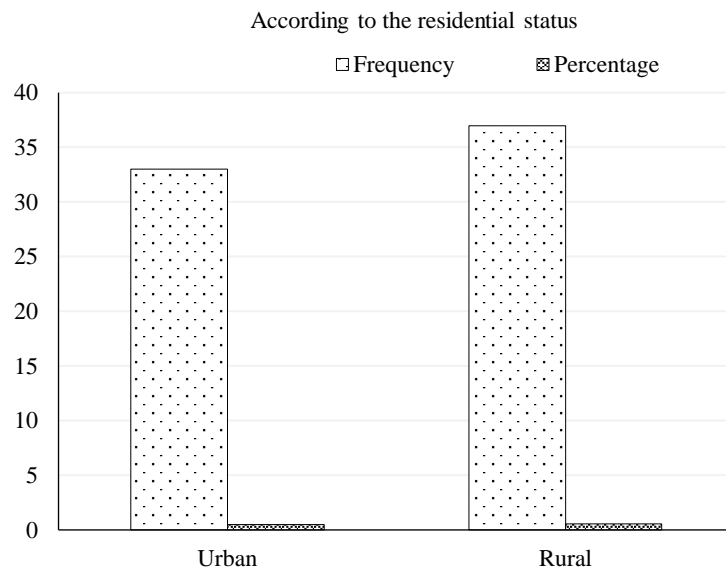
Source of Knowledge f %		
Newspaper	7	10%
Television	6	8.5%
Internet	57	81.4%



**Figure 6.** Distribution of sample according to the source of knowledge.

**Table 11.** Frequency and percentage distribution of subjects according to residential status.

Residential Status f %		
Urban	33	47.14%
Rural	37	52.85%



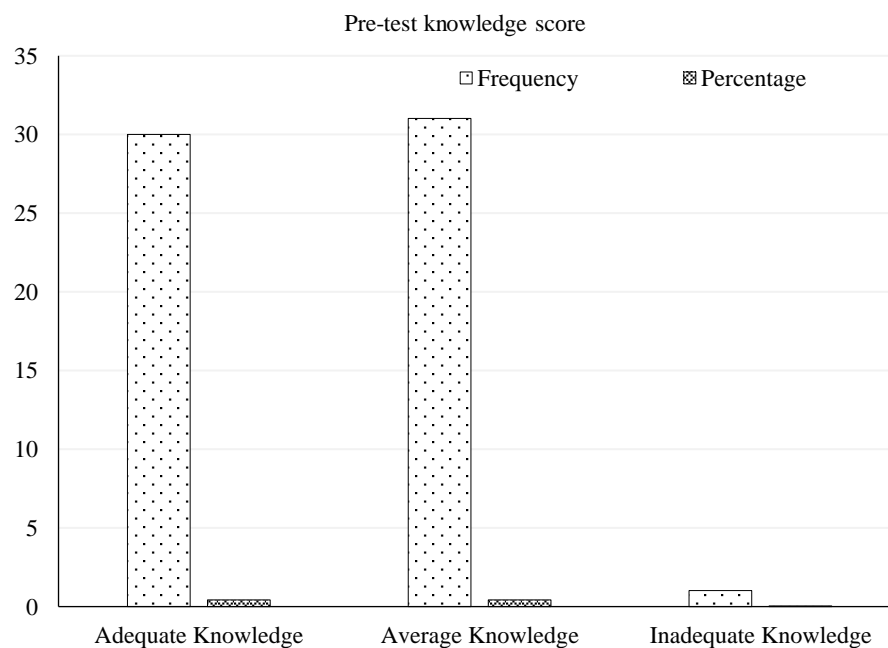
**Figure 7.** Distribution of sample according to the residential status.

**Section-B: Analysis of Pre-test and Post-test**

Table 12 shows that majority of the subjects 31(55.71%) were having average knowledge. 30(42.85%) subjects had adequate knowledge and only 1% had inadequate knowledge (Figure 8).

**Table 12.** Frequency and percentage distribution of subjects according to Pre-test knowledge (N=70).

Pre-test Level of Knowledge		
	<i>Frequency</i>	<i>Percentage</i>
Adequate knowledge	30	42.85
Average knowledge	31	44.28
Inadequate knowledge	09	12.8

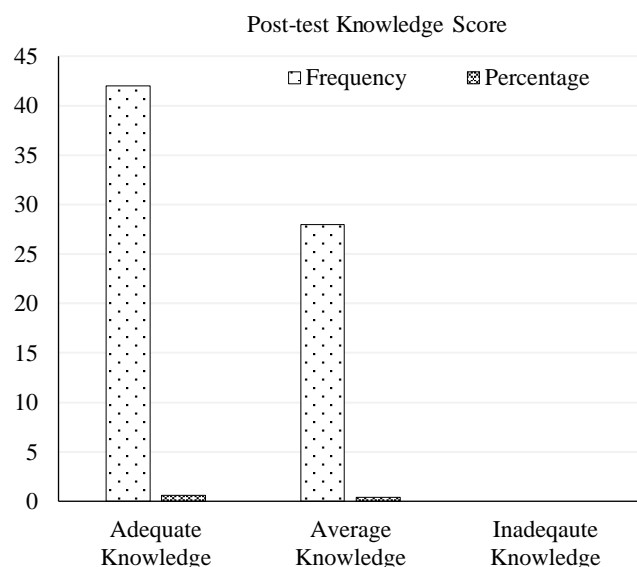


**Figure 8.** Distribution of sample according to the pre-test knowledge score.

Table 13 indicates that the majority of the participants, 42(60%), possessed sufficient knowledge. 28(40%) had average and no one had inadequate knowledge (Figure 9).

**Table 13.** Frequency and percentage distribution of subjects according to post-test knowledge (N=70).

Post-test Score of Knowledge		
	<i>Frequency</i>	<i>Percentage</i>
Adequate Knowledge	42	60
Average Knowledge	28	40
Inadequate Knowledge	00	00



**Figure 9.** Distribution of sample according to the post-test knowledge score.

Table 14 provides an overview of the descriptive statistics for the knowledge scores of the participants both before and after the intervention. Pre-test knowledge range score was 13 (Maximum score was 20 and minimum score was 07). Mean score is 15.68, SD+2.8003. Regarding post-test knowledge, the range score was 12 (Maximum score was 22 and minimum score was 10). Mean score was 17.01, SD+2.76.

**Table 14.** Descriptive statistics showing Pre-test and Post-test knowledge scores range mean, standard deviation (N=70).

Descriptive Statistics of Knowledge Scores					
	<i>Range</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
Pre-test knowledge	13	07	20	15.68	2.8003
Post-test knowledge	12	10	22	17.01	2.76

Table 15 shows the descriptive statistics of the subject’s knowledge score during pre and post-test.

- According to table of pre-test attitude, the range score was 11 (Maximum score was 14 and minimum score was 03). Mean score is 8.74, S.D+2.41.
- According to table of post-test attitude, the range score was 10 (Maximum score was 13 and minimum score was 03). Mean score was 9.21, S.D+2.308.

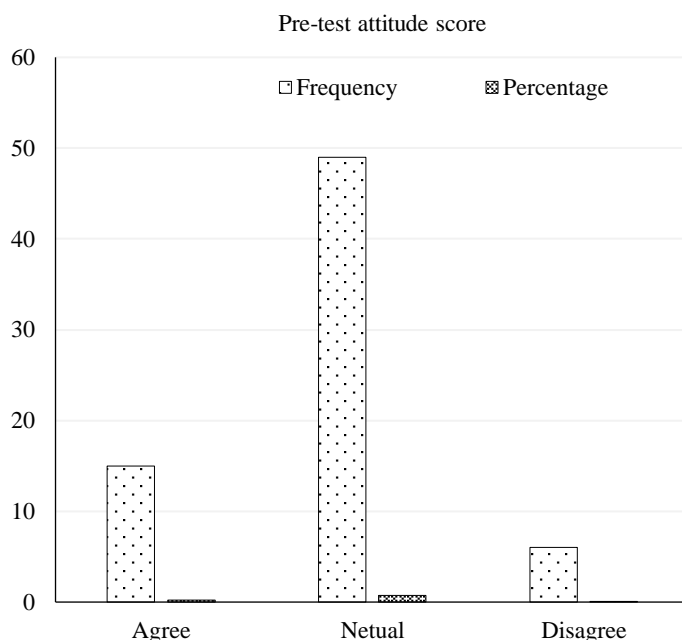
Table 16 shows majority of the subjects 49(70%) were having neutral and 15(21.42%) subjects were agreed. 06(8.57%) subjects disagreed (Figure 10).

**Table 15.** Descriptive statistics showing Pre-test and Post-test attitude scores range (Minimum and Maximum Scores), mean and standard deviation (N=70).

Descriptive Statistics of Attitude Scores					
	Range	Minimum	Maximum	Mean	Std. Deviation
Pre-test attitude	11	03	14	8.74	2.41
Post-test attitude	10	03	13	9.21	2.308

**Table 16.** Frequency and percentage distribution of subjects according to pre-test attitude (N=70).

Pre-test level of attitude		
	Frequency	Percentage
Agree	15	21.42
Neutral	49	70
Disagree	06	8.57



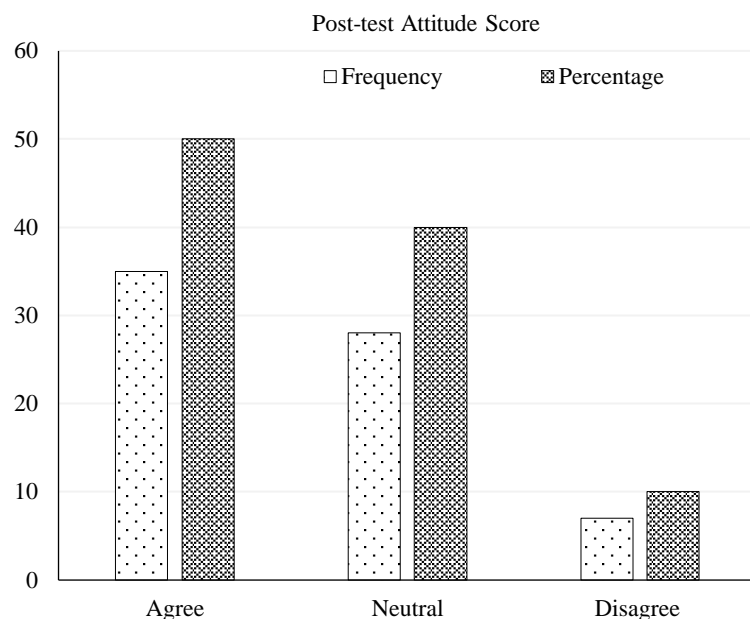
**Figure 10.** Distribution of sample according to the pre-test attitude score.

**Table 16.** Frequency and percentage distribution of subjects according to post-test attitude (N=70).

Post-test Level of Attitude		
	Frequency	Percentage
Agree	35	50
Neutral	28	40
Disagree	07	10

Table 17 shows that majority of the subjects 35(50%) agreed and 28(40%) subjects were having neutral attitude. 07(10%) subjects disagreed (Figure 11).

Table 18 shows that post- test knowledge mean score was 17.01,  $SD\pm 2.76$ . Similarly, the post-test attitude mean score was 9.21,  $SD\pm 2.308$ . The Karl Pearson correlation coefficient was 0.015. It demonstrates a favourable correlation between the knowledge and attitude of the participants.



**Figure 11.** Distribution of sample according to the post-test attitude score.

**Table 18.** Table shows the correlation between the post-test knowledge and attitude regarding organ donation among 2nd year nursing students (N = 70).

Post-test	Mean	S.D	Karl Pearson correlation coefficient value	Type of result
Knowledge	17.01	2.76	0.015	Positive correlation
Attitude	9.21	2.308		

**Section-C: Effectiveness of STP on Organ Donation in Terms of Knowledge and Attitude Among Nursing Students**

Tables 19 and 20 show that the mean post-test knowledge (17.01) and attitude (9.21) was higher than the mean pre-test knowledge (15.68) and attitude (8.74). The calculated 't' value was found to be greater than the critical table value of 't' at a significance level of 0.05. Therefore, the null hypothesis was rejected and the research hypothesis was accepted, indicating a statistically significant difference between the mean scores of pre- and post-tests in terms of knowledge and attitude. This suggests that the structured teaching program (STP) successfully enhanced the knowledge and attitude of nursing students concerning organ donation.

**Table 19.** Table shows Mean, median difference, standard deviation, and 't' value of pre and post-test knowledge score regarding organ donation among nursing students (N=70).

Paired T test	Mean	S.D	Mean Diff.	Paired T test	P-value	Table value at 0.05
Pre knowledge	15.68	2.8003	1.33	-2.842 Df(69)	0.006	1.98
Post knowledge	17.01	2.768				

**Table 20.** Table shows Mean, median, standard deviation, and 't' test value of pre and post-test attitude score regarding organ donation among nursing students (N=70).

Paired T test	Mean	S.D	Mean Diff.	Paired T test	P-value	Table value at 0.05
Pre-test Attitude	8.75	2.41	0.47	-1.197 Df(69)	0.235	1.98
Post-test Attitude	9.21	2.308				

**Section-D: Association of Post-test Knowledge and Attitude Score with Selected Socio-demographic Variables**

Table 21 reveals that:

1. The chi-square value (1.049) calculated in the study is less than the tabulated chi-square value (3.84) at 0.05 level of significance with 1 degree of freedom. This indicates that the structured teaching program (STP) was successful in enhancing the knowledge and attitude of nursing students regarding organ donation.
2. The calculated chi-square value (0.929) is lower than the tabulated chi-square value (3.84) at 0.05 level of significance with 1 degree of freedom. Thus, the null hypothesis is supported, indicating that there is no substantial correlation between the participants' knowledge level and their marital status in the sample.
3. The calculated chi-square value (2.572) is lower than the tabulated chi-square value (3.84) at 0.05 level of significance with 1 degree of freedom. As a result, the null hypothesis is embraced, signifying that there is no notable connection between the knowledge level of the participants in the sample and their secondary education.
4. The chi-square value calculated (1.373) is less than the tabulated chi-square value (5.99) at a significance level of 0.05, with 2 degrees of freedom. Hence, the null hypothesis is affirmed, suggesting that there is no notable correlation between the knowledge level and the religious affiliation of the sampled students.
5. The calculated chi-square value (7.255) is greater than the tabulated chi-square value (5.99) at a significance level of 0.05, with 2 degrees of freedom. Thus, the null hypothesis is dismissed, revealing a noteworthy correlation between the knowledge level and the occupation of the fathers of the sampled students.
6. The calculated chi-square value (2.221) is less than the tabulated chi-square value (5.99) at a significance level of 0.05, with 2 degrees of freedom. As a result, the null hypothesis is acknowledged, suggesting that there is no significant correlation between the knowledge level and the source of knowledge among the sampled individuals.
7. The calculated chi-square value (3.449) is less than the tabulated chi-square value (3.84) at a significance level of 0.05, with 1 degree of freedom. Therefore, the null hypothesis is embraced, signifying that there is no notable correlation between the knowledge level and the residential status of the sampled individuals.

**Table 21.** Depicts the association of post-test knowledge level score with selected socio-demographic variables of 2nd year nursing students regarding organ donation.

Variables	Option	n	Average	Adequate	Chi-value	df	P-value	Table value	Result
Age (years)	17–19	17	5	12	1.049	1	0.232	3.84	NS
	20–22	53	23	30					
Marital status	Married	3	2	1	0.929	1	0.350	3.84	NS
	unmarried	67	26	41					
Secondary education	Private	43	14	29	2.572	1	0.088	3.84	NS
	Govt.	27	14	13					
Religion of student	Hindu	68	28	40	1.373	2	0.353	5.99	NS
	Muslim	1	0	1					
	Other	1	0	1					
Occupation of father	Private	18	12	6	7.55	2	0.027	5.99	S
	Govt.	18	6	12					
	Other	34	10	24					
Source of knowledge	Newspaper	7	4	3	2.221	2	0.306	5.99	NS
	Television	6	1	5					
	Internet	57	23	34					
Residential status	Urban	33	17	16	3.449	1	0.053	3.84	NS
	Rural	37	11	26					

Table 22 reveals that:

1. The chi-square value calculated as 0.233 is less than the tabulated chi-square value of 5.99 at a 0.05 significance level with 2 degrees of freedom. Thus, the null hypothesis is affirmed, indicating that there is no noteworthy correlation between the attitude level and the age of the individuals in the sample.
2. The calculated chi-square value of 1.915 is smaller than the tabulated chi-square value of 5.99 at a significance level of 0.05 and with 2 degrees of freedom. Hence, the null hypothesis is accepted, suggesting that there is no significant association between the attitude level and the marital status of the individuals in the sample.
3. The calculated chi-square value of 0.181 is smaller than the tabulated chi-square value of 5.99 at a significance level of 0.05 and with 2 degrees of freedom. Therefore, it can be concluded that the null hypothesis is supported, signifying that there is no noteworthy correlation between the attitude level and the secondary education of the sample.
4. The calculated chi-square value (3.088) is lower than that the tabulated chi-square value (9.49) at df (4) and 0.05 level of significance. So, null hypothesis is accepted. This demonstrates that there is no significant connection between the attitude level and the religious beliefs of the students in the sample.
5. The calculated chi-square value (1.382) is lower than the tabulated chi-square value (9.49) at df (4) and 0.05 level of significance. So, null hypothesis is accepted. It proves that there is no significant association between attitude level and occupation of the father of sample.
6. The calculated chi-square value (6.155) is less than the tabulated chi-square value (9.49) at 4 degrees of freedom and 0.05 level of significance. Therefore, the null hypothesis is acknowledged, indicating that there is no significant association between the attitude level and the source of knowledge among the sample.
7. The calculated chi-square value (1.892) is less than the tabulated chi-square value (5.99) at 2 degrees of freedom and 0.05 level of significance. Thus, the null hypothesis is embraced, indicating that there is no notable correlation between the attitude level and the residential status of the sample.

**Table 22.** Depicts the association of post-test attitude level score with selected socio-demographic variables of 2nd year nursing students regarding organ donation (N=70).

Variables	Option	n	Agree	Neutral	Disagree	Chi-value	df	P-value	Table value	Result
Age (years)	17–19	17	6	9	2	0.233	2	0.890	5.99	NS
	20–22	53	22	26	5					
Marital status	Married	3	1	1	1	1.915	2	0.384	5.99	NS
	unmarried	67	27	34	6					
Secondary education	Private	43	18	21	4	0.181	2	0.913	5.99	NS
	Govt.	27	10	14	3					
Religion of student	Hindu	68	26	35	7	3.088	4	0.440	9.49	NS
	Muslim	1	1	0	0					
	Other	1	1	0	0					
Occupation of father	Private	18	6	10	2	1.382	4	0.845	9.49	NS
	Govt.	18	9	7	2					
	Other	34	13	18	3					
Source of knowledge	Newspaper	7	5	2	0	6.155	4	0.124	9.49	NS
	Television	6	1	5	0					
	Internet	57	22	28	7					
Residential status	Urban	33	16	16	5	1.892	2	0.381	5.99	NS
	Rural	37	12	19	2					

## DISCUSSION

In this section, the study's outcomes are examined within the context of its goals. The aim of the research was to assess how effective a planned teaching program was in improving the knowledge and attitude towards organ donation among BSc nursing 2nd year students at the College of Nursing, PGIMS Rohtak [11, 12]. The findings are discussed under following sections:

### Section A: Description of Sample Characteristics

1. Among 70 subjects, majority of the subjects 53(75.7%) were in age between 20 and 22 years.
2. Marital status of the subjects reveals majority of them 67(95.7%) were unmarried.
3. Secondary education of the subjects depicts majority 43(61.4%) were in private.
4. Religion of the subjects an overwhelming majority of the subjects 68(97.14%) were Hindus.
5. Occupation of the father of the study subjects shows that majority 34(48.57%) were non-government employees.
6. Source of knowledge of the study subjects reveals majority of 57(81.4%) from internet.
7. Residential status of the subjects shows that majority 37(52.8%) were living in rural area.

### Section B: Knowledge and Attitude Score of the Subjects Regarding Organ Donation Among BSc Nursing 2nd year Students

1. In the pre-test, a majority of the participants, constituting 55.7% or 39 subjects, demonstrated an average level of knowledge. Adequate knowledge was evident in 42.85% (30 subjects), while only one subject displayed insufficient knowledge.
2. In the pre-test, the majority of the subjects, specifically 49(70%), displayed a neutral attitude. Subjects with an agreeable attitude accounted for 15 individuals (21.42%).
3. In post level of knowledge, majority of the subjects 42(60%) were having adequate knowledge. Subjects who were with average knowledge were 28(40%).
4. In post-level of attitude, majority of the subjects 35(50%) were having agreed attitude. 28(40%) Subjects who were with neutral attitude and 7(10%) had disagree attitude.

### Section C: Effectiveness of Structured Teaching Program Regarding Organ Donation in Terms of Knowledge and Attitude

To achieve the second objective of this study, effectiveness of STP on organ donation in terms of knowledge and attitude.

In comparing the pre-test and post-test knowledge and attitude scores of nursing students regarding organ donation, several key findings were discovered:

1. The post-test knowledge score mean, measuring at 17.01, was notably greater than the mean pre-test knowledge score of 15.6, with a mean difference of 1.33. The computed t-value of 2.842 signifies statistical significance, suggesting that the structured teaching program successfully heightened the knowledge of nursing students.
2. The mean post-test attitude score (9.21) was also significantly higher than the mean pre-test attitude score (8.74), with a mean difference of 0.47. The calculated t-value of 1.197 shows that the difference is statistically significant, demonstrating that the structured teaching program was effective in improving the attitude of nursing students towards organ donation.
3. In the post-test, the average knowledge score was 17.01 with a standard deviation of 2.76. Likewise, the attitude mean score in the post-test was 9.21, accompanied by a standard deviation of 2.30. The Karl Person correlation coefficient score was 0.015, which shows positive correlation between knowledge and attitude among the subjects.

Hence, the *hypothesis H<sub>2</sub>* stated earlier that: “There will be a significant effectiveness of planned teaching programmed in improving the knowledge and attitude regarding organ donation among BSc nursing 2nd year students” is accepted [13, 14].

### Section D: Association of Knowledge and Attitude of BSc Nursing 2nd Year Students PGIMS Rohtak with Selected Socio Demographic Variables

The third objective of the study was to explore the correlation between knowledge and attitude scores and certain demographic variables.

1. The Chi-square test results between post-test knowledge scores and the chosen demographic variables revealed that there was no significant association between knowledge scores and most of the selected variables except for the "occupation of the father" variable which showed a significant association (chi-value =7.25) at a 0.05 level of significance.
2. The Chi-square test results between post-test attitude scores and the selected demographic variables showed that there was no significant association between attitude scores and the chosen variables.

Hence the *hypothesis H<sub>03</sub>* stated earlier that: "There will not be a significant association between the knowledge score and attitude score with their selected demographic variables" is *accepted* except occupation of the father (in knowledge).

### CONCLUSION

The main aim of the research was to assess how effective a structured teaching program was in enhancing the knowledge and attitude of nursing students towards organ donation at the College of Nursing, PGIMS Rohtak.

Based on the analysis of the findings, following inferences were drawn:

- Majority 53(75.7%) were in age group of 20–22 years.
- Majority 67(95.7%) of sample were unmarried.
- Majority 43(61.4%) of sample had private secondary education.
- Majority 68(97.1%) of sample belonged Hindu religion.
- Majority 34(48.5%) of sample related to other occupation of the father.
- Majority 57(81.4%) of sample were having exposure to internet.
- Majority 37(52.8%) of sample were from rural area.

In pre-test, 55.7% of students had average knowledge and 42.8% subjects had adequate knowledge. Only one had inadequate knowledge and 70% had neutral attitude and 21.4% had positive (agree) attitude.

But after introducing the structured teaching program, according to the post-test knowledge score, 60% were having adequate knowledge and 40% were having average knowledge; and according to post-test attitude score, 40% were having positive (agree) attitude. Hence, the scheduled teaching program was deemed successful.

Among the socio demographic variables, age (chi-value =1.049,  $p < 0.05$ ), the marital status (chi-value =0.929,  $p < 0.05$ ), secondary education (chi-value =2.572,  $p < 0.05$ ), the religion of the students (chi-value =1.373,  $p < 0.05$ ), source of the knowledge (chi-value =2.221,  $p < 0.05$ ), residential status (chi-value =3.449,  $p < 0.05$ ), are found to have no impact on the level of the knowledge as per the chi-square test result except occupation of the father.

Among the sociodemographic variables, age (chi-value =0.233,  $p < 0.05$ ), the marital status (chi-value =1.915,  $p < 0.05$ ), secondary education (chi-value =0.181,  $p < 0.05$ ), the religion of the students (chi-value =3.088,  $p < 0.05$ ), source of the knowledge (chi-value =6.155,  $p < 0.05$ ), residential status (chi-value =1.892,  $p < 0.05$ ), occupation of the father (chi-value =1.382,  $p < 0.05$ ) are found to have no impact on the level of the attitude as per the chi-square test result. *H<sub>3</sub>* states that there will be a significant association between the knowledge score and attitude score with their selected demographic variables, is rejected except occupation of the father (in knowledge).

## **NURSING IMPLICATIONS**

The findings of the study have several implications which are discussed in the following areas:

### **Nursing Education**

Nurses should receive education that provides them with the required knowledge to serve as health educators. Health education plays a significant role in enhancing knowledge and influencing behaviour among the general population, particularly among adults today. In-service education should be provided to nursing staff to keep them updated and improve their knowledge and attitude towards organ donation.

### **Nursing Practice**

Nurses working in the community and hospital play a vital role in spreading health awareness. Planned health education program by health professional should be made an ongoing process in community and hospital.

### **Nursing Administration**

The study findings can be used by various professional and non-professional staff to plan new policies. Nursing administrators can conduct continuing education programs on improving knowledge and attitude regarding organ donation and can motivate nurses to conduct educational programmes in community.

### **Nursing Research**

Research in nursing is essential for expanding the existing knowledge base. The outcomes of this study lay the groundwork for professionals and students to embark on further research. This study may inspire others to replicate it on a larger scale, and it can serve as a point of reference for future research scholars.

## **RECOMMENDATIONS**

On the basis of findings of the study, following recommendations have been made for further study;

1. The findings could be extended by replicating a similar study on a larger sample size for generalization.
2. An investigation comparing rural and urban nursing students could provide valuable insights.
3. A detailed examination of knowledge and attitude about organ donation among 2nd-year nursing students could be undertaken.
4. To gauge knowledge and attitude on organ donation, a structured teaching program may be developed and implemented.
5. Replicating a similar study in different settings could enhance the comprehensiveness of the research.
6. Effectiveness of a structured teaching program on the same topics could be assessed through a comparative study.
7. A descriptive analysis could be conducted to compare the knowledge and attitude regarding organ donation between nursing and non-nursing students.
8. Exploring barriers to organ donation could be the focus of an exploratory study.

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