IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

TO ASSESS THE EFFECT OF AWARENESS ON KNOWLEDGE AND ATTITUDE TOWARDS ORGAN DONATION AMONG UNDERGRADUATE NURSING STUDENTS.

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Abstract

Introduction: Organ donation is the practise of harvesting a person's organs after he or she has died in order to transplant them into another person. The procedure of medically taking an organ or tissue from one person (donor) and implanting it into another person is known as organ donation (OD) (recipient).

Objectives: To assess the effect of awareness on knowledge and attitude towards organ donation among undergraduate nursing students.

Methodology: Quantitative approach with quasi experimental design was used & samples were final year B.Sc. nursing students selected through non-probability convenient sampling. Data has collected through structured questionnaire to assess knowledge, Likert scale to assess attitude. Pilot study followed by actual data collection was done & analyzed using descriptive & inferential statistics.

Result: Statistical analysis shows that the pre-test mean knowledge score is 7.6 whereas the mean score is 11.76. Paired t test gives t values 0.05 that has high level of significant as p=<0.05. The mean difference in pertest & postest knowledge mean score was 4.16 in the experimental group whereas in control group was 0.88. Paired t test indicates that the difference in the mean score of experimental groups was statically significant than the control group with the p value i.e. p <0.05 in the experimental group.

Significant difference in the attitude mean score of both the groups i.e., for positive attitude 10.6 in experimental group & 0.32 in the control group. Also, for negative attitude mean score 11.48 in experimental group & 0.88 in control group. A greater difference in mean score was observed in the experimental group. Paired t test indicates that difference in the mean score of experimental groups was statistically significant than the control group with p value that is p=0.05 is experimental group.

For Positive attitude, in experimental group, 6(24%) students had favorable attitude & 14(56%) had Neutral attitude & 5(20%) students had unfavorable attitude during pretest whereas 24(96%) students had favorable attitude & 1(4%) had Neutral attitude during post test towards Organ donation. In Control group, 7(28%) students had favorable attitude & 8(32%) had Neutral attitude & 10(40%) students had unfavorable attitude during pretest whereas 8(32%) students had favorable attitude & 7(28%) had Neutral attitude &10(40%) had unfavorable attitude towards Organ donation during post test towards Organ donation.

for Negative attitude, in experimental group 7(28%) students had favorable attitude & 13(52%) had Neutral attitude & 5(20%) students had unfavorable attitude during pretest in experimental group whereas 25(100%) students had favorable attitude during post-test in towards Organ donation. Whereas in Control group, 4(16%) students had favorable attitude & 13(52%) had Neutral attitude & 8(32%) students had unfavorable attitude during pretest whereas 4(16%) students had favorable attitude & 15(60%) had Neutral attitude& 6(24%) students had unfavorable attitude during post-test towards Organ donation.

Hence awareness was more effective in improving knowledge and attitude towards organ donation.

Discussion: Findings revealed that awareness is effective in improving knowledge and attitude towards organ donation.

Key words: Awareness, Knowledge, Attitude, Organ donation, Final year B. Sc Nursing students.

I. Introduction

Organ donation is the practise of harvesting a person's organs after he or she has died in order to transplant them into another person. The procedure of medically taking an organ or tissue from one person (donor) and implanting it into another person is known as organ donation (OD) (recipient). Organ failure is responsible for almost one lakh fatalities in India each year. Because the youth make up the majority of the population, raising awareness and teaching them about many aspects of OD can help to alleviate the shortage of donor organs. Organ transplantation is the most common treatment for many end-stage organ disorders because it extends life. Organ donation enhances quality of life in various situations (for example, in addition to long-term survival benefits))[90]

The harvesting of an individual's organs is known as organ donation. Kidney, heart, liver, pancreas, intestines, lungs, bones, bone marrow, skin, and cornea transplants are all common after organ donations. Although some organs, such as the kidney, and tissues, such as a portion of the liver, pancreas, lungs, and intestines, can be donated while the donor is alive, the bulk of organs and tissues are donated after death..[93]

In 2015, India performed 7715 solid organ transplants, equating to a rate of 5.9 donations per million people, lagging well behind the global trend. With a population of 1.3 billion people, India is unquestionably lagging behind in terms of dead organ donation, with a rate of 1 per million people. The rate of dead organ donation in Tamil Nadu, a southern Indian state, was higher (1.3 per million population) than the national average (0.05–0.08 per million population). Although India is second only to the United States in terms of live donor transplants, it is absent from the list of deceased donor transplants..[91]

Living organ donation (LOD) is becoming more popular in Europe as a viable solution to the organ scarcity. An online poll on living kidney donation (LKD) and living liver donation (LLD) was sent to transplant professionals from 331 European renal and liver transplant clinics (LLD). There were 113 kidney transplant facilities from 40 countries and 39 liver transplant centres from 24 countries that answered to the survey. The list of deceased donor transplantation was finished by 96.5 percent and 71.8 percent, respectively..[94]

Tamil Nadu has been at the forefront of medical care in the country. It was the first state in the country that started a living kidney transplant program. It is also the first state to successfully start the cadaver programme after the passing of the "Transplantation of Human Organ Act" of 1994 and in the last 5 years has formed a network between hospitals for organ sharing. From the year 2000 to 2006 an organ sharing network was started in Tamil Nadu and the facilitator of this programme has been a non-government organization called MOHAN (acronym for Multi Organ Harvesting Aid Network) Foundation. The organs shared during the period number over 460 organs in two regions (both Tamil Nadu and Hyderabad). In Tamil Nadu the shared organs have included 166 Kidneys, 24 livers, 6 hearts, and 180 eyes.

India is currently having a deceased donation rate of 0.05–0.08 per million population. The National Organ and Tissue Transplant Programme have planned strategies to improve organ donation by creating awareness and capacity building. There is great need to assess the knowledge regarding organ donation among general population.

India is struggling with acute shortage of organs for transplantation. It is estimated that more than a million people suffer with end stage organ failure, but only a handful of 3500 transplants are performed annually. At least 15 patients die every day waiting for organs and every 10 minute a new name is added to this waiting list.

One brain dead donor can save up to eight lives of people suffering from end-stage organ failures. Donation affects more than donors and recipients. It also affects the families, friends, colleagues, and acquaintances who love and support those in need of transplantation, and who benefit from their renewed life and improved health after transplant.

All over the world people on organ transplant waiting lists die due to shortage of donor organs. The success of organ donation program needs education of the population regarding organ donation for which healthcare professionals are most suitable.

Awareness on organ donation is therefore the only way out of this depressing scenario. The more potential donors there are, the more the likelihood of organs becoming available to save live.

Study done to check the availability of donor organs can be improved by increasing awareness and resolving organ donation misconceptions among the general population. It can be assumed that healthcare workers are most aware of the value of organ donation. They are also able to influence the willingness of the general population to donate organs after death or sign up for an organ donor card. The knowledge and attitudes of current and future healthcare professionals regarding this subject have neither been evaluated nor considered a topic of priority in the existing Indian medical education program. About 29.9% of doctors and 49.8% of students knew about the law governing organ donation. The concept of brain death was entirely understood by only 31.7% of doctors and 14.7% of students. Only 16% of doctors and 3.2% of students had filled an organ donor card.

Objective

1. To assess the knowledge& attitude towards Organ donation among undergraduate nursing students before and after awareness in the experimental and control group.

❖ **Population and sample**

- **Population:** Final year BSc nursing students.
- **Sample: 50** final year B.Sc. nursing students who fulfil the inclusion criteria.

❖ **Data and Source of data**

Primary data collection done, data collected in systematic manner using structured questionnaire and Likert Scale from final year B.Sc. Nursing students.

Data collection done from 16/02/2022 to 22/02/2022.

I. Conceptual framework

The conceptual framework for this study was based on J.W. KENNY'S open system model. According to Kenny, all the living system are open and they are in continuous exchange of matters, energy and information.

The system receives input and gives back output in the form of information or knowledge System model consist of 3 phases input, throughput and output. These 3 phases are also known as classical element of the system.

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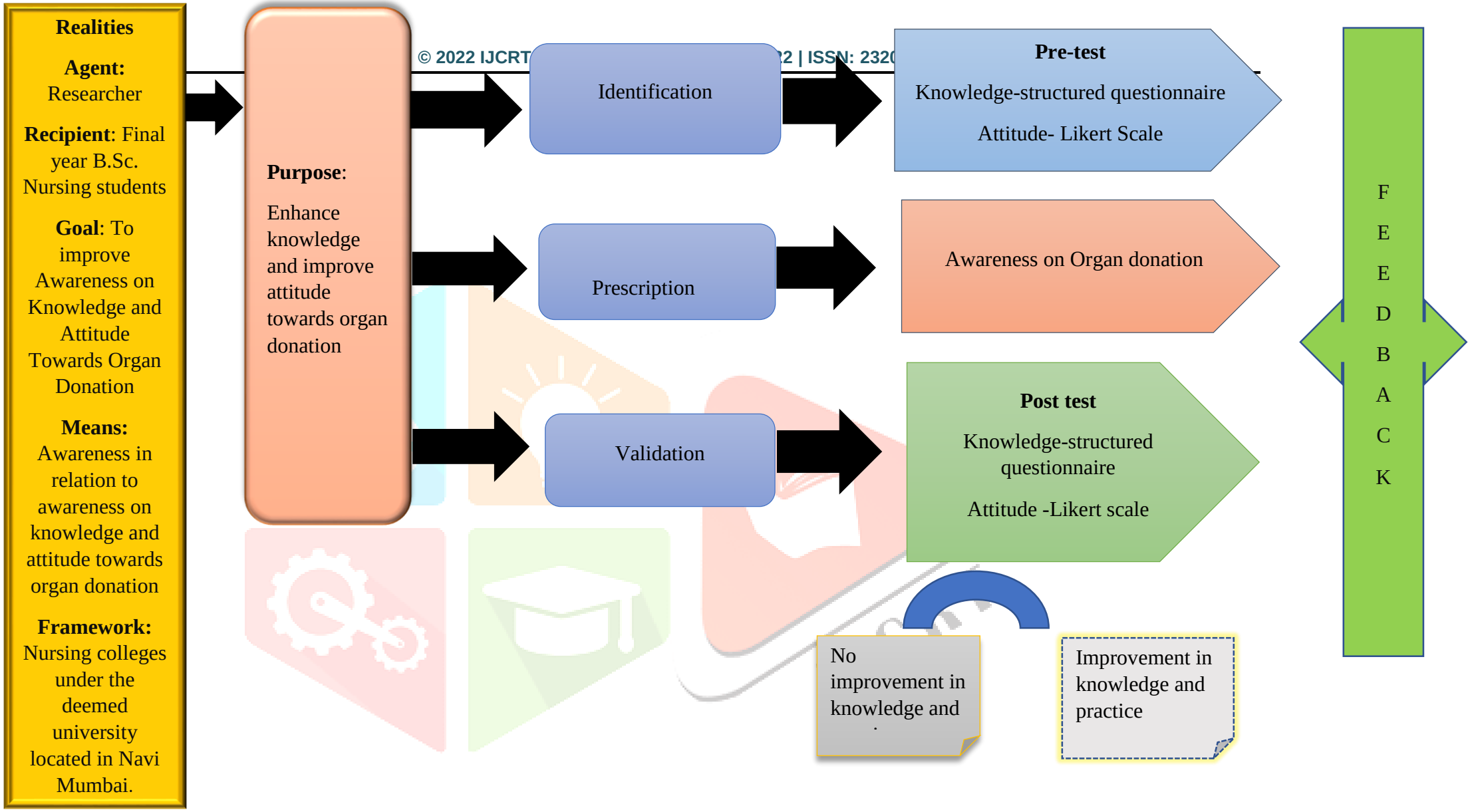

Figure1: Conceptual Framework

II. Statistical tool

Statistical analysis of effect of awareness on knowledge and attitude towards Organ donation among undergraduate nursing students was carried out to find the significant difference between those values. Analysis of the data was done by using descriptive and inferential statistics both.

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data.

Descriptive statistics are typically distinguished from inferential statistics. With descriptive statistics you are simply describing what is or what the data shows. With inferential statistics, you are trying to reach conclusions that extend beyond the immediate data alone. For instance, we use inferential statistics to try to infer from the sample data what the population might think. Or, we use inferential statistics to make judgments of the probability that an observed difference between groups is a dependable one or one that might have happened by chance in this study. Thus, we use inferential statistics to make inferences from our data to more general conditions; we use descriptive statistics simply to describe what's going on in our data. The software used in the analysis were SPSS 24.0 and Graph Pad Prism 7.0 version and $p<0.05$ is considered as level of significance.

The statistical tests used for the analysis of the result were:

1. Students paired t test
2. Students unpaired t test
3. Pearson' Correlation Coefficient
4. Reliability Analysis

Descriptive Statistics :

1. **Arithmetic Mean** :The arithmetic mean, or average, is the sum of the values divided by the number of values.

Formula:

$$\overline{X} = \frac{\sum_{i=1}^{n} X_i}{n}$$

Where:

$\overline{X}$ = Sample arithmetic mean

n = Sample size

X_i = i^{th} Observation of the random variable X

$\sum_{i=1}^{n} X_i$ = Summation of all the X_i values in the sample

2. Standard Deviation (SD) =

$$\sqrt{\frac{\Sigma(X - \overline{X})^2}{(n - 1)}}$$

where:

X = each score
$\overline{X}$ = the mean or average
n = the number of values
Σ means we sum across the values

3. Mean percentage=Total Score/no of questions

4. Max/Min = Maximum/Minimum value of knowledge and attitude score

<u>Inferential Statistics</u> :

1.Students unpaired t test

Assumption:

1. The samples (n_1 and n_2) from two normal populations are independent.
2. One or both sample sizes are less than 30
3. The appropriate sampling distribution of the test statistic is the t distribution
4. The unknown variances of the two populations are not equal

To compute the two-sample t-test two major computations are needed before computing the t-test. First, you need to estimate the pooled standard deviation of the two samples. The pooled standard deviation gives an weighted average of the standard deviations of the two samples. The ***pooled standard deviation*** is going to be between the two standard deviations, with greater weight given to the standard deviation from a larger sample. The equation for the pooled standard deviation is:

$$S_P = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

In all work with two-sample t-test the degrees of freedom or df is:

$$df = n_1 + n_2 - 2$$

The formula for the two sample t-test is:

$$T = \frac{\overline{X} - \overline{Y}}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

2.Student's paired t test

Any statistical test that uses the t-distribution can be called a t-test. One of the most common is Student's t-test, named after "Student," the pseudonym that William Gosset used to hide his employment by the Guinness brewery in the early 1900s (they didn't want their competitors to know that they were making better beer with statistics). Student's t-test is used to compare the means of two samples. Other t-tests include tests to compare a single observation to a sample, or to compare a sample mean to a theoretical mean, and the paired t-test.

When to use it

This *t*-test compares one set of measurements with a second set from the same sample. It is often used to compare "post" and "post" scores in experiments to determine whether significant change has occurred.

Formula - t_{obs}

$$t_{obs} = \frac{\bar{d}}{s_{\bar{d}}}, \quad \bar{d} = \frac{\sum_{j=1}^{n} d_j}{n} = \frac{\sum_{j=1}^{n} (X_{1,j} - X_{2,j})}{n}$$

$$s_{\bar{d}} = \frac{s_d}{\sqrt{n}} = \sqrt{\frac{s_d^2}{n}} = \sqrt{\frac{SS_d}{n-1}} = \sqrt{\frac{\sum_{j=1}^{n} (d_j - \bar{d})^2}{n-1}}$$

$j = jth \ \ pair \ \ of \ \ values \ \ from \ \ samples \ \ 1 \ (X_1), \ 2 \ (X_2)$

$n = number \ \ of \ \ pairs \ \ of \ \ values$

3.Reliability Analysis

Parallel Form Method :

Parallel forms reliability is a measure of reliability obtained by administering different versions of an assessment tool (both versions must contain items that probe the same construct, skill, knowledge base, etc.) to the same group of individuals. The scores from the two versions i.e. pre and post test can then be correlated in order to evaluate the consistency of results across alternate versions, the Spearman Brown prophecy formula is used to estimate the reliability coefficient of the entire test/scale.

The Spearman Brown prophecy formula is:

Reliability Dxx' = (2 * r / 1 + r)

where r is the correlation between the half-tests.

4. Pearson's Correlation Coefficient

In statistics, the **Pearson product-moment correlation coefficient** (sometimes referred to as the **PPMCC** or **PCC** or **Pearson's *r***) is a measure of the linear correlation (dependence) between two variables *X* and *Y*, giving a value between +1 and −1 inclusive, where 1 is total positive correlation, 0 is no correlation, and −1 is total negative correlation. It is widely used in the sciences as a measure of the degree of linear dependence between two variables. It was developed by Karl Pearson from a related idea introduced by Francis Galton in the 1880s.

The formula for Pearson's correlation takes on many forms. A commonly used formula is shown below. The formula looks a bit complicated, but taken step by step as shown in the numerical example, it is really quite simple.

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{\left(\sum X^2 - \frac{(\sum X)^2}{N}\right)\left(\sum Y^2 - \frac{(\sum Y)^2}{N}\right)}}$$

III. Result and Discussion

Section A : Analysis of knowledge score towards organ donation among Undergraduate nursing students.

Table 1: Distribution of knowledge towards Organ donation in experimental group.

Category	**Score Range**	**Level of Knowledge Score**			
		Pre-Test		**Post Test**	
		f	**%**	**f**	**%**
Good	15-20	0	0%	6	24%
Average	7-14	12	48%	18	72%
Poor	0-7	13	52%	1	4%

Table 1, shows that out of 25 students in experimental group; majority 13 (52%) students had poor knowledge & 12(48%) had average knowledge during pre-test; whereas majority 18(72%) students had average knowledge & 6 (24%) students had good knowledge & 1(4%) students had poor knowledge towards organ donation during post-test.

Table 2: Distribution of overall knowledge scores of the students towards organ donation among undergraduate nursing students in Control group.

Level of knowledge	Score Range	Level of Knowledge Score			
		Pre-Test		Post Test	
		f	%	f	%
Good	15 to 20	0	0%	0	0%
Average	08 to 14	9	36%	13	52%
Poor	0 to 7	16	64%	12	48%

Table 2, The above table shows that out of 25 students 16(64%) of the undergraduate nursing students had poor knowledge and 9 (36%) of undergraduate nursing students had average knowledge in pretest In control group whereas in Posttest 13(52%) students had average knowledge & !2(48%) had poor knowledge towards organ donation.

Table 3: *Effect of awareness on knowledge score of the students towards organ donation among undergraduate nursing students in Experimental group & Control group.*

	Pretest		Posttest		Difference			
Knowledge	Mean	SD	Mean	SD	Mean	SD	t-value	LOS
Experimental group	7.6	2.23	11.76	3.11	4.16	2.73	<0.05	S
Control Group	6.92	2.48	7.8	2.58	0.88	2.92	1.5	NS

*S- Significant * Statistically highly Significant at 0.1% level i.e., P<0.001
*NS- Non-Significant

Table 3 depicts that in experimental group: the mean difference pre-test knowledge score was 4.16 with standard deviation 2.73 whereas in control group mean difference was 0.88 with a standard deviation difference 2.29.

Paired T- test was applied to find whether there is statistically significant difference between the knowledge score of experimental group & control group. A p-value of 0.00(<0.05) indicates that there is statistically high significant difference between the knowledge score of experimental group & control group.

Awareness was more effective in improving the knowledge towards Organ donation among undergraduate nursing students.

Table 3: *Effect of awareness on Positive & Negative statement towards organ donation among undergraduate nursing student in Experimental & Control group.*

	Pretest		Posttest		Difference			
Positive attitude	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**t-value**	**LOS**
Experimental group	26.8	7.11	37.4	4.8	10.6	6.3	8.4	S
Control Group	25.4	10.5	25.72	10.64	0.32	1.37	1.16	NS

*S- Significant, NS- Non-Significant

* Statistically highly Significant at 0.5% level i.e., P<0.05

Table 4: This table depicts that in experimental group the mean difference pre-test & posttest attitude score was 10.6 with standard deviation 6.3 whereas in control group mean difference was 0.32 with a standard deviation difference 1.37.

Paired T- test was applied to find whether there is statistically significant difference between the attitude score of experimental group & control group. Paired t test is applied where t value is 8.40 in experimental group which is much higher than the tabulated value at 5% level of significance. Hence it is statically interpretated that education intervention among experimental group was effective. Thus, H_{01} is rejected.

Whereas in Control group "t" value is 1.16 in Control group which is much less than the tabulated value at 5% level of significance. Hence it is statically interpretated that there is no difference in attitude score in control group. Thus, H_{02} is accepted.

Acknowledgement

I express my heartful gratitude and gladness to God almighty for his blessings and for his grace and strength to complete this project. I am thanking for his incredible power and work in our lives.

I extend my immense gratitude to my beloved mother Mrs. Lazina khan for being my hands, my support & backbone for backing me every time I felt like giving up. Her contributions are immense in completion of the dissertation. Also, my friend Ms. Arpita khandekar, Ms.Mahima Yadav, Mr. Snel Alwarsi, they helped me with her valuable suggestions & necessary inputs which has been helpful in various phases of the completion of the dissertation.

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