Impact of structured teaching programme on nurses' knowledge of organ and tissue donation in selected hospitals in Jaipur

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Abstract: Organ donation is now a considerable medical therapy for people whose organs have failed, but it has many medical, ethical, and social aspects to consider when donating organs. Healthcare professionals, especially nurses, play an essential role in creating a positive environment for organ and tissue donation. The researchers wanted to find out how effective an education program on organ and tissue donation is at increasing the knowledge of nurses within selected hospitals in Jaipur. Therefore, they used a quasi-experimental study design and recruited 300 nurses via a non-probability convenient sampling method. These nurses were divided into an interventional group who received the structured education program and a control group who did not receive any intervention. Data was collected at the start and end of the program using a validated and reliable structured knowledge assessment. The findings showed that the average pre-test score in the interventional group was 29.38 (Standard Deviation = 4.79) which significantly increased to an average post-test score of 42.48 (Standard Deviation = 3.03) after the intervention. The difference between the two groups was found to be statistically significant with a p-value of < 0.001. This study indicates a structured education programme that increased the level of knowledge held by nurses about Organ & Tissue Donation. The recommendation was to broaden similar educational interventions and, therefore, strengthen organ donation practices on a larger scale and generalise the results obtained in this study.

Keywords: Organ and tissue donation, Nurses' knowledge, Nursing education, Pre-test – post-test design, Health education

1. Introduction:

Organ transplants save lives for those individuals with end stage organ failure worldwide. Each year, the number of people who require transplantable organs grows (due to the increasing incidence of chronic disease, including Diabetes, Cardiovascular Disease & Renal Failure) while the number of available Organ Donors is still significantly insufficient. There is an imbalance between the growth of individuals requiring organ & tissue transplantation and the current supply of donor organs, which creates preventable morbidity and mortality globally.

As professional health care providers, Nursing personnel play a pivotal role in the organ & tissue donation process. Nursing staff will be directly involved with the patient, identifying the

potential donor through their assessment of the patient, providing counselling to the patient and family members, and acting as a coordinator between the patient, family and Transplantation teams. The Nursing staff will also influence public perception, consent rate, and ultimately the success of an organ & tissue donation Programme through their knowledge, attitudes and ability to communicate with others. According to research, educational programs aimed at professional and student populations can effectively improve their knowledge, attitude and readiness to be organ donors. The education received by these groups also helps them learn about the donation process, legal and ethical implications associated with organ donation, and the definition of brain death, thereby reducing their concerns or lack of knowledge, and easing their fears about becoming an organ donor.

The Indian government has enacted laws encouraging organ donation, but unfortunately the rates of organ donation, particularly the rate of deceased organ donation, continue to be disproportionately low throughout India. Inadequate awareness, cultural and religious beliefs, fear of having a disfigured body, lack of trust in the healthcare system and lack of appropriate professional support are among the barriers preventing greater participation in organ donation. In addition to these cultural barriers, geographic barriers (in this case, lack of studies related to organ donation from then states) also present an opportunity for future studies in the area of preparation for supporting or promoting organ donation by nurses.

The shortage of organs represents an increasing public health concern, as a result of increasing number of people needing to receive an organ, and that nurses have a vital role in the process of organ donation, it is imperative that nurses have the proper education and training through educational programs to eradicate the current gaps in the knowledge of organ donation and to dispel the myths associated with organ donation and promote the active participation of nurses in supporting and promoting organ donation in increasing the number of successful organ donations and to enhance patient's health outcomes through improved organ donation outcomes.

1.1 Need of the study:

While organ donation has long been viewed as a life-saving procedure, it is now regarded as being an "ultimate" form of treatment for someone who has died due to the unavailability of a suitable donor. Transplantation has been around for decades; however, current transplantable numbers are not always adequate. In India, the numbers of deceased donor transplants are very low compared to living donor transplants. There are many cultural, religious, information, and mythological barriers and lack of knowledge. All these issues have created barriers for nurses to effectively support the donor process by educating and advocating for organ and tissue donation. Various studies indicate a gap exists between nurses' knowledge about the donor process and their ability to effectively promote organ and tissue donation due to these barriers. Structured teaching programs can provide nurses with an organized system for increasing their knowledge, correcting myths about organ and tissue donations, and providing positive reinforcement, thus improving organ and tissue donation outcomes. Therefore, structured teaching programs are essential in empowering nurses with the knowledge and skills necessary to overcome these barriers to organ and tissue donation (Bose et al., 2025).

1.2 Aims and objectives:

The research study will look at nurses' knowledge regarding organ and tissue donation prior to and following the implementation of a structured teaching program and how the teaching program has affected nurses' knowledge in terms of gaining new information. As part of this study, an evidence-based structured teaching program will be developed, implemented, and assessed for use with nursing personnel at the participating hospital. The study will compare the knowledge of nursing personnel who participated in the structured teaching program with a control group of nursing personnel who did not participate in the structured teaching program. Additionally, the study will analyze the relationship between nursing personnel knowledge scores and demographic characteristics to identify possible factors that may influence their knowledge.

1.3 Hypothesis:

The hypotheses guiding this research study are as follows:

1. Post-structural educational sessions will result in significant increases in nurses' knowledge about organ/tissue donation compared to pre-test knowledge scores (within-group comparison) for those in the intervention group.

2. There will be a significant difference between post-test knowledge scores from the intervention group and control group with the intervention group having higher post-test knowledge scores after completing the structured educational program (between-group comparison).

3. There is anticipated associations between information demographics with post-test knowledge score increases among nurses in the intervention group (age, nursing school level, years of experience, and previous exposure to organ donation information).

4. Null hypotheses:
   - H01: After being subjected to a structured educational program, the intervention group will not show any significant improvement in nurse knowledge scores.
   - H02: After being subjected to a structured educational program, there will be no significant differences between the intervention and control groups regarding post-test knowledge scores.
   - H03: Post-test knowledge in the intervention group will not demonstrate any significant correlation with characteristic variables among the nurses.

2. Review of literature:

Transparency in organ and tissue donation has been a major part of successfully delivering health services today; however, there is still a global mismatch of supply and demand. Studies have shown that healthcare professionals, especially those in nursing, are the most likely to facilitate the donation process because of their regular interaction with patients and their families.

A study by Salz et al. (2022) showed that a Indo-German collaborative effort was used to increase cornea donation rates in North India through the establishment of several new eye collection centres and an electronic tracking system to monitor and evaluate donated corneas. The study also determined that by providing structured training to and exchanging knowledge

among professionals, results of cornea donation would be greatly improved. Additionally, Marmamula et al. (2022) looked at the concept of eye donation awareness among a sample of 2,502 individuals in Tripura, a north-eastern state in India. They found that while there was a high level of eye donation awareness, there was a corresponding low level of willingness to donate owing to cultural myths associated with eye donation, religious beliefs and fears related to deformities. The researchers concluded that targeted educational interventions were required in order to overcome the barriers to eye donation, as identified in the study.

Hibi et al. (2020) stated that in Asia, high-volume liver transplant centers have developed innovative procedures, such as ABO-incompatible transplants, dual-lobe transplants, and structured protocols/professional knowledge, which are all beneficial to donor and recipient outcomes. Zirpe, et al. (2020) reviewed 23 years of data on cadaver organ donation from a referral center located in Pune, India and noted that prior to 2013 there was a much lower percentage of organ recovery rate compared to the post-2013 period. Critical to this increase in organ recovery was the systematic methods and family member counseling that were provided. Anderson et al. (2020) discussed tissue donation following death from natural causes to neonates, along with the ethical, legal and procedural requirements for successful adoption. Personnel training along with clear guidelines enhanced the likelihood that staff would obtain consent.

Numerous Indian Nursing studies published between 2020 and 2024 have also supported the positive impact of a structured educational intervention in improving the knowledge and attitude surrounding organ and tissue donation. Studies indicate that trained nursing staff has more knowledge, better counsel regarding donation, and a greater likelihood to promote donation to families and patients (Singh et al., 2021; Bas-Sarmiento et al., 2023).

2.1 Conceptual framework:

The Researcher's conceptual framework is based on the Knowledge-Attitude-Practice (KAP), which holds that knowledge influences attitudes, and that attitudes influence behavior toward organ and tissue donation. The three components of KAP as they pertain to promoting Organ and Tissue Donation are defined as follows:

Knowledge is the understanding of the types and procedures for organ and tissue donation as well as the benefits derived from organ and tissue donation.

Attitude is the perception, beliefs, and willingness of an individual or family regarding organ and tissue donation.

Practice is defined as the behavior performed by an individual to promote organ and tissue donation, which may include counselling or promoting awareness or influencing a family's decision.

The structured teaching program being implemented in this study is designed to help enhance nurses' knowledge, change their attitudes, and promote their practice regarding organ and tissue donation. The conceptual framework will provide a systematic method to identify gaps in the educational strategies and evaluate the impact of education based upon these strategies.

3.   Research methodology:

The current study evaluates the effects of a structured educational programme on organ/tissue donation in relation to the amount of knowledge possessed by nurses at hospitals located in Jaipur.

3.1 Research approach:

To objectively measure the amount of knowledge held by the individual nurse regarding organ/tissue donation, a quantitative approach was utilised.

3.2 Research design:

To compare groups based upon their pre-test and post-test results, a quasi-experimental two-group pre-test post-test design was utilised. An intervention group that took part in the structured programme was compared to a control group that did not receive an intervention during the data collection period. Thus, the design allowed researchers to compare the effect of their educational intervention to that of no intervention, while controlling for other possible confounding variables.

3.3 Setting of the study:

The study took place at the selected hospitals in Jaipur, namely the Tagore Hospital and Research Institute, Jaipur; Shalby Multi-Specialty Hospital, Jaipur; and Mhathma gandhi hospital, Jaipur.

3.4 Population and target population:

The entire population studied was comprised of all registered nurses who were employed at the selected hospitals of Jaipur. The target sample for this research consisted of registered nurses who were present during the time of the data collection and met the eligibility requirements.

3.5 Sample and sampling technique:

The research included 300 nurses meeting the inclusion criteria. Due to the study design requiring comparability of between groups, systematic assignment of participants to interventional or control groups was done out of the total accessible population. Although a feasibility-based convenience sampling method was utilized to recruit the subjects, the allocation of subjects to the various groups (intervention and control) was balanced to create equivalent groups. Both the interventional and control groups contained 150 subjects each.

3.6 Eligibility criteria:

Inclusion criteria:
- Nurses employed at selected hospitals of Jaipur.
- Nurses available during the data collection period.
- Nurses willing to participate in the study.
- Nurses who are literate in English.

Exclusion criteria:
- Nurses unavailable during data collection.
- Nurses unwilling to participate.
- Nurses unable to read or write in English.

3.7 Variables under study:
- **Independent Variable:** Structured teaching programme on organ and tissue donation.
- **Dependent Variable:** Knowledge of nurses regarding organ and tissue donation.
- **Socio-Demographic Variables:** Age, gender, religion, marital status, occupation of head of family, occupational position of participant, educational qualification of participant and head of family, professional experience in years, prior knowledge of organ/tissue donation, source of knowledge, personal registration for organ donation, and family donation history.

3.8 Ethical considerations:
Approval was obtained from the Institutional Ethics Committee of the selected hospitals. An informed consent form was sent to all participants before the data were collected. Confidentiality of participants was maintained throughout the study.

3.9 Data collection procedure:
Pre-test knowledge assessment was conducted for both Groups. The Interventional Group received a structured teaching programme and the Control Group received no intervention. Post-test assessment of both groups was conducted after one week to evaluate the teaching programme's effect on both groups.

3.10 Description and development of tool:

Section I – Demographic variables of nurses:
Demographic information about participants was collected using 13 items, which included: (1) Age; (2) Gender; (3) Religion; (4) Marital Status; (5) Family Head Occupation; (6) Participant Occupation; (7) Family Head Education Level; (8) Participant Education Level; (9) Years of Professional Experience; (10) Prior Knowledge of Organ and Tissue Donation; (11) Source of Information About Organ and Tissue Donation; (12) Registration for Organ Donation; (13) Family History of Eye Donation. Participants were provided with multiple-choice options for each variable that allowed them to select the option that most appropriately indicated their situation.

Section II – Structured knowledge questionnaire:
Of the 50 items on the structured knowledge questionnaire, 25 were multiple-choice and 25 were in true/false format. Responses to multiple-choice questions were evaluated with 1 point awarded for a correct response; 0 points given for incorrect answers. Therefore, each participant received a score between 0 and 50 points. The score indicates the participant's degree of knowledge regarding organ and tissue donation. A participant with a score closer to 50 had a greater amount of knowledge than a participant who received a score closer to 0.

Section III – Structured teaching program (STP):
A structured teaching programme related to organ and tissue donation was developed to address the objectives of the study. The content of the STP was reviewed by 14 experts for validation before any revisions were made by the authors. Development of the STP followed four steps:
1. Prepare a content blueprint;
2. Draft the structured teaching programme;
3. Validate the content of the STP through expert reviews;

4. Design the teaching plan to implement the STP.

3.11 Reliability of tool:

To assess the clarity of its content, use of terminology, and practicality, a pilot test was conducted for the tool. The split-half reliability method using Pearson's formula was employed for determining reliability of the tool. The structured knowledge questionnaire produced a reliability coefficient of 0.86, indicating a very good level of internal consistency between items of this questionnaire, and thus an appropriate measure for this study.

3.12 Data collection procedure:

3.12.1 Selection and permissions:

The data collection process involved obtaining permission from the administrative authorities at each hospital selected before the beginning of data collection.

3.12.2 Procedure:

The method for collecting data took place over a two-month period spanning March through April, 2025, and included nurses that met the inclusion criteria who worked at Tagore Hospital and Research Institute, Shalby Multi-Specialty Hospital, and Mhathma Gandhi Hospital in Jaipur. The convenience sampling method was used to gather samples, and participants were assigned to either the interventional or control groups (with an equal number of 150 participants per group). The researcher contacted each participant personally and provided them with a specific location where to assemble to provide data. In doing so, the researcher provided potential participants with information about the purpose of the study, the procedures that were to be conducted, and the ethical considerations associated with the study. Researchers obtained informed consent from all participants.

Using the structured knowledge questionnaire as an assessment tool, the researcher conducted pre-test assessment for both groups. In contrast, the interventional group was given a structured teaching program that lasted about 45 minutes; the control group did not receive any intervention. During the time that participants were answering each question, they were provided adequate time for response and any questions that participants had about answering any questions were clarified by both the researcher and research assistants. Post-test assessment for both groups was completed using the same research instruments after a period of time defined by the researcher. After completion of the study, all participants were thanked for their cooperation and participation.

4. Data analysis and interpretation:

Data Analysis is the process of gathering, classifying, analyzing, and interpreting your collected data in order to reach your research goals or objectives. It provides a means by which one can combine and arrange various types of numerical information into a structured and organised form so that findings can be clearly understood and easily acted upon.

The 300 nurses who participated in the study (i.e. nurses working at various hospitals located in Jaipur, India, selected according to inclusion criteria) were examined using a two-group quasi-experimental design, comprised of a pre-test and post-test. Subjects were divided into these two

groups via convenience sampling, and random assignment to groups was applied only to the assignment of subjects.

Statistical Analyses results were analysed using SPSS version 25.

4.1 Descriptive analysis:

Descriptive summaries of demographic characteristics of the subjects were provided using frequency counts and percentages. Baseline knowledge scores were reported in terms of mean ± SD.

4.2 Inferential analyses:

Pre-test and post-test knowledge scores were compared using paired t-tests for the study of the impact of the Structured Teaching Programme on Knowledge and Attitudes of the Participants. Post-test knowledge scores from the interventional group and the control group were compared using independent t-tests to determine whether the two groups exhibited any differences based on participation in the Structured Teaching Programme. Finally, Cohen's d was calculated to provide an estimate of the magnitude of effect for the intervention.

4.3 Association with demographic variables:

Demographics were observed in relation to post-test knowledge Scores:

- A Chi-square test was used to determine the relationship between overall post-test knowledge Scores to all other variables selected for study (age, gender, educational qualification, and professional experience) as categorical variables. A Pearson correlation test was used to determine the relationship between post-test knowledge Scores and the demographic variables selected for this study.
- Statistical significance for all analyses was set at $p < 0.05$, which is considered a fairly low threshold for determining statistical significance.

4.4 Interpretation of findings:

- Knowledge gains resulting from the structured teaching program were evaluated both statistically and practically by looking at effect size to better understand overall intervention effectiveness.
- The demographic factors that were found to have an impact on post-test knowledge scores will guide future educational planning, strategies, policies, etc.

This allowed for a systematic, reproducible, and transparent approach to evaluating the effects of the structured teaching program on Nurses' Knowledge Related to Organ and Tissue Donation.

Table 1: Occurrence and proportional location of socio-demographic variables

Age in years	Interventional Arm		Non-interventional Arm	
	Frequency (f)	%age	Frequency (f)	%age
21–30	47	31.5	45	30.0
31-40	32	21.5	34	22.7
41-50	35	23.5	54	36.0
51–60	35	23.5	17	11.3
Gender	**Interventional Arm**		**Non-interventional Arm**	

	Frequency (f)	%age	Frequency (f)	%age
Male	33	22.1	28	18.7
Female	116	77.9	122	81.3
Religion	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	%age	Frequency (f)	%age
Hindu	109	73.2	113	75.3
Muslim	3	2.0	6	4.0
Christian	30	20.1	27	18.0
Others	7	4.7	4	2.7
Marital status	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	%age	Frequency (f)	%age
Married	115	77.2	115	76.7
Unmarried	33	22.1	31	20.7
Widow/widower	-	-	2	1.3
Divorcee	1	0.7	2	1.3
Family Head Occupation	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	%age	Frequency (f)	%age
Legislators, Senior officials	9	6.0	8	5.3
Professionals	1	0.7	-	-
Own business	26	17.4	22	14.7
Government job	76	51.0	63	42.0
Private job	27	18.1	37	24.67
Unemployed	10	6.7	20	13.3
Participant's occupation	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	%age	Frequency (f)	%age
Nursing Officer	97	65.1	117	78.0
Senior Nursing Officer	42	28.2	28	18.7
A.N.S	10	6.7	5	3.3
Family head education level	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	%age	Frequency (f)	%age
Post Graduate	37	24.8	26	17.3
Graduate	62	41.6	86	57.3
Intermediate or Diploma	23	15.4	25	16.7
High School certificate	18	12.1	3	2.0
Primary School certificate	6	4.0	4	2.7
Illiterate	3	2.0	6	4.0
Participant education level	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	%age	Frequency (f)	%age
General Nursing Midwife	81	54.4	88	58.7

BSc Nursing/Post-basic BSc	59	39.6	56	37.3
MSc Nursing	9	6.0	6	4.0
Professional experience in years	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	**%age**	**Frequency (f)**	**%age**
Less than 1 year	3	2.0	17	11.3
1-12 years	64	43.0	49	32.7
13-24 years	27	18.1	47	31.3
>24 years	55	36.9	37	24.7
Do you have any information/ knowledge regarding organ and tissue donation	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	**%age**	**Frequency (f)**	**%age**
Yes	114	76.5	118	78.7
No	35	23.5	32	21.3
If yes, what is the source of information regarding organ and tissue donation	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	**%age**	**Frequency (f)**	**%age**
Part of curriculum	28	18.8	23	15.3
Multimedia	44	29.5	49	32.7
Workshop, Training	34	22.8	30	20.0
Internet	29	19.5	30	20.0
Any other	14	9.4	18	12.0
Have you registered for organ donation	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	**%age**	**Frequency (f)**	**%age**
Yes	10	6.7	19	12.7
No	139	93.3	131	87.3
Has anyone in your family donated any organ	**Interventional Arm**		**Non-interventional Arm**	
	Frequency (f)	**%age**	**Frequency (f)**	**%age**
Yes	5	3.4	3	2.0
No	144	96.6	147	98.0

The initial results of this study (Table 1) showed that there is insufficient knowledge about organ/tissue donation among nurses, even at baseline, in both the intervention (92%) and non-interventional (94%) groups. After completion of the educational intervention, the intervention group had a much greater percentage of nurses (94%) that were now classified as having sufficient knowledge about organ/tissue donation. However, the control group did not demonstrate similar improvements; therefore, there was no meaningful difference between the intervention and control groups based on changes in knowledge.

The within-group analysis of the intervention group demonstrated that the intervention had a statistically significant positive effect on the knowledge scores (mean increase = 13.10; p <

0.001) with a large effect size (Cohen's d = 2.88). The control group did not demonstrate any statistically significant increase in knowledge scores (p = 0.092).

When performing an independent t-test to compare the average post-test knowledge scores between the two groups, the post-test knowledge score was significantly higher for the intervention group compared to the control group (p < 0.001).

The results of the association analysis identified that there was a statistically significant association between age, level of education, years of professional experience, and previous exposure to information regarding organ/tissue donation with the post-test knowledge scores. However, post-test knowledge scores were not significantly associated with gender or geographic area.

Table 2: Occurrence and proportion distribution of knowledge level of nurses regarding organ and tissue donation before STP intervention **N=300**

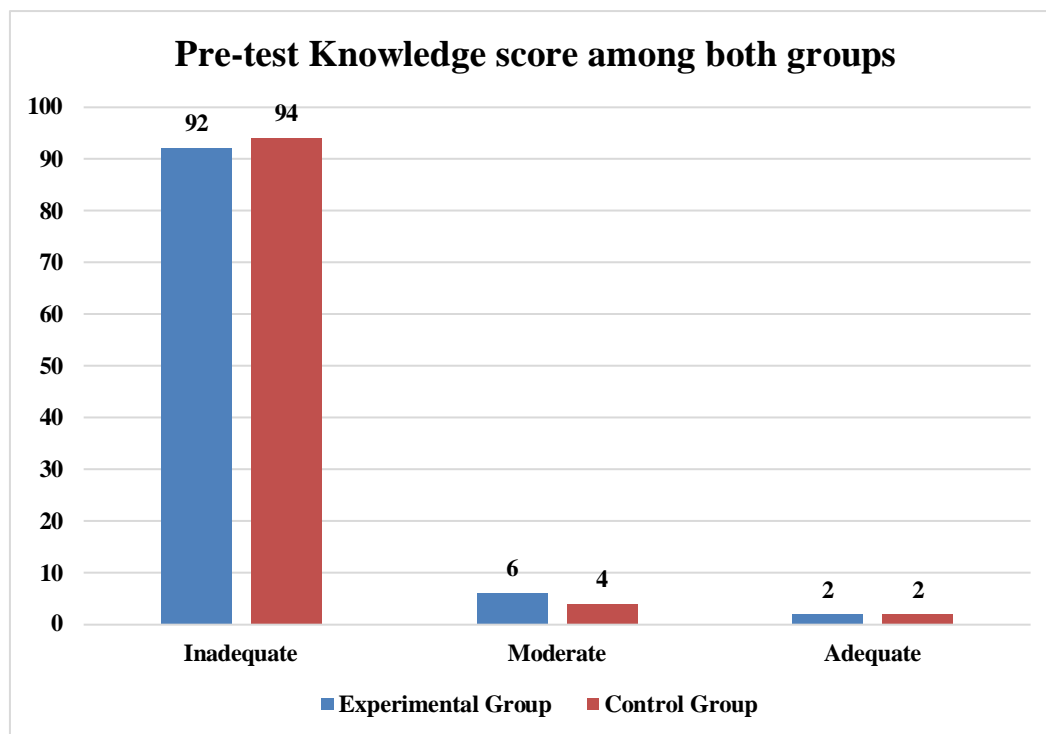| Knowledge Level	Interventional Arm		Non-interventional Arm	
	Pre-test		Pre-test	
	F	%	F	%
Inadequate	138	92	141	94
Moderate	9	6	6	4
Adequate	3	2	3	2

Figure 1: Occurrence and proportion distribution of nurses as per their Pre-test knowledge scores according to grade

The Table 2 and Figure 1 below show information from the pre-testing phase and pre-intervention phase regarding the knowledge level of nurses in the Interventional Arm of the study as compared to the Non-intervention Arm. In the pre-test for the Interventional Arm, 138 (92%) nurses, did not have adequate knowledge on organ and tissue donation, 9 (6%) nurses, had some knowledge, and only 3 (2%) nurses, had adequate knowledge. For the Non-intervention Arm, 141 (94%) nurses, did not have adequate knowledge on organ and tissue donation, 6 (4%) nurses, had some knowledge, and only 3 (2%) nurses, had adequate knowledge. The investigator interpreted this data as showing that nearly all of the nurses in both groups had inadequate knowledge about organ and tissue donation and required further education on this topic.

Table 3: Occurrence and proportion distribution of knowledge level of nurses regarding organ and tissue donation after STP intervention **N=300**

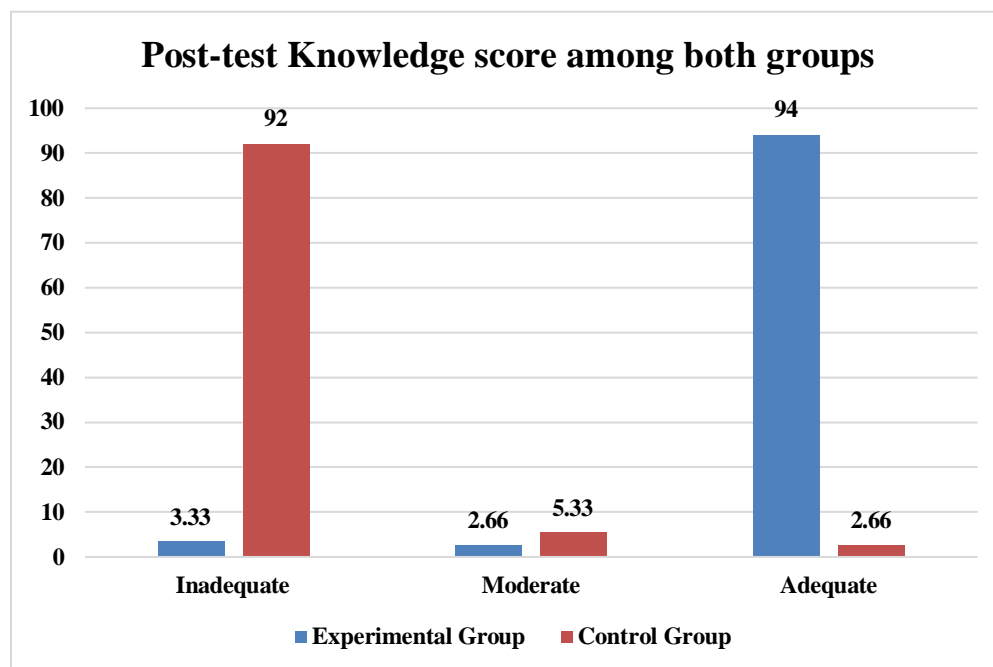| Knowledge Level	Interventional Arm		Non-interventional Arm	
	Post-test		Post-test	
	F	%	F	%
Inadequate	5	3.33	138	92
Moderate	4	2.66	8	5.33
Adequate	141	94	4	2.66

Figure 2: Occurrence and proportion distribution of nurses as per their Post-test knowledge scores according to grade

Table 3 and Figure 2 show the knowledge level of nurses who completed the intervention in the Intervention Arm. According to the post-test results, 141 (94%) of the participants demonstrated adequate knowledge; 5 (3.33%) of the nurses demonstrated inadequate knowledge, and 4 (2.66%) of nurses had moderate knowledge of organ and tissue donation. In spite of this, the

Non-intervention Arm results indicate that the majority (92%) of participants demonstrated inadequate knowledge after the post-test. Furthermore, at the end of the testing phase, 8 (5.33%) demonstrated moderate, whereas only 4 (2.66%) of those participants demonstrated adequate knowledge of organ and tissue donation. The researcher interpreted this data to say that following the intervention, a very large number of the nurses participating in the Intervention Arm were found to possess adequate knowledge regarding the subject of organ and tissue donation, whereas no differences were observed among the nurses in the Non-intervention Arm.

Table 4: Comparison of pre-test and post-test knowledge score of the nurses on organ and tissue donation among both groups   **N=300**

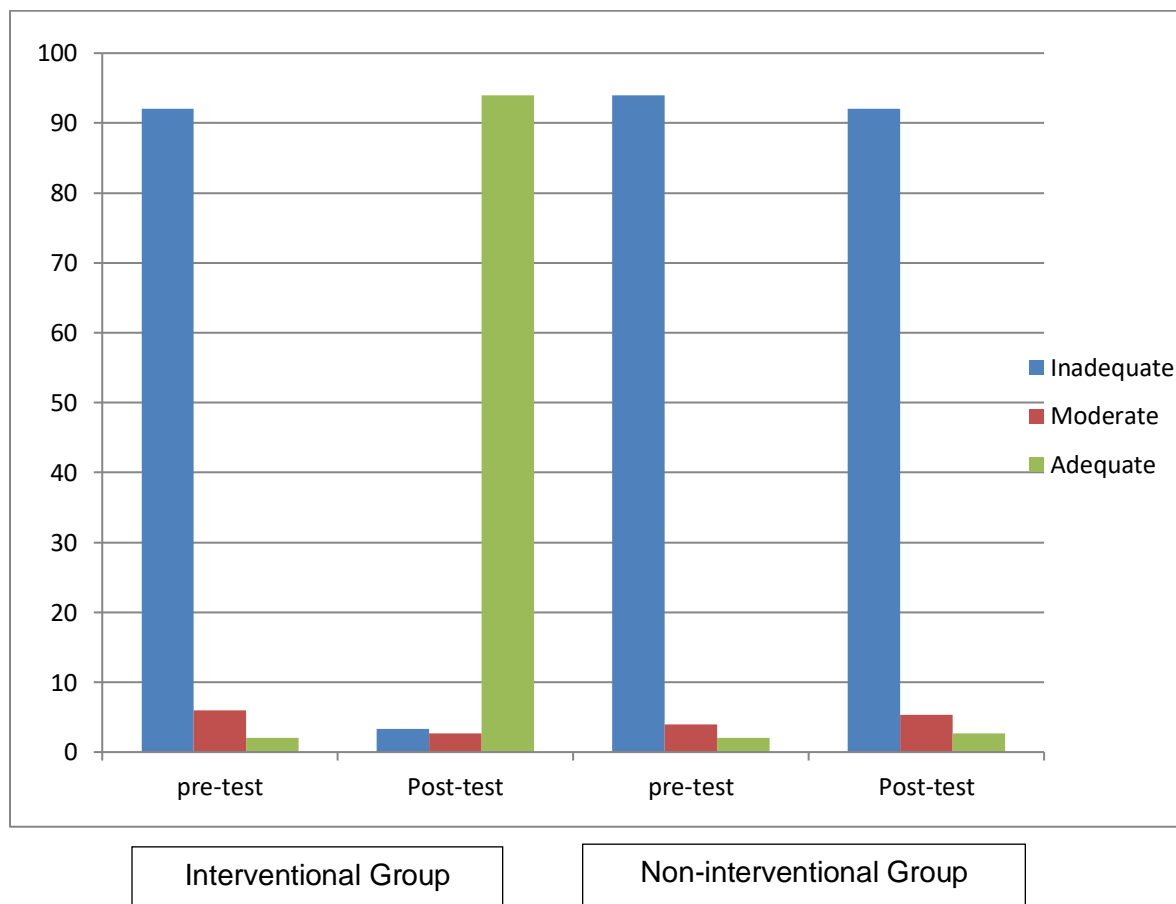| Knowledge Level	Interventional Arm				Non-interventional Arm			
	Pre-test		Post-test		Pre-test		Post-test	
	F	%	F	%	F	%	F	%
Inadequate	138	92	5	3.33	141	94	138	92
Moderate	9	6	4	2.66	6	4	8	5.33
Adequate	3	2	141	94	3	2	4	2.66

Figure 3: Comparison of pre-test and post-test knowledge score of the nurses on organ and tissue donation among both groups

Table 4 and Figure 3 show that most participants in both groups had limited knowledge of how to donate organs and tissues when assessed prior to the intervention. Of those who received intervention, 138 (92%) had limited knowledge, nine (6%) had moderate knowledge, and three (2%) had good knowledge. Conversely, in the non-intervention group, 140 (94%) had limited knowledge, with only six (4%) and three (2%) having moderate and good knowledge, respectively.

After the implementation of the structured teaching program, the post-test assessment revealed that 141 (94%) of those who received the intervention had good knowledge related to organ and tissue donation while five (3.33%) continued to be in the limited knowledge category and four (2.66%) had moderate knowledge. The non-intervention group, however, showed very little change with respect to knowledge; after the education intervention, only138 (92%) as opposed to 140 (94%) had limited knowledge, and eight (5.33%) rather than six (4%) possessed moderate and four (2.66%) as opposed to three (2%) had good knowledge of donation.

These results indicate a positive effect of the structured teaching program on improving the knowledge of registered nurses relating to organ and tissue donation, whereas the nurses who did not participate in the program showed no measurable increase in their level of knowledge. Thus, the results provide evidence supporting the effectiveness of a structured teaching program in enhancing the understanding of registered nurses of the benefits of organ and tissue donation.

Table 5: Effectiveness of structured teaching program on knowledge among nurses regarding organ and tissue donation

Groups	Interventional Arm		Non-interventional Arm	
	Pre-test	**Post-test**	**Pre-test**	**Post-test**
Mean	29.38	42.48	31.97	30.75
Standard Deviation	4.79	3.03	4.40	4.15
T test	33.615		4.338	
P value	< 0.001		0.092	

As indicated in the Table 5, nurses participating in the intervention group exhibited a statistically significant increase in post-test knowledge scores relative to pre-test knowledge scores following completion of the structured instruction program (42.48 ± 3.03 and 29.38 ± 4.79, respectively). The difference between pre-test and post-test knowledge scores was highly statistically significant when analysed using a paired t-test (t = 33.615, p < 0.001). It may be concluded that this structured instruction program was effective in improving participants' knowledge of organ and tissue donation; therefore, the null hypothesis (H01) has been rejected and the alternative hypothesis (H1) has been accepted at the 0.05 level of significance.

Discussion:

A Structured Teaching Programme was evaluated to determine its efficacy in improving knowledge of organ & tissue donation among nurses within certain hospitals located in Jaipur. Baseline results indicated that the majority of nurses (both in the Interventional group and the Control Group) were lacking knowledge as they exhibited low scores. This demonstrates an

undeniable lack of education on the part of Frontline Healthcare Providers (FHCP) regarding organ donation. This finding corresponds with previous findings from similar studies conducted within India, which both found large numbers of Nurses and Healthcare Professionals to have insufficient knowledge about the process of organ donation and several misconceptions about organ donation practices.

After the implementation of the intervention, the nurses in the interventional arm had significantly improved knowledge scores; however, there was no statistically significant change among the nurses in the non-interventional arm. Furthermore, the large effect size provides strong evidence that the Structured Teaching Programme positively impacts the educational and learning prompting that occurs as a result of the intervention and that this impact is likely to continue to improve FHCP willingness to support organ donation. These findings are consistent with similar studies conducted by Marmamula et al. (2022) and Zirpe et al. (2022). In their results, both studies found that educational interventions that focused on specific subject areas resulted in improved knowledge, increased willingness, and hence increased awareness of Organ Donation among Healthcare Workers (HCW). Salz et al. (2022) also found that systematic approaches to education and improving infrastructure resources for healthcare service delivery improved the frequency of organ donation.

The effectiveness of a structured, relevant and focused intervention is what sets it apart; nurses play such an essential role in organ donation by helping to identify potential donors, counsel families and coordinate with transplant teams. This knowledge also enables nurses to dispel myths, provide legal and ethical advice related to organ donation, and confidently advocate for organ donation. Anderson et al. (2020) and Hibi et al. (2020) also support the premise that healthcare professionals who are well-trained can improve organ donation outcomes and promote public trust in organ donation. The religious beliefs, family decision-making, body disfigurement fears, and lack of accurate information about organ donation are examples of how, within the Indian cultural context, these factors often impact a family's decision to participate in organ donation. Prior to introduction of information through multimedia or curriculum, the actual registration for organ donation appeared to be only moderately successful among participants. This has been well documented in the Indian literature and demonstrates the continued need for repetition and context-specific education in regards to organ donation rather than solely one-time awareness efforts.

The conclusion drawn from the present study has practical implications for nursing practice. Course inclusion of structured teaching programmes on organ and tissue donation through in-service education, orientation programmes and continuing nursing education will substantially improve nurses' competence and participation in donation processes. There are several strengths of this research, including a large sample size, use of a control group, and examining differences within and between the groups. Limitations of this study include use of non-probability convenience sampling (limits generalizability of results) and the assessment of only knowledge outcomes (and no long-term retention or actual donation behaviours). Future studies should include follow-up assessments and behavioural outcome assessments in many regions.

Conclusion:

This research shows that nurses at selected hospitals of Jaipur had very limited knowledge about organ and tissue donation and that they were crucial to the donation process. A structured teaching programme helped raise nurses' knowledge in the intervention group and no change was seen in the control group. This study shows that focused educational interventions can help reduce the critical knowledge gap between nurses. Due to the continuing lack of available organs for transplantation in India and nurses' role in influencing a patient's donation decision, it is strongly recommended that structured teaching programmes for nurses be implemented at both the institutional and policy level and ongoing education of nurses will likely improve awareness, provide education, and overall improve transplantation outcomes.

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