A PRE EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF COMPUTER ASSISTED TEACHING ON KNOWLEDGE AND ATTITUDE REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS AT SELECTED COLLEGE IN THIRUPUR DISTRICT

BY

301412152

A DISSERTATION SUBMITTED TO THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN NURSING

APRIL– 2016

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APRIL – 2016

DECLARATION

This is to certify that the dissertation entitled **"A Pre Experimental Study to Assess the Effectiveness of Computer Assisted Teaching Programmeon Knowledge and Attitude Regarding Organ Donation among Non-Health Professional Students at Selected College in Thirupur District",**is a bonafide work done by Mr.BRIGHTLIN VIGIL.V, Shivparvathi Mandradiar Institute of Health Sciences, College of Nursing in partial fulfillment of the university rules and regulations for award of Master of Science in Nursing under the guidance and supervision of during the year of April 2016.

Signature of the Guide &Head of the Department:

Signature of the Research Guide &Principal:

DECLARATION

I hereby declare that the present dissertation titled **"A Pre Experimental Study to Assess the Effectiveness of Computer Assisted Teaching Programmeon Knowledge and Attitude Regarding Organ Donation among Non-Health Professional Students at Selected College in Thirupur District",** outcome of the original research work undertaken and carried out by me, under the guidance of Research Guide Prof. Mrs. M. KAVIMANI, R.N, R.M, MSN, Ph.D Principal, Shivparvathi Mandradiar Institute of Health Sciences, College of Nursing and the Clinical Specialty Guide Asst. Prof. Mrs. A.MALLIKADEVI, R. N, R. M, M.S.N.

I also declare that the material of this has not found in any way, the basis for the award of any degree/ diploma in this University or any other University.

BY

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CERTIFIED THAT THIS IS THE BONAFIDE WORK OF

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PRINCIPAL,SPMIHS

Palayakottai.

DEDICATED TO

BELOVED MY BEAUTIFUL FAMILY

ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

“Your word is a lamp to my feet and a light to my path”

(psalms 119:105)

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301412152

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LIST OF ABBREVIATIONS

ABBREVIATIONS	EXPLANATIONS
SPMIHS	Shiv Parvathi Mandradiar Institute of Health Sciences
Fig	Figure
H	Hypothesis
M.Sc (N)	Master of Science in Nursing
N	Total Number of Samples
%	Percentage
SD	Standard Deviation
MD	Mean Difference
P	Probability
SPSS	Statistical Package for Social Sciences
ANOVA	Analysis of Variance
UK	United Kingdom
MOHAN	Multi Organ Harvesting Aid Network
CTP	Cadaver Transplant Programme
WHO	World Health Organization

Abstract

ABSTRACT

A pre experimental study to assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non health professional students at selected college in Thirupur district was done by 301412152 as a partial fulfillment of the requirement of the Degree of Master of Science in Nursing at Shiv ParvathiMandradiar Institute of Health Science, under the Tamil Nadu Dr. M. G. R. Medical University, Chennai, April 2016.

The Objectives of the study were

- To assess the pre-test and post-test level of knowledge and attitude regarding organ donation among non health professional students.
- To assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non health professional students.
- To find out the association between post-test level of knowledge and attitude regarding organ donation and the selected demographic variables among non health professional students.
- To assess the correlation between knowledge and attitude regarding organ donation

The Research Hypothesis formulated and tested were :

H_1 : There is a significant difference between the pretest and post-test level of knowledge and attitude regarding organ donation among non health professional students.

H_2 : There is a significant association between the post-test level of knowledge and attitude regarding organ donation and their selected demographic variables among non health professional students.

H_3 : There is a significant correlation between knowledge and attitude regarding organ donation.

Review of literature was done regarding organ donation in the following heading,

- ❖ Studies related to knowledge, attitude, awareness and perception regarding organ donation
- ❖ Studies related to effectiveness regarding organ donation
- ❖ Studies related to barriers and facilitators regarding organ donation

The conceptual framework for the present study is formulated by the investigator based on Betralanff's theory (1968) the general system theory. The research design used was a pre experimental one group pre test and post test design. The data collection tool was validated by General Physician and the four nursing experts. Reliability was established by test – retest method, r = 0.8for structured knowledge questionnaire and 0.87 for attitude rating scale. The samples for the study were chosen by using convenient sampling technique, 50 samples in the experimental group. Data was collected by using Structuredknowledge Questionnaire and attitude rating scale. Data was collected for a period of One month.

The data collected were edited, tabulated, analyzed and interpreted manually. The obtained over all posttest mean score and for knowledge 20.22 and for attitude24.64 was more than the pretest mean score 7.94 and 16.42 respectively . The obtained mean difference was 12.28 for knowledge and 8.22 for attitude.Thestandard deviation for knowledge in pretest and posttest was

2.71 and 4.54 and for attitude it was 5.64 and 6.79 in pre test and post test. The demographic variable willingness to donate organ was significant with the post test level of knowledge at $P<0.05$. The demographic variable Gender and Willingness to donate their relatives organ were significant with the post test score on attitude at $P<0.05$. Other demographic variables were not significant with the post test level of knowledge and attitude.

The findings of the study revealed that there was a significant difference in the pretest and the posttest score on the level of knowledge and attitude regarding organ donation and there was a significant association between post test level of knowledge and attitude with their selected demographic variables The implications, limitations, recommendations and conclusion were clearly spelt.

Chapter – I

Introduction

CHAPTER-I

INTRODUCTION

"The background of life is not in its duration, but in its donation. You are not important because of how long you live, you are important because of how effective you live."

- **Myles Munroe**

BACKGROUND OF THE STUDY

Organ donation is a unique social activity that has a direct influence on the delivery of healthcare to a wide range of patients. Transplantation is the treatment of choice that improves life expectancy and quality of life. In addition, transplantation contributes to reducing healthcare expenditure. The donation and transplantation system represents a complex practiceand is dependent on individual attitudes, social structures, cultural practices and religious beliefs. Advances in immunology and surgical techniques are transforming organ transplant is an important therapeutical option.

"Organ donation is the donation of biological tissue or an organ of the human body, from a living or dead person to a living recipient in need of a transplantation". Organs can be donated by three types of donors viz., living, brain-dead and dead donors. A living donor can donate his/ her one kidney, a segment of liver, a portion of pancreas and intestine and even a lobe of lung. After cardiac death, as blood circulation stops, the solid organs become unusable for transplantation. So, solid organs like heart, lung liver, pancreas and kidney can be donated by brain-dead donors as blood still circulates in

these organs at the time of retrieval. But tissues like corneas, bone, skin and heart valves can be donated within first 24 hrs of cardiac death. Experts say that the organs from one donor can save or help as many as 50 people.

There are two types of organ donation: Living and deceased. There are three different ways of donating and organ. These are known as: Donation after brain stem death, donation after circulatory death, living organ donation. In donation after brain stem death, death is diagnosed by brain stem tests. There are very strict standards for doing these tests and they are always carried out by two experienced doctors. A ventilator provides oxygen, which keeps the heart beating and blood circulating after death. Organs such as hearts, lungs and livers can be donated. In donation after circulatory death patients who die in hospital but are not on a ventilator can donate their kidneys and in certain circumstances, other organs. In these cases, organ must be removed within a few minutes of the heart stopping to prevent them being damaged by a lack of oxygenated blood. Living organ donation usually involves one family member donating an organ to another family member or partner. The relative is usually related by blood – a parent, brother, sister or child. It is also now possible to be an altruistic donor. Altruistic donors are unrelated to the patient but become donors as an act of personal generosity.

It has increased dramatically the number of patients waiting for organ donation. Demographic, socioeconomic and cultural characteristics have been related with different prevalence of willingness to organ donation among population. One of the main limiting factor for organ donation is the low amount of families that consent to donation. When the individual willingness to donate organs is previously communicated to the family, they become more inclined to permit the donation. The rate of willingness to organ donation in

developed countries is around 50-75% but in developing countries it is little known.

According to the World Health Organization (WHO), only about 0.01 percent in India donate their organs after death, while in Western countries around 70-80 percent of people pledge their organs. The situation globally is much better than in India. India is facing an acute shortage of organ donors due to prevalence of myths and superstitions, and the country should bring in changes to organ donation laws to alleviate the situation, a health expert said.

Even though, the country had passed “The Transplantation of Human Organ Act” in 1994, it was “The Hithendran effect” in 2008 which brought paradigm shift in the attitude of Tamil Nadu's people toward organ donation. Hithendran's organs were donated by his parents after he was announced brain death. Multi Organ Harvesting Aid Network (MOHAN) Foundation, a non-governmental organization, had taken a major effort in the initiation and promotion of organ donation program in Tamil Nadu. In 2008, Government of Tamil Nadu had started Cadaver Transplant program (CTP), the first of its kind with the best organ-sharing network in the country. CTP is the backbone of organ donation that integrates government hospitals, private hospitals, NGO, donors, recipients, police and social workers. This is an excellent example for a successful public-private partnership program.

The prerequisites for the success of a transplantation program include awareness, positive attitude of the public toward organ donation and consent by relatives for organ donation in the event of brain death. Lack of knowledge and understanding about organ donations, religious attitudes, and superstitious beliefs have generated fear and mistrust in the minds of the common man and,

especially, the terminally ill patients. To give a better understanding about organ donation, we are in need of educating the public thusby we can promote the awareness and positive attitude towards organ donation.

Education about organ donation is not routinely incorporated in our educational system even in medical and nursing curriculam. A course of study needs to be objective and sufficiently informative to encourage independent thought that will lead to measured decisions to donate and can be conveyed with justification to relatives. This education helps them to engage fully with organ donation and transplantation and has directly resulted in a continuous rise in the number of families willing to provide consent to donation. It needs to be recognized that while the individual decision whether or not to donate should be paramount, in many cases the final decision rests with relatives. Indeed, the most common reason for lack of organ donation is a failure to obtain consent from relatives of the potential donor. This is attributed to families not being made fully aware of the prior wishes of the deceased. Communicating an intention to donate to family members is frequently omitted.

According to the report of recent studies done in India, at least more than 5 lakhs of the Indians are dying every year just because of the failure of their major functioning organs anytime. They still want to live their life as they are not fully satisfy with their life and want to live more but just because of the natural calamities they are unable to do so. The organ transplantation could play a major role in their beautiful life by increasing their period of living a life more than expectations. The donor of the organs represents the character of God in the life of organ transplanted person. One organ donor can save more than 8 lives in his life by donating his well function organs. The Organ

Donation Day campaign, which is celebrated every year at August 13th, provides a great opportunity in everyone's life to come ahead and pledge to donate their precious organs.

The primary legislation related to organ donation and transplantation in India, Transplantation of Human Organs Act, was passed in 1994 and is aimed at regulation of removal, storage and transplantation of human organs for therapeutic purposes and for prevention of commercial dealings in human organs.

In India, matters related to health are governed by each state. The Act was initiated at the request of Maharashtra, Himachal Pradesh and Goa (who therefore adopted it by default) and was subsequently adopted by all states except Andhra Pradesh and Jammu &Kashmir. Despite a regulatory framework, cases of commercial dealings in human organs were reported in the media. An amendment to the act was proposed by the states of Goa, Himachal Pradesh and West Bengal in 2009 to address inadequacies in the efficacy, relevance and impact of the Act. The amendment to the Act was passed by the parliament in 2011, and the rules were notified in 2014. The same is adopted by the proposing states and union territories by default and may be adopted by other states by passing a resolution.

There are myths regarding organ donation. People usually say that

- There are certain things that can keep me from being an organ donor such as age, illness or physical defects.

- If doctors know that I am registered to be an organ or tissue donor, they won't work as hard to save my life.
- If you are rich or a celebrity, you can move up the waiting list more quickly.
- After donating an organ or tissue, a closed casket funeral is the only option.
- My religion does not support organ and tissue donation.
- My family will be charged for donating my organs.
- Organs can be bought or sold on the black market.
- Even if I say I want to only donate my corneas, they will take all of my organs.
- I don't need to tell my family that I would like to be a donor because it is already in my will.
- It's better to just let my family decide at the time.
- I am not healthy enough to donate because of my lifestyle choices.
- Enough people become donors so I don't need to think about it.

There are so many Non GovernmentalOrganizationare working for organ donation in India. They are Gift your Organ Foundation, Narmada Kidney Foundation, Amit Gupta Foundation. Shatayu, Apex Kidney Foundation, MOTHER (Multi Organ Transplantation and Human and Educational Research, MOHAN foundation (Multi Organ Harvesting Aid Network), TANKER (Tamilnadu Kidney Research Foundation), GANADARPAN, ZCCK (Zonal Coordination Committee of Karnataka for Transplantation), ZTCC (Zonal Transplant Coordination Center), NDTINDIA (National Deceased Donor Transplantation Network), NNOS (National Network for Organ Sharing).

Mohan foundation was first conceived in 1996 and was started in 1997 in Chennai. It was founded by urologist and transplant surgeon Sunil Shroff. It has its headquarters in Chennai, Tamil Nadu, India. In 1994, the Indian

Parliament passed the Transplantation of Human Organ Act that accepted brain death for organ donation and made organ commerce a punishable offense. For the first time in India it was possible for the deceased to donate their organs and tissues provided the family consented to organ donation. India follows informed consent, unlike Spain and some of the other European countries that follow presumed consent. The foundation organizes awareness talks among public through meetings, holds rallies, organizes programmes in colleges and offices with organ donation as a theme, sensitizes police and hospital staff on issues related to donation and from time to time honors organ donor families, promotes and educates people on deceased organ donation, serves to bridge the gap in the functioning between the government, the hospitals and the organ donors. Further, it serves as a national registry for those interested in pledging their organs in the possible event of brain death. Donor cards and brochures related to organ donation and brain death are distributed at such events.

Over a milliondonationcards in English and regional Indian languages have been distributed by MOHAN foundation in over a decade. In a major organ donation drive in March 2012, MOHAN foundation partnered with HCL Technologies along with Apollo Group of Hospitals, Chennai Police, Indian Medial Association, Cadaver Transplant Programme and received 2900 pledges from policemen, doctors and corporated employees. This was the largest organ donation campaign in the country at that time. However this record was superseded by the Times of India in July-August 2013. It partnered with four NGO s in the field of organ donation and received 50000 plus pledged for organs.

Qualitative studies that explored community attitudes towards living and deceased solid organ donation reported that the decision to be an organ donor was influenced by relational ties, religious beliefs, cultural influences, family

influences, body integrity, previous interactions with the health care system-medical mistrust, validity of brain death and fear of early organ retrieval, the individual's knowledge about the organ donation process and major reservations about the process of donation, even in those who support organ donation.

NEED FOR THE STUDY

Organ shortage is a huge public health concern worldwide. According to the International Transplantation registry in Organ donation and Transplantation 2014 the top five countries with the highest organ donation rates are Spain 36 per million population(pmp), Croatia 35 pmp, Malta 28.6 pmp, Belgium 26.8 pmp, Portugal 27.7 pmp. The Australian donation rate was 16.1 donors per million people. India lags far behind with 0.26 pmp. In a country like India, which needs informed consent for organ donation, it is difficult to meet the organ demands as contrast to countries like Spain, where it is presumed consent, which makes easier to get adequate organs for donation. Tamil Nadu is one of the well-developed states of India with organ donation rate of 1.8 pmp, which is seven times higher than the national average, Chennai in Tamil Nadu fairs even better with 14 pmp, which is on par with developed countries like Germany.

Donating organ, tissue or eye is an incredible and noble gift to the society in which we live because we can give someone a second chance to live. There is currently an insufficient supply of donor organs to meet the demand for organ transplantation worldwide. Many people suffering from end stage organ failure die while waiting for organ donors. Organ donation not only

saves the lives of dying people but also improves the quality of life of many as in case of cornea, skin, or bone transplantations. Organ transplantation is the most preferred treatment modality for end-stage organ disease and organ failures. Many organs such as cornea, kidney, and liver are commonly transplanted to human recipients. However, the need for the transplants is high and the gap between organs available for transplantation and the number of patients waiting for a transplant is widening globally. Similar to the developed countries, a situation exists in India where there is a chronic shortage of organs available for transplantation. This shortage is primarily attributed to a limited number of organ donations in our country. A study from India, done in the last decade has shown that less than 50% were willing to consider organ donation. The patients on palliative care can serve as source of organs and tissues. However, the systems and pre-requisites for successful organ donation among them are lacking.

As of 10/8/2015 statistics there are currently 122,403 people waiting for lifesaving organ transplants in the U.S. Of these 10,118 await kidney transplants. In US in 2014, 17,105 kidney transplants took place in the US. Of these, 11,570 came from deceased donors and 5,535 came from living donors. Over 3,000 new patients are added to the kidney waiting list each month. 12 people die each day while waiting for a life-saving kidney transplant. Every 14 minutes someone is added to the kidney transplant list. In 2014, 4,270 patients died while waiting for a kidney transplant. Another, 3,617 people became too sick to receive a kidney transplant.

Though Australia is a world leader for successful transplant outcomes, Around 1,600 people are on Australian organ transplant waiting lists at any time. The rate of organ donation in Japan is significantly lower than in Western

countries. Only one country, Iran has eliminated the shortage of transplant organs - and only Iran has a working and legal payment system for organ donation. It is also the only country where organ trade is legal. New Zealand has low rates of live donation. Srilanka is one of the major suppliers of human eyes to the world, with a supply of approximately 3,000 corneas per year.

Vij, head of the Organ Retrival Banking Organization (ORBO) at All India Institute of Medical Sciences (AIIMS) 2015 said that "In India 200,000 people need a new kidney every year and 100,000 need a new liver, but only 2 to 3 percent of the demand for new organs is met." "The scenario in Western countries is better as after the death of the individuals the state becomes the custodian of the dead body, who take out the organs so that they can be transplanted to a needy person's body.

Organ transplantation in India has a relatively short history compared to the developed world. India's conceptual and scientific contribution to this specialty has been limited even as it has been at the epicentre of one of the biggest ethical controversies concerning transplantation. Kidney transplants in India were first performed in the 1970s. Though transplant activity picked up in the 80s and early 90s, it was largely restricted to live donor kidney transplants in selected urban centres. Transplantation of other organs such as the liver is a very recent activity.

It is pertinent to note at the outset that the benefits of transplantation are still not available to a large proportion of India's population needing them. Many patients with end stage renal disease are on long-term dialysis and lead a very poor quality of life. Even dialysis facilities are limited, expensive and

inaccessible. More than 90% of patients in South Asia die within months of diagnosis because they cannot afford treatment. It has been estimated that only 2.5% of patients with end stage renal disease in India actually end up getting a transplant. For the liver, this proportion would be an even more miniscule minority. There has been little substantial activity in transplantation of other organs like the heart and lungs.

The demand for organ transplantation has rapidly increased all over the world during the past decade due to the increased incidence of vital organ failure, the rising success and greater improvement in posttransplant outcome. However, the unavailability of adequate organs for transplantation to meet the existing demand has resulted in major organ shortage crises. As a result there has been a major increase in the number of patients on transplant waiting lists as well as in the number of patients dying while on the waiting list. Knowledge gap and misunderstandings about organ donation have generated fear and mistrust in people's mind thereby preventing them from coming forward.

With the advancements in medical sciences it is no longer acceptable to let a patient die or suffer from depression because of deformity/disability when treatments to alleviate their problems are available. But these treatments become available only, when someone donates his/her organs. Transplant recipients are not the only ones who gain from donation. Grieving donor families may also gain comfort from their choice to donate, knowing it has dramatically improved quality of life for at least one person. Their family, friends and local community also benefit by the potential contribution they make to the society after they recover. Although in India there are many NGOs actively involved in organ donation activities, they are localized to certain

regions and states and we are far lagging behind many developed countries in having organ donation activities at national level.

AparajitaDasgupta et al., Sch. J. App. Med. Sci.,(2014) stated that to have organ donation activities at national level first we have to promote and increase social-acceptance of organ donation from ground level since rumours, myths and misunderstandings about organ donation and transplantation are many.

There are several procedures and pathways which have been shown to provide practical and effective solutions to this crisis. One of the solution is implementation of appropriate educational programs for the public and hospital staff regarding the need and benefits of organ donation. As is outlined in this study, I the researcher strongly believe that the implementation of computer assisted educational programme for obtaining organs from the living and the dead donors, with appropriate consideration of the ethical, religious and social criteria of the society, the organ shortage crisis will be eliminated and many lives will be saved through the process of organ donation and transplantation.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non health professional students at selected college in Thirupur district.

OBJECTIVES OF THE STUDY

- To assess the pre-test and post-test level of knowledge and attitude regarding organ donation among non health professional students.
- To assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non health professional students.
- To find out the association between post-test level of knowledge and attitude regarding organ donation and the selected demographic variables among non health professional students.
- To assess the correlation between knowledge and attitude regarding organ donation

OPERATIONAL DEFINITION

Assess: It refers to determine the importance or value of computer assisted training to promote knowledge regarding organ donation.

Effectiveness: It refers to the degree to what extent the objectives are achieved regarding organ donation through computer assisted teaching.

Computer assisted teaching : It refers to the instructional material regarding organ donation presented by means of computer rather than one to one interaction with a student.

Knowledge: It refers to familiarity, awareness or understanding of organ donation acquired through experience or education by perceiving, discovering or learning.

Attitude: It refers to a predisposition or a tendency to respond positively or negatively towards organ donation.

Organ donation: It refers to the process of giving or donating cells or other biological tissues for the purpose of transfusion or transplantation.

Non health Professional: It refers to the person trained to work in any field except the fields related to physical and mental health.

Student: In this study ,It refers to the persons undergoing training in the field of engineering.

HYPOTHESIS

H_1: There is a significant difference between the pretest and post-test level of knowledge and attitude regarding organ donation among non health professional students.

H_2: There is a significant association between the post-test level of knowledge and attitude regarding organ donation and their selected demographic variables among non health professional students.

H_3: There is a significant correlation between knowledge and attitude regarding organ donation.

ASSUMPTIONS

- Non health professional students may have inadequate knowledge regarding organ donation.
- Computer assisted teaching is an effective way to improve the knowledge of non health professional students regarding organ donation.
- Non health professional students also can serve the society to improve the health and living standard of the people by donating their organs.
- Knowledge regarding organ donation can create a positive attitude to donate organs.
- Knowledge regarding organ donation can help the non health professional students to understand the rumors, myths, misconceptions and facts regarding organ donation.

LIMITATIONS

- The study is limited to those who are willing to participate.
- The study is limited to only 50 samples.
- The study is limited to only one college of engineering.
- The study is limited to engineering students.
- The study is limited to the period of 4 weeks.
- The study is limited to computer assisted teaching.

CONCEPTUAL FRAMEWORK

A concept is an abstract idea or normal image of phenomena or reality. Conceptualization is a process of forming idea which utilizes and forms conceptual frame work for development of research design.

A framework is a basic structure or outline of abstract. The present study aims at developing and evaluating computer assisted teaching in terms of improving the knowledge and promoting the positive attitude regarding organ donation.

The conceptual framework based on **Betralanff's theory (1968)** the general system theory. In this theory the main focus is on the discrete parts and their interrelationship, which consists of input, throughput and output. "System" as a complex interaction, which means that systems consist of two or more converted elements, which interact with each other. In this study **Input** is considered to be information related to organ donation. It includes

- Development of structured knowledge questionnaire and attitude rating scale regarding organ donation.
- Development of computer assisted teaching on organ donation.

Throughput refers to the process by which the system processes input and release an output. In this study the throughput considered for processing the input are:

- Pre test by using the structured knowledge questionnaire and attitude rating scale regarding organ donation.
- Administering computer assisted teaching on organ donation
- Post test by using the same structured knowledge questionnaire and attitude rating scale regarding organ donation.

According to systems theory **Feedback** refers to output that is returned to the system that allows it to monitor itself overtime in an attempt to move closer to a steady state known as equilibrium or homeostasis. Feedback may be positive, negative or neutral. For the present study "feedback" is related to the effectiveness of teaching programme and that will be obtained by testing the relationship between pre test and post test knowledge scores.

According to **Ludwig Von Vertalanffy** the system acts as a whole. Dysfunction of a part causes system disturbances rather than loss of a single function. Whole system can be resolved into an aggregation of feedback circuits such as input, throughput and output. The feedback circuits help in the maintenance and improvement of an intact system. In this study, effectiveness of computer assisted teaching programme is tested by interrelated elements such as input, throughput, output. From the feedback efficiency of the input such as computer assisted teaching programme regarding organ donation will be assessed. The process of teaching as throughput will be assessed in terms of effectiveness.

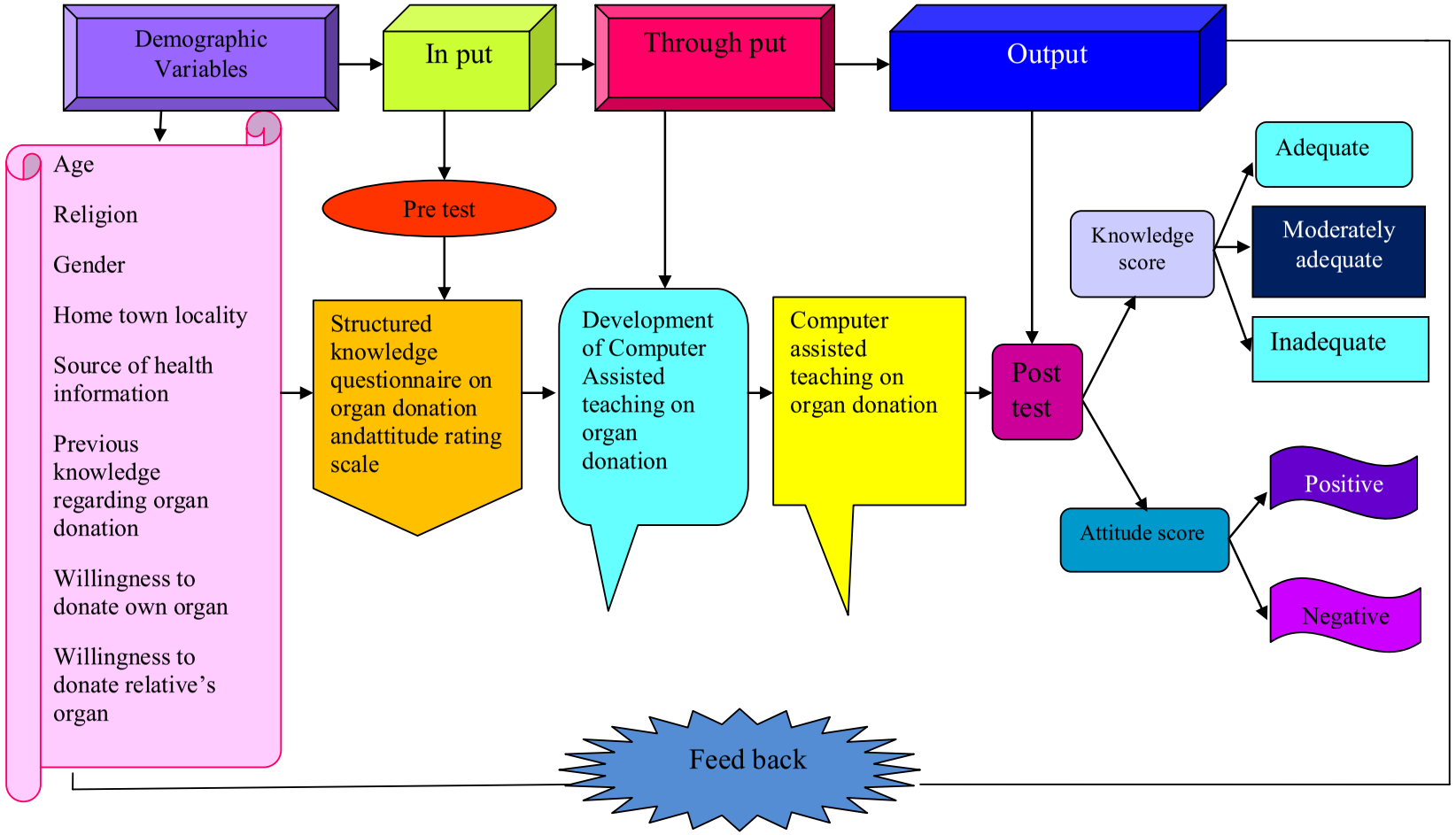

Fig 1 : Conceptual framework model based on modified general system theory (Betralanff&JW Kenny)

Chapter – II

Review of literature

CHAPTER – II

REVIEW OF LITERATURE

A **literature review** is a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Literature reviews use secondary sources and do not report new or original experimental work.

A literature review is an evaluative report of information found in the literature related to our selected area of study. The review describes, summarises, evaluates and clarify the literature. It gives a theoretical base for the research and helps the author to determine the nature of research. It is not just a descriptive list of the material available, or a set of summaries.

"A literature review is an account of what has been already established or published on a particular research topic by accredited scholars and researchers."

-University of Toronto, 2001

This chapter attempts to preset a broad review of the studies conducted, the methodology adopted and conclusion drawn by earlier investigation, it helps to

study the problem in depth. The literature reviewed for the present had been presented under the following heading:

A. Studies related to knowledge, attitude, awareness and perception regarding organ donation

B. Studies related to effectiveness of education regarding organ donation

C. Studies related to barriers and facilitators regarding organ donation

A.STUDIES RELATED TO KNOWLEDGE, ATTITUDE, AWARENESS AND PERCEPTION REGARDING ORGAN DONATION

AparajitaDasgupta et.al,(2014) conducted a observational cross sectional study to find out the perception of people regarding organ donation in a slum area of Chetla, Kolkata. 110 adults aged 18 years and above were selected by simple random sampling method. Data was collected by distributing the semi structured questionnaire. Data analysis was done by using R software. Univariate logistic regression was used to test the significance of the variables in influencing knowledge and attitude regarding organ donation. Significant variables in bivariate analysis were further assessed by multivariate logistic regression analysis. The study found that none of them knew that apart from Eye and Kidney other organs can also be donated. 84.5% were aware of the term organ donation, 70.9% didn't have any preference organ donation to any particular religion. Although 35.5% would donate an organ if required only 11.8% were ready to sign a card regarding donation after death. 40.5% have said that they would take money in exchange of

organ donation. Our study has found fear (63.4%) as the main reason for not donating organs followed by possible objection from family (36.6%).40% and 43.6% of people have satisfactory knowledge and attitude respectively. The study concluded that mass awareness campaigns are necessary to promote organ donation.

HeykeM.Chacko(2014) carried out a co-relational study to assess the knowledge and attitude regarding eye donation among the adolescents and to identify the relationship between them at Yenepoya University, Mangalore, Karnataka, India. The structured knowledge questionnaire and attitude scale on eye donation were used to collect the data. The data were collected by questionnaire method from 100 adolescents, who were selected using non probability purposive sampling technique. Descriptive and Inferential statistics were used to analyse the data. The mean percentage of the knowledge scores among adolescents were 57% the mean percentage of the attitude scores among adolescents were 70.5% and there was a positive correlation between knowledge and attitude among adolescents. The study concluded that adolescents had good knowledge and positive attitude towards eye donation and there was positive co-relation between knowledge and attitude among adolescents.

ManojanKK(2014) conducted a cross sectional study to assess the knowledge and attitude towards organ donation among the population aged 18 and above in rural settings of Kerala. Samples were selected by using purposive sampling technique. Data was collected by using semi structured questionnaire through the structured interview schedule. Data were analysed by using SPSS version 20. The study found that majority (97%) of the participants has heard

about organ donation but only 53% had a good knowledge. 48% had poor attitude towards being an organ donor. 50% thought that live organ donation can cause severe health problems. Organ specific willingness for donation among participants was highest for eye, followed by kidney and liver.

Agarwal(2014)conducted a cross sectional study to determine the level of knowledge among medical students regarding organ donation and their overall attitude towards the concept of organ donation at Mandya Institute of Medical Sciences, Mandya, Karnataka. 393 students participated in the study were selected by simple random sampling. Questionnaire in the form of true or false for knowledge, Five point Likert scale for attitude were distributed to collect the data. Data was analyzed by SPSS version 10. Chi square test was used to find out the association. The study found that all the students knew about organ donation and Majority 55.2% answered media as their major source of information. 300 students (76.3%) answered that brain dead persons can be considered for organ donation. 76.8% students regarded infections as a contraindication to organ donation. Heart and kidney was majorly answered as the organs that can be donated. 90.4% agreed that organ donation is a gift of life to another individual, though only 57.3% were willing to donate their organs. 14.2% believed their religion does not allow them to donate organs, while 7.4% believed that organ donation may disfigure their body after death. The study concluded that medical students have positive attitude towards organ donation and there was a high level motivation and desire among the students to learn more on this topic of organ donation.

Yadav(2014) carried out a descriptive cross sectional study among 400 students of different nursing colleges of Belgavi city using pretested, self administered questionnaire to assess the knowledge and awareness regarding eye donation. Proportionate based random sampling technique was used. Data was analyzed by using SPSS version 20. It was found that majority of the students (98.5%) had heard about organ donation. 100% students had heard about eye donation but 75.5% students knew that eyes can be donated after death and ideal time of donation within 6 hours of death. Nearly more than half (58.5%) students knew that cornea only can be donated which was correct. About 64.25% students were willing to donate their eyes to save vision of blind people. Majority students had average knowledge and attitude and only few students had good knowledge and attitude on eye donation. It was concluded that nearly more than half of students had average knowledge and about three quarters of the students had average attitude regarding eye donation.

GuptaP(2013) conducted a cross sectional study to find out the awareness of the concepts of brain death and organ transplantation among public in Delhi. 636 persons which included 266 office goers, 188 school children of class 12^{th}, 182 villagers were selected by using convenient sampling method. Structured questionnaire was used to collect their understandings regarding brain death and organ donation. Data was analyzed by using mean, frequency, percentage, t test, Chi square test. Majority of the respondents had heard about organ transplantation and were aware that organ transplantation is legal in India. Awareness about brain death was relatively poor being 81%, 60%, and 11% in office goers, school children and villagers respectively. In three different populations only 29%, 55%, 8% knew that brain death is legal in India and only 56%, 50%, and 8% respectively considered that brain death is equivalent to death. Among office

goers, 81% were willing to donate their organs and 61% agreed to carry a donor card with them. Willingness to donate organs and to carry a donor card among villagers was 46%. 79% of office goers and 81% of villagers did not consider that their religious background is a hindering factor to the concept of brain death and organ transplantation. About the awareness of choice of an ideal candidate for organ donation in three different groups 41%, 66%,and 8% of them choose brain dead individual as an ideal candidate, while 31%, 62%, 42% and 28%, 56%, 40% considered live and cadaver respectively as an ideal candidate. Most of respondents were aware of kidneys, eyes and to some extent heart transplantation. They had less awareness about liver, lungs, and pancreas transplantation.

Ling (2013) conducted a cross sectional study to examine the attitude of young British adults towards donating their own organs and those of their family members in UK. 119 participants were selected by using purposive sampling technique completed an attitude questionnaire. Mean, Standard deviation,'t' test were used to analyze the data. The study revealed that Attitudes towards donation were generally positive, with nearly two-thirds of participants either agreeing or strongly agreeing with donating an organ for transplantation and almost 90% agreeing or strongly agreeing with receiving one. 63.9% of participants were willing to donate their organs compared to 78.2% of participants who were willing to receive one. Participants who had heard of the proposed opt-out system were more likely to have a positive attitude towards organ donation (mean = 4.12) than those who had not (mean 3.64, $t = 2.83$, df = 117, $P = 0.019$), and there was a trend towards them being more positive towards receiving a donated organ (mean 4.42 and 3.84, respectively, $t = 3.20$, df = 117, $P = 0.065$). Majority were in favor of donating family members' organs, and this was lower than the level for donating their own organs. There was no significant difference between the sexes

in attitudes towards organ donation. Female respondents being more likely to agree to donate relatives' organs. There was no significant difference between religious and non-religious participants on any of the questions, nor was there an effect of either education or employment status.

Mithra et.al,(2013)carried out a crosssectionalstudytoseek an insight into the awareness and attitudes towards organ donation and to evaluate the factors associated with the same among the people seeking health care in the tertiary care centers of Coastal city of Mangalore. Three Tertiary care centers were chosen using Simple Random Sampling (lottery method). The sample size was 863 and they were selected by using convenient sampling. Data was collected by interview method. The collected data was analyzed using Statistical Package for Social Sciences (SPSS) version 11.5. Chi square was used to test the significance of each group. All the participants had heard about organ donations. Regarding attitude towards organ donation, 59.6% of the participants were willing to donate organs while 49 participants did not show any willingness to donate organs. The willingness to donate organs in general was highest among 20-40 years age group. The willingness to donate organs was higher among females than males (64.1% v/s 56.8%) and participants from upper than lower socio economic status (62.7% v/s54.2%) and the willingness was higher among Hindus and Christians than Muslims.

Annadurai(2012)carried out a cross sectional study to assess the knowledge, attitude and practice about organ donation and to study the association of socio demographic factors with knowledge, attitude and practice of organ donation among 440 college students in aged 18 years and above in Hindustan

Arts and Science College, Chennai, Tamilnadu. Samples were randomly selected using computer generated random numbers. Data collection was done by using interview method by using pretested questionnaire. Data analysis was done by SPSS software and descriptive statistical analysis which included frequency, mean, standard deviation, percentage was used to characterize the data. Chi square test was used to find out the association. The study found that all the participants were aware of the term organ donation, Knowledge about different aspects was low. 86.1% were not aware oflegislation. 75% of respondents were in favor of organ donation, but only about 2% were registered for organ donation. The study implied the need for intensified and sustained education campaign to raise the knowledge on organ donation and its practice among students.

Agarwal ((2012) conducted a cross sectional study to study the awareness and knowledge of medical (132), Lab Technology and Physiotherapy (190), and nursing (76) students towards eye donation at People's University at Bhopal. 400 students were selected by convenient sampling technique. Data was collected by using a pre structured, pre tested closed ended questionnaire. SPSS version 17 was used to analyze the data. Overall the awareness about the existence of practice of eye donation was high (98%) among the students. But not even half of them (46.75%) were willing to donate their close relatives's eyes. Only 53% knew that eye is removed by eye surgeon. Almost half of the students didn't know that eyes cannot be donated by a living person. Only 40% knew that eyeball should be removed within six hours after death. Cornea is removed separately and is used for grafting was known to only half of them. Overall the awareness and knowledge of medical students was better than nursing and paramedical students. The difference of knowledge and awareness between three groups of students was statistically significant.

Khan et.al,(2011) conducted a cross sectional study to determine the knowledge, attitude, awareness and determinants of organ donation and transplantation among adult population aged between 18-60 in the Madina Teaching Hospital, Faisalabad, Pakistan. 200 samples were selected by convenient sampling and data was collected by predesigned close ended questionnaire using Face to face interview method. Data was analyzed by SPSS version 17. Among 200 samples 28 were never heard about organ donation and 172 were aware about organ donation. There was a significant association of knowledge about organ donation with education(p=000) and socioeconomic status (p=0.003). Attitude toward organ donation was associated with age (p=0.017), education (p=0.000) and socio economic status (p=0.000). Majority (67.4%) reported that their religion allows organ donation and it should be promoted and for 46% television was the major source of information regarding organ donation. 90% thought that organ donation was considered to be ethically correct and none of the respondents was actual donor. The study concluded that there was a wide gap in terms of organ donation on the basis of education and socio economic status among the sample population. So multi sectorial approach should be used to promote awareness regarding organ donation.

Singh M (2010)conducteda cross sectional study to assess the perception of medical students of MMIMSR, Mullana, Ambala regarding eye donation. 467 students were selected by purposive sampling technique. A pretested, semi-structured questionnaire was used for collecting the necessary information after getting informed consent. The data was statistically analyzed using SPSS version 11.5. The study found that 96% of the students knew about corneal donation

though only 67% were willing for eye donation. 13% reported, objection by family and 3.2% reported religious factors as restrictions for eye donation. There were many misconceptions regarding eye donation. 27% thought that eye donation would result in delay in funeral arrangement. The study concluded that there is an imperative need to emphasize undergraduate teaching to evade myths concerning eye donation and promote eye donation.

Sonmez(2010)conducted a cross sectional study to detect the behavior and attitude of 1287 last term students at a university of South Korea regarding organ donation. Samples were selected by using random sampling method. Data was collected by administering self reported semi structured questionnaire. Data was analyzed by using SPSS version 16. Among 1287 students 1.3% stated that they would donate their organs. Among students did not agree, 58.7% were considering donation. The main reasons for not agreeing to donation were fear of commercial use (45.7%) and the belief of inappropriateness related to religion (25.7%). In contrast 62.3% stated that they would donate their organ when needed for their relatives. Also, 50.6% indicated that if one of their relatives died, they would donate their relatives's organs. There was no significant difference based on gender. In addition, favourable thoughts about donation were significantly more prevalent for female subjects (P=.001). Organ donation behavior and thoughts were significantly higher among the group with better economic position (P=.001). Higher donation ratios were observed for students who had a relative working in the medical field and the group who stated they were well informed about organ donation.

TaimurSaleem et.al,(2009) conducted a cross sectional survey at five conveniently selected market places to determine the knowledge, attitudes and practices regarding organ donation in a selected adult population in Pakistan. Convenience sampling was used to generate a sample of 385. Data collection was carried out via a face to face interview based on a pre-tested questionnaire in selected public areas of Karachi. Data was analyzed using SPSS version 15 and associations were tested using the Pearson's Chi square test. Multiple logistic regression was used to find independent predictors of knowledge status and motivation of organ donation. 60% in this survey achieved an adequate knowledge score for Organ Donation while 40% had inadequate knowledge. The study revealed that Knowledge about organ donation was significantly associated with education ($p = 0.000$) and socioeconomic status ($p = 0.038$). 35.3%) people expressed a high motivation to donate. Allowance of organ donation in religion was significantly associated with the motivation to donate ($p = 0.000$). Only 3.5% had themselves donated an organ; with only one person being an actual kidney donor. The study concluded that better knowledge lead into the act of donation, so effective measures should be taken to educate people with relevant information with the involvement of media, doctors and religious scholars.

Gupta (2008) conducted a cross sectional study to assess the awareness and perception of 188 first and second year nursing students towards eye donation in Florence College of Nursing, Kalyannagar, Bangalore. Simple random sampling was used to select the samples. A pretested, semi structured questionnaire was self administered for collecting the necessary information after obtaining informed consent. The data was analyzed by using the Epi-info software package, version 6.04. It was observed that 102 (96.2%) males and 80(97.5%) females knew that eyes can be donated after death, that they should ideally be donated within 6 hours

of death was known to 72(38.2%). 108(85.1%) were either willing to donate eyes or had already pledged to donate their eyes. Television was the most common source of information on eye donation for 145(77.1%) followed by the newspaper for 136(72.8%) students and magazines for 94(50%) students. Nobility in the act of eye donation was the main motivational force according to 137(85.6%). Other major reasons were pleasure to help the blind (77.5%), donated eyes can give vision to a person (71.8%), and influenced after reading and article(71.2%). The study concluded that nursing students were well aware of eye donation and most of them were inclined to pledge for eye donation.

Barcellos FC (2005) conducted a cross sectional study to identify the prevalence of people's willingness to donate their own organs and from their relatives, and to evaluate associated factors among adults aged 20 years and above in the urban area of Pelotas, State of Rio Grande do Dul Brazil. Sample size was 3159 and they were selected by purposive sampling technique. Structured questionnaire was used as a tool and the data was collected by interview method. Chi square test, Linear trend test and multivariated analysis were used to analyze the data. The prevalence to donate organs was 52%, and 58% had expressed such willingness to a relative. The evangelist and Jehovah's witnesses practitioners showed to be less prone to donate. The study concluded that when the people had not enough information regarding family member's donation wished the rate of willingness to donate organs is lower and sociodemographic characteristics influence the rate of public willingness to donate organs and campaigns educational should be directed to improve rates of donation the organs.

B.STUDIES RELATED TO EFFETIVENESS OF EDUCATION REGARDING ORGAN DONATION

McGlade(2013) conducted a cross sectional pre and post test design to examine the attitude and behavior of 115 student nurses undertaking a full time degree course leading to the award of B.Sc(Hons) and to assess their level of knowledge about organ donation before and after a programme of study at the University of Ulster, Northern Ireland. Samples were selected by Convenience sampling technique. Data was collected by using questionnaire within an hour of start of the programme of study and after the completion of 33 hours of study programme regarding organ donation. Data analysis was done by using SPSS version 19. The result demonstrated that prior to the programme of study, around one third of the participants did not understand which organs could be successfully donated after death and this was most petinent in relation to donation of corneal tissue. Less than a fifth of participants were aware of the many different methods that exist to register organ donation intentions in the UK before the programme but this was improved after completion of the programme. The study found that a short programme of study can effectively improve student nurses's knowledge of organ donation and positively influence their ability to discuss organ donation intentions with their family.

Azmandian(2013) carried out a semi-experimental study in the form of test –retest method in Kerman University of Medical Sciences, Kerman, Iran to assess the effect of education on knowledge and attitude of nurses about organ donation. 120 nurses of emergency wards and ICU selected by purposive sampling method participated in the educational seminar of brain death. Before and after education

data were collected by a self designed questionnaire. The study found that before education the least knowledge was about three organs of lung, pancreas and bone marrow that it was 73.3%, 57.5% and 54.2% respectively while after education it had been increased 95%, 91.7%, and 80% respectively. The average of nurses knowledge about process of brain death and donation after education was 9.4 (±0.78) that in compare with before education had 7.5 (±2.6) significant increase ($p<0.001$). Total average of nurses' attitude towards process of brain death and organ donation before training course was 65.7 (±13.7) which had been significantly increased to 76.9 (±8.7) two weeks after education ($p<0.001$). The study concluded that more educational programs are necessary for increasing knowledge about brain death and organ donation among health staff especially in ICU and emergency wards that are starter of diagnosis process of brain death patients.

RYkhoff ME et.al,(2010) conducted a quasi experimental study to assess the health sciences college student's knowledge, attitude and beliefs about organ donation and to determine if an educational session increases awareness and influences their attitudes and beliefs related to organ donation in Ontario, Canada. 235 college students from 6 academic programs (Bachelor of nursing from first and fourth year, practical nursing, paramedic, funeral services and occupational therapy/physical therapy assistant) were selected by convenient sampling method to participate in the study. The students underwent an educational session and 7 minute audiovisual presentation on organ donation. Before and after education semi structured questions administered to collect the data. Descriptive and Inferential statistics were used to analyze the data. The study revealed that in the post intervention survey 86% were more aware of organ donation, 85% were more aware of living donation. Awareness of the need for family consent for donation increased significantly from 52% to 96%. The percentage of participants willing to

donate their organs increased from 52% to 63%. Among the 20% of participants who responded that they would not donate their organs and the predominant rational was fear. The study concluded that educational sessions in the health sciences curriculum can increase awareness of organ and tissue donation.

Vicky Cardenas et.al,(2010) conducted a quasi experimentalstudy at each of three urban high schools in the Seattlle, Washington area to assess the effectiveness of classroom education on knowledge and attitude regarding organ donation. A baseline questionnaire was administered to randomly selected 187 students in all 13 health science classes in the three high schools. In each school, the subsequent education or intervention session was delivered to all health classes regarding organ donation on a single day within the following two weeks. Students in classes assigned to the intervention group received the educational session, after which they completed the second questionnaire while the students in control group completed the second questionnaire at the beginning of their classes, before receiving the health education session. Data analysis was done by using Stata/SE 9.0 software. Overall, in the intervention group, 31% of students changed their opinion in a positive direction, 14% in a negative direction, and 55% remains unchanged. In the control group, 7% changed opinions positively 8% negatively, and 85% were without change. On logistic regression analysis, receiving the intervention was significantly associated with movement along the willingness to donate opinion scale ($p<0.0001$). The study concluded that students receiving the intervention would have a positive change in willingness to donate by the second survey was 7.14 when compared to students in the control group.

J.Brug(2006) conducted a cross sectional survey to describe the process evaluation of an organ donation education programme for high school students aged 15-18 of which the effectiveness was established. The programme consisted of three components : a video with group discussion, an interactive computer-tailored programme and a registration training session. 39 high schools in the Netherlands were randomly selected to participate in the present study. 77 teachers who had worked with the organ donation and registration program were invited to complete a questionnaire measuring their opinion about the program. Descriptive and inferential statistics were used to analyze the data. Teachers evaluated the video and subsequent group discussion with a mean grade of 7.1, the interactive computer program was graded with a 6.7 and the registration training session was evaluated with a mean grade of 6.2. Overall the Organ donation and Registration program was evaluated with a mean grade of 6.9. Teachers attitude towards the learning objectives for the organ donation and registration program were generally positive. The study concluded that school based education program seems to be effective.

C.STUDIES RELATED TO BARRIERS AND FACILITATORS REGARDING ORGAN DONATION

Flower (2013) conducted a cross sectional explorative study to identify the perceived barrier and facilitator of organ donation among general public of Puducherry, India. 400 subjects between the age group of 31-40 years were selected by purposive sampling technique to participate in the study.Datas were collected by face to face interview method. Collected data was analyzed by using SPSS version 14 with appropriate descriptive and inferential statistics. The study revealed that 69.75% of the subjects reported that they wish to donate their organs,

whereas the remaining 0.25% reported that they will not donate their organs either during their life or after their death and the most common barriers perceived by the subjects related to organ donation were as follows, 82.8% had family opposition, 69% had complicated organ donation procedure, 58.36% had fear that donation affects their future, 55.2% said that misuse of organs. The most important facilitating factors of organ donation were thought of saving someone's life (95.9%), feeling of improved sense of humanity (95%), to save the life of a close relative, thought that their organ live after their death (92.6%) and being a role model for others (77.7%). There was a significant association between education and organ donation. The study concluded that knowledge regarding organ donation remain still poor and the identified barriers and facilitators should be taken in the account while motivating the general public to donate organ in the future.

Michelle J.Irving(2011) conducted a systematic review of qualitative studies that explored community attitude towards living and deceased solid organ donation to inform strategies to improve organ donation rates. Medline, Embase, PsyclNFO, and EconLIT were searched. A thematic synthesis of the results and conclusions reported by primary authors was performed. Eighteen studies involving 1019 participants were identified. Eight themes emerged. They found that the decision to be organ donor was influenced by relational ties, religious beliefs, cultural influences, family influences, body integrity, previous interactions with the health care system like medical mistrust, validity of brain death and ear or early organ retrieval, the individual's knowledge about the organ donation process and major reservations about the process of donation, even in those who support organ donation.

Brown CV et.al,(2010) conducted a four year retrospective study to compare families who declined organ donation to those who granted consent, specifically to identify barriers to family consent for successful organ donation in USA. Totally 827 families were studied. Overall 471 families (57%) consented to organ donation, whereas 356 families (43%) declined. There was no difference in male gender between the decline and consent groups (59% vs 53%, p=0.12), the decline group had more medial brain death (73% vs 58%, p <0.001), more potential donors aged 50 years of older (43% vs 34%, p<0.001), as well as more potential organ donors of Hispanic (67% vs 43%, p<0.001) and African American (10% vs 4%, p<0.001) descent. Logistic regression identified race, older age and death from a medical cause as independent risk factors for failure of obtaining consent. In addition time from declaration of brain death to family approach was longer for the decline group (350 minutes vs 112minutes, p=0.001). The study concluded that family members of minority populations, medical brain deaths, and older potential donors more often decline consent for organ donation. Family education and resource utilization toward these specific population of potential organ donor may help to improve organ donation consent rates.

Catherine M. White (2010) conducted an explorative study to examine the perceived factors that may prevent and encourage people's organ donation for both types of living as well as deceased donation in Queensland University of Technology, Australia. Fifty four participants comprising students(30) and community members (24) purposively selected were participated in focus group or individual discussion about organ donation. Both descriptive and inferential statistics were used to analyze the data. The study reported that their family's

subjection to donation was the major barrier to posthumous donation and the barriers to living organ donation were lack of knowledge about the process of organ donation, costs involved with donation and transplantation, impact of living donation such as the possibility of premature death. In contrast to the barriers, only two motivators encouraging posthumous living donation was whether a family member or loved one were sick and needed an organ.

Chapter – III

Methodology

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem. Methodology is a significant part of any research which enables the researcher to organize the procedure of collecting reliable data for the problem under study or investigation.

According to **Polit and Beck (2004**) research methods are the techniques used by the researcher to structure a study to gather and analyze information relevant to research question.

This chapter deals with methodological approach adopted for the study. The methodology includes description of research approach, research design, variables, setting, population, sample, sample size, sampling technique, development of the tool, description of the tool, validity, reliability, pilot study, data collection procedure, plan for analysis and ethical consideration.

RESEARCH APPROACH

Research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation.

According to **Suresh K. Sharma (2011**) the research approach involves the description of the plan to investigate the phenomenon under study in a quantitative, qualitative or a combination of the two methods. Furthermore, it helps to decide whether the presence or absence as well as manipulation and control over variables.

The selection of research is the basic procedure for the research of enquiry. Quantitative Evaluative approach was considered as appropriate for the present study. Evaluative research is generally an applied research that involves the findings out of how well a program, practice, procedure or policy is working. It involves the collection and analysis of information relating to the functioning of a program or intervention with aim of assessing the effectiveness.

RESEARCH DESIGN

The research design refers to the overall strategy that we choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring us will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data. Research design is the framework that has been created to seek answers to research questions.

According to **Kothari,** Research design is the arrangement of condition for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.

The research design selected for the present study was pre-experimental with one group pretest and post-test design, in which pre–test was conducted, followed by Computer Assisted Training regarding organ donation and then conducted post- test for the same group.

RESEARCH DESIGN NOTATION

GROUP	**PRE TEST** **(Day 1)**	**INTERVENTION** **(Day 8)**	**POST TEST** **(Day 16)**
Experimental	O_1	X	O_2

Symbol used:

O_1 = Pre test to assess the level of knowledge and attitude before Computer Assisted Teaching programme among non health professional students studying at Erode Builders Educational Trust Group of Institution, Nathakadaiyur, Thirupur district.

X= Structured teaching programme in the form of computer assisted teaching regarding organ donation.

O_2= Post test to assess the level of knowledge and attitude after attending Computer Assisted Teaching regarding organ donation among non health professional students studying at Erode Builders Educational Trust Group of Institution, Nathakadaiyur, Thirupur district.

SCHEMATIC PRESENTATION OF RESEARCH DESIGN

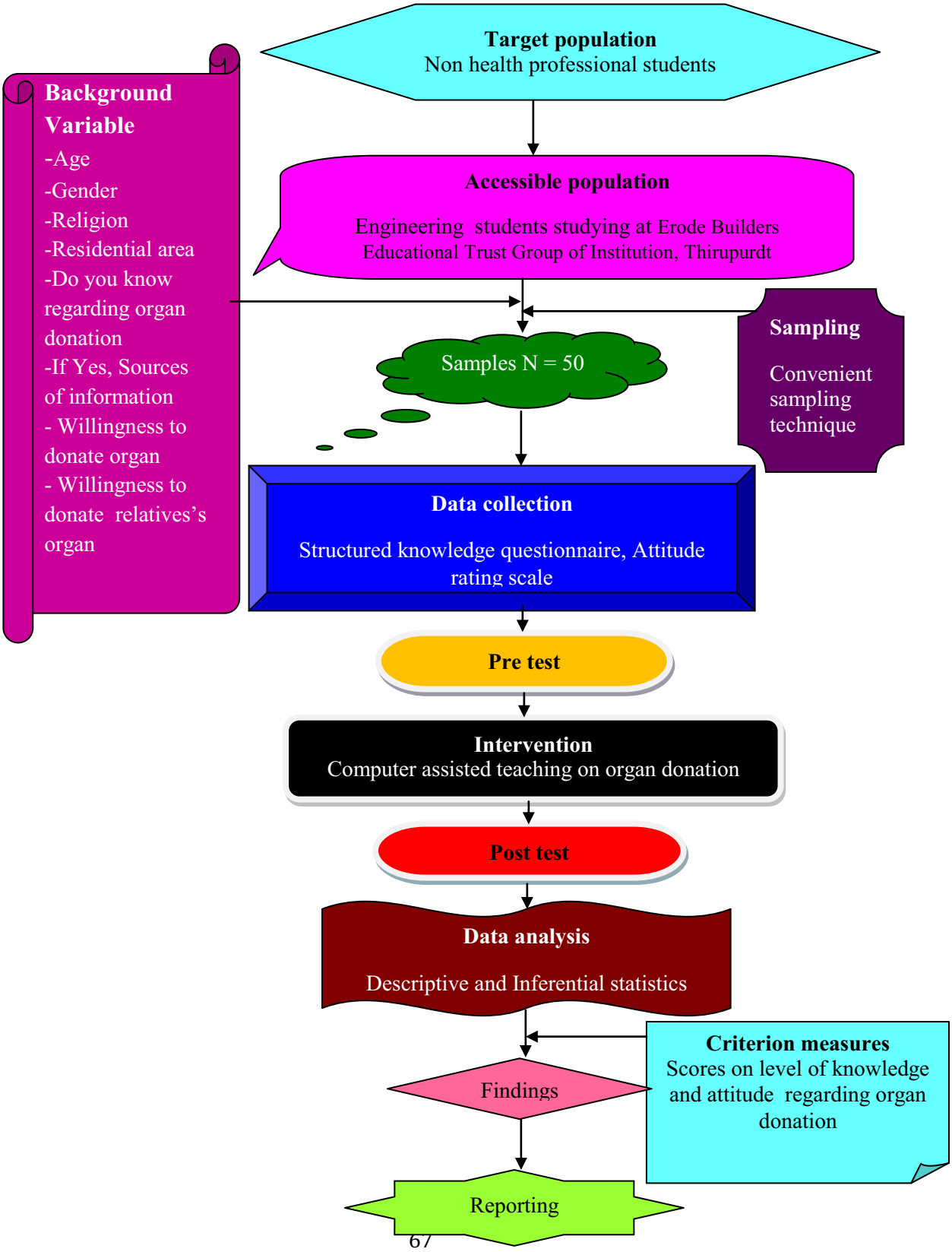

Fig 2 : SCHEMATIC PRESENTATION OF RESEARCH DESIGN

VARIABLES

Variables are qualities of properties or characteristic of person, things or situation that change or vary.

Chinn and Kramer stated that *"*Variables are concepts at different level of abstracts that are concisely defined to promote their measurement or manipulation within study". Variables are classified as Independent and dependent variable, Research variable, Demographic variable and Extraneous variable.

Dependent variables

It is the focus of the study and reflects the empirical aspects of the concepts being studied.

Dependent variable – Knowledge and Attitude regarding organ donation.

Independent variable

Variable causing change is referred asindependent variable. It is the intervention or treatment that the investigator performs to see the resulting change in the dependent variable.

Independent variable – Computer Assisted Teaching regarding organ donation.

Demographic variables

In most of the studies, researchers make the attempt to study the sample characteristics and present them in research findings. In addition, sometimes researchers even try to establish relationship between the demographic variables with the research variables. These characteristics and attributes of the study subjects are considered as demographic variables.

In the present study the demographic variables were Age, Gender, Religion, Residential area, Regardingorgan donation, Sources of information, Willingness to donate organ, Willingness to donate relatives's organ.

SETTING OF THE STUDY

According to **Polit and Beck (2004)** setting is the more specific places where data collection occurs. The selection of setting was done on the basis of feasibility of conducting the study, availability of subjects and cooperation of the authorities. The college selected for the study was Erode Builders Educational Trust Group of Institution had been located in Nathakadaiyur, Thirupur district, 2 Kilo Metres away from SPM College of Nursing, Palayakottai, in which 2000 students were studying. A total of 2000 students 60 were in BE (Electronics and Communication engineering) first year. Among them 34 were males and 26 were females. 24 males and 26 females were selected to participate in the study.

POPULATION

Polit and Beck (2012) stated that the term population refers to the aggregate or totality of all subjects or members that confirm to a set of specifications. Population may be of two types- target population and accessible population.

The **target population** consists of the total membership of a defined set of samples are selected and to whom the data will be generalized. In this study the target populations were Non health professional students.

Accessible population refers to the aggregate of cases which confirm to the designed criteria and which is accessible to the researcher as the pool of subject or object. In this research the accessible populations were the first year B.E (Electronics and Communications) engineering students at Erode Builders Educational Trust Group of Institution, Nathakadaiyur, Thirupur District.

SAMPLE

Polit and Beck (2012) stated that a sample consists of the subset of the population selected to participate in the research study. The sample for the study were engineering students who met the inclusion criteria studying at Erode Builders Educational Trust Group of Institution, Nathakadayiur, Thirupur district.

SAMPLE SIZE

Sample size is the number of participants in the study. The sample size is determined based on the type of study, variables being studied, the statistical significance required, and availability of samples and feasibility of conducting the study. The sample size for this study was arbitrarily decided to be 50.

SAMPLING TECHNIQUE

It is the process of selecting subject from a population in order to obtain information regarding a phenomenon in a way that represents the entire population. In this study researcher selected the samples by convenient sampling method.

SAMPLING CRITERIA

In sampling criteria the researcher specifies the characteristics of the population under the study by detailing the inclusion and exclusion criteria. Inclusion criteria are characteristics that each sampling element must possess to be included in the sample. Exclusion criteria are characteristics that could confound or contaminate the results of the study therefore such participants are excluded from the study.

CRITERIA FOR SELECTION OF SAMPLES

Inclusion criteria

- Engineering students who are willing to participate.
- Engineering students who are present on the day of data collection.
- Engineering students including males and females.
- Engineering students who know to read, write, understand Tamil and English.
- Engineering students only in first year

Exclusion criteria

- Engineering students who are not willing to participate.
- Engineering students who are sick.
- Other non health professional students.
- Engineering students who are exposed to any teaching programme related to organ donation in the past.

DEVELOPMENT OF THE TOOL

The tool is an instrument that best obtain data pertinent to the study and at the same time adds to the body of general knowledge in the discipline. The investigator used self-administered structured knowledge questionnaire and attitude rating scale to assess the knowledge and attitude of students regarding organ donation. It is considered to be an appropriate instrument.

DESCRIPTION OF THE TOOL

Description of the tool refers to the explanation of the content of the tool. The researcher listed the number of items and the scoring for each item in the tool. The tool for data collection consists of following sections:-

Part 1 :Socio-demographic variables

It deals with demographic variables which include Age, Gender, Religion, Residential area, Regarding organ donation, Sources of information, Willingness to donate organ, Willingness to donate relatives's organ.

Part 2: Knowledge questionnaire regarding lifestyle practice

This part consists of 30 multiple choice questions which will be very helpful to assess the knowledge regarding organ donation before and after the computer assisted teaching programme. The Knowledge regarding organ donation was measured in terms of knowledge score. Each correct answer was given a score of one mark and wrong answer or unanswered was given a score of zero. The maximum score was 30 and the minimum score was Zero. To interpret the level of knowledge the scores were distributed as follows :

Score	Percentage	Interpretation
0-12	0-36%	Inadequate knowledge
13-20	43%-66%	Moderately adequate knowledge
21-30	70%-100%	Adequate knowledge

Part 3: Attitude rating scale

It allows the participants to express their opinion regarding organ donation. The scale consists of 10 statements to assess the tendency of the participants towards organ donation. Each statement has four options like Strongly Agree, Agree, Disagree, Strongly disagree and the scores were distributed as 4,3,2,1. The maximum score is 40 and the minimum score is 1.

Score	Percentage	Interpretation
1- 20	2.5% - 50%	Positive attitude
21- 40	52.5% - 100%	Negative attitude

VALIDITY OF THE TOOL

The tool was given to five experts for validation which includes one doctor, three nursing experts in medical & surgical nursing, one English professor. The experts were requested to give their opinion regarding relevancy, accuracy and appropriateness of the items for further modifications. Based on the suggestions given by the experts, modification and rearrangement of few items were done. The demographic data consists of 9 items according to the experts opinion. The first draft of knowledge questionnaire consisted of 36 items there was 100% agreement on 30 items of the knowledge questionnaire was retained as per expert's opinion.

First the attitude scale consists of eight statements. After getting the content validity two extra statements were added in the attitude scale.

RELIABILITY OF THE TOOL

Reliability of the instrument is the degree of consistency with which it measures attribute it supposes to measure, it refers to the extent to which the same results are obtained on repeated administration of the instrument. The reliability of a measuring tool can be assessed in the aspects of stability, internal consistency, and equivalence depending on the nature of the instrument and aspects of the reliability concept.The reliability of the instrument was estimated by test-retest method by using Karl Pearson coefficient correlation. The reliability value of the instrument was 0.8 for knowledge and 0.87 for attitude and it was found to be statistically reliable for the main study.

DEVELOPMENT OF THE STRUCTURED TEACHING PROGRAMME

The Computer Assisted Teaching in the form of power point presentation was developed with the guidance of the medical and surgical nursing experts based on the objectives, review of literature and to the level of understanding of the students and the content of training programme was modified with necessary correction.

The structured teaching programme was organized in to various heading as follows

- Introduction
- Definition of organ donation
- Importance of organ donation in our country
- History of organ donation
- Organ donation in Tamilnadu
- Sources of organ donation
- Alternative organ sources
- Criteria for organ donation
- Storage of organs
- Organs and tissues can be donated
- Advantages and disadvantages of organ donation
- Organ specific indication for organ donation
- Organ specific contra indication for organ donation
- Absolute contra indication to consideration of deceased donation
- Myths regarding organ donation
- Ethical issues in organ donation
- Acts in organ donation
- Drawbacks of organ donation
- How to register for organ donation

PILOT STUDY

The pilot study is the trial run of study conducted before the actual study in different population with similar characteristic. The pilot study was conducted to assess the reliability, practicability, content validity and feasibility of the tool. It was conducted at Jai Ram Engineering College, Padiyur, Thirupurdistrict after getting formal permission from the concerned authorities. Ten samples who met the inclusion criteria had been selected by convenient sampling technique. The selected subjects were informed about the purpose of the study and consent was obtained. Assessment of knowledge and attitude was done by using structured knowledge questionnaire and attitude scale regarding organ donation. Post-test was conducted using the same structured knowledge questionnaire and attitude scale regarding organ donation on the seventh day of pre-test and after the administration of Computer Assisted Teaching programme. The result of the pilot study showed that there was a significant relationship between the Computer Assisted Teaching and the knowledge and attitude. The study found that there was an improvement in the knowledge regarding organ donation and a positive attitude regarding organ donation. The time taken to complete one questionnaire was 30 minutes. The collected data were analyzed using descriptive and inferential statistics.

After conducting the pilot study, it was found that the study was feasible. The concerned authority and the sample were found to be cooperative, the questionnaire and Computer Assisted Teaching programme were relevant and the time and cost of the study was within the limit.

ETHICAL CONSIDERATION

For the present study, Ethical values were taking into consideration. The study was accepted by the research ethical committee of the college. Prior permission was obtained from the concerned authorities of the Erode Builders Educational Trust Group of Institution, Nathakadaiyur, Thirupur district. Purpose of the study was explained to the samples and informed written consent was taken. Confidentiality was promised and ensured. The participants were given freedom to quit from study in between if they are not willing to participate. No routine duties were altered or withheld. No physical or psychological pain was caused.

DATA COLLECTION PROCEDURE

Phase I: Screening Phase

The main study was conducted in Erode Builders Educational Trust Group of Institution, Nathakadaiyur, Thirupur District. Data was collected for 4 weeks in month of January 2016. After obtaining official permission from the concerned authorities screening was done with the help of the professors working in the college to select the samples. Total of 2000 students 50 participants from BE (Electronics and communication) first year were selected by convenient sampling technique in which 24 were males and 26 were females.

Phase – II: Data collection & Implementation Phase

Before collecting the data, informed consent was obtained from the participants by considering the ethical aspect of the research. The samples were assured anonymity and confidentiality of information provided by them. Selected groups were taken to provide the Computer Assisted Teaching on the first day. Before the Computer Assisted Teaching, pretest was conducted on 04.01.2016 by distributing the structured questionnaire. One week after the pretest selected group was exposed to the educational programme on 11.01.2016. Post test was conducted on 18.1.2016 with the same participants by using the same questionnaire after seven days of Computer Assisted Teaching.

Phase – III: Termination Phase

The tool was verified for completion. The clients were assured about the confidentiality of the data. The clients were made comfortable. This phase lasted for a period of 2 minutes per client.

PLAN FOR DATA ANALYSIS

Data analysis is the systematic organization and synthesis of research data and testing of the research hypothesis using that data.

The data collected from the subjects were edited, coded and entered in excel sheet. The data were analyzed and using descriptive and inferential statistics by manual. A probability of less than 0.05 was considered to be significant. The following plan of analysis was developed:

- Description of the subjects with respect to demographic variables was presented in terms of frequency and percentage.
- Mean, Standard Deviation, and Mean difference, Range was used to evaluate the knowledge and attitude of engineering students regarding organ donation.
- Statistical significance of the effectiveness of structured teaching programme was analyzed using Paired 't' test.
- Data on association between post test score on knowledge and attitude and the selected background factors were explained by using chi- square (χ^2).
- Correlation between knowledge and attitude was analyzed by using Karl Pearson Correlation Coefficient.

Chapter – IV

Data Analysis & Interpretation

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

Data analysis is the systemic organization and synthesis of research data and the testing of research data and the testing of research hypothesis using data. Interpretation is the adequate exposition of the facts presented in terms of purpose of the study.

The analysis and interpretation of data of this study was based on the data collected by structured knowledge questionnaire and attitude rating scale. The data were entered into coding sheet, and calculation done manually by using descriptive and inferential statistics. A probability value of less than 0.05 was considered to be statistically significant.

DATA ANALYSIS WERE PRESENTED AS FOLLOWS

Section I: Data on selected demographic variables of non health professional students participated in the study

Section II: Data on pre and post test level of knowledge and attitude regarding organ donation among non health professional students

Section III: Data on effectiveness of computer assisted teaching programme regarding organ donation among non health professional students

Section IV: Data on association between post test level of knowledge and attitude and the selected demographic variables among non health professional students

Section V: Data on correlation between post test level of knowledge and attitude regarding organ donation among non health professional students

SECTION – I: DATA ON BACKGROUND FACTORS OF NON HEALTH PROFESSIONAL STUDENTS PARTICIPATED IN THE STUDY

TABLE - I

FREQUENCY AND PERCENTAGE DISTRIBUTION OF BACKGROUND FACTORS AMONG NON HEALTH PROFESSIONAL STUDENTS PARTICIPATED IN THE STUDY

S.NO	DEMOGRAPHIC VARIABLES	NON HEALTH PROFESSIONAL STUDENTS	
		FRE	PER
1	Age		
	a) 17-18 years	48	96%
	b) 19-20 years	2	4%
	c) 21-22 years	0	0
	d) Above 22 years	0	0
2	Gender		
	a) Male	24	48%
	b) Female	26	52%

3.	Religion		
	a) Hindu	41	82%
	b) Christian	6	12%
	c) Muslim	3	6%
4.	Residential area		
	a) Urban	38	76%
	b) Rural	12	24
5	Do you know regarding organ donation?	28	56%
	a) Yes	28	56%
	b) No	22	44%
6.	If Yes, Sources of information		
	a) Media	10	35.71%
	b) Health Professionals	9	
	c) Family member and relatives	3	10.71%
	d) Friends and neighbor	6	21.42%

7	Are you willing to donate organ?		
	a) Yes	42	84%
	b) No	8	16%
8	Are you willing to donate your relatives organ		
	a) Yes	46	92%
	b) No	4	8%

Table 1 : Shows the frequency and percentage distribution of background variables among non health professional students participated in the study

Regarding **Age** majority 48(96%) were 17-18 years of age, 2(4%) were between 19-20 years, no one was in 21-22 years and above 22 years.

Regarding **Gender**, majority 26 (52%) were males and 24 (48%) were females.

Regarding **Religion**, majority 41(82%) were Hindus, 6(12%)were Christians and the least 3(6%) were Muslims and no one were in the category of others.

Regarding **Residential area,** majority 38(76%) were living in urban area and 12(24%)were living in rural area.

Regarding **the awareness of organ donation** majority 28 (56%) knew about organ donation and 22 (44%) said that they didn't know about organ donation.

Regarding **Sources of information** majority 10(35.71%) knew about organ donation through media, 9(32.14%) knew through Health professionals, 3(10.71%) knew through family and relatives, 8(16%) knew regarding organ donation through friends and neighbour.

Regarding **Willingness to donate the organ** majority 42(84%) were willing to donate organ and 6(21.42%) were not willing to donate their organs.

Regarding **Willingness to donate the relatives organ** majority 46(92%) were willing to donate their relatives's organ and 4(8%) were not willing to donate their relatives organ.

It was inferred that among non health professional students majority 48(96%) were between 17-18 years of age, 26(52%) were males, 41(82%) belong to Hindu religion,38(76%) were living in urban area, all of them were in the first year, 28(56%) knew about organ donation, 16(32%) knew about organ donation through media, 42(84%) were willing to donate their organs, 46(92%) were willing to donate their relatives organ.

SECTION II : DATA ON PRE AND POST TEST LEVEL OF KNOWLEDGE AND ATTITUDE REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

FIGURE 3 : FREQUECNY AND PERCENTAGE DISTRIBUTION OF PRETEST AND POST TEST LEVEL OF KNOWLEDGE REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

FIGURE : 3

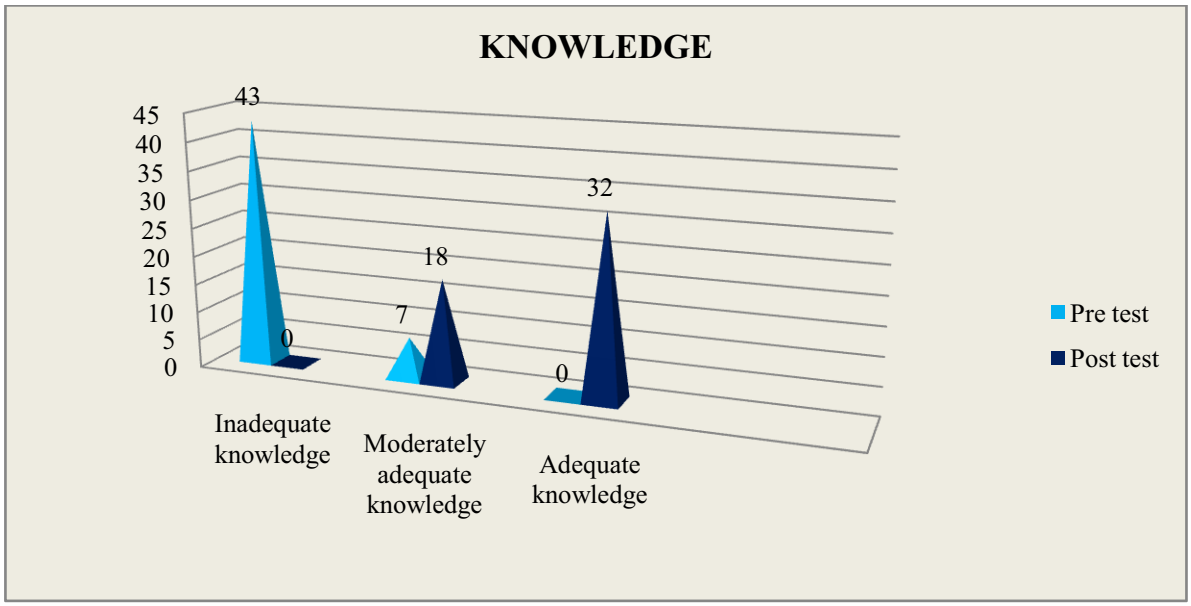

Figure 3 : Shows frequency and percentage distribution of pre and posttest level of knowledge regarding organ donation among non health professional students

It was inferred that among 50 participants in pretest majority 43(86%) had inadequate knowledge and 7(14%) had moderately adequate knowledge and no one had adequate knowledge. The post test was administered after computer assisted teaching regarding organ donation. In posttest, Majority of them 32(64%) gained adequate knowledge and 18(36%) had moderately adequate knowledge and no one was there in the category of inadequate knowledge which showed that computer assisted teaching was effective. The posttest knowledge scores showed the significant difference.

SECTION II : DATA ON PRE AND POST TEST LEVEL OF KNOWLEDGE AND ATTITUDE REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

FIGURE 4 : FREQUENCY AND PERCENTAGE DISTRIBUTION OF SAMPLES ACCORDING PRE AND POST TEST SCORE ON ATTITUDE REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

FIGURE : 4

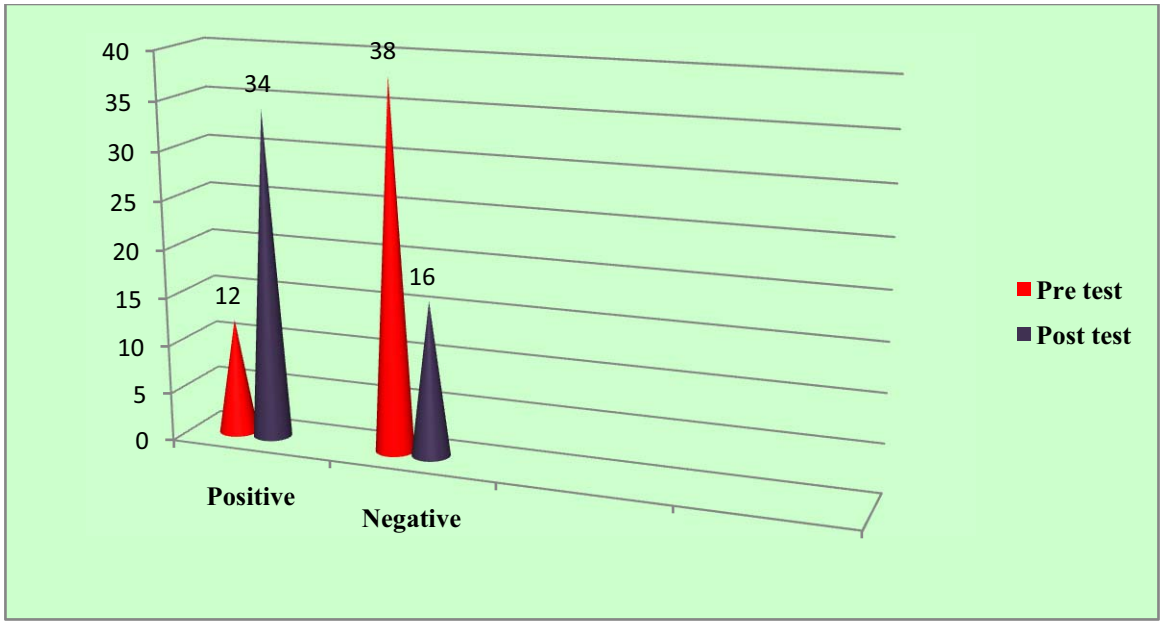

Figure 4 : Shows distribution of samples according to pre and post test score on attitude regarding organ donation among non health professional students

It was inferred that in pretest majority 38(76%) had negative attitude and only 12(24%) had positive attitude. After computer assisted teaching majority 34(68%) changed their attitude from negative to positive and only 16 (32%) showed negative attitude towards organ donation. It showed that increase in knowledge promotespositive attitude regarding organ donation.

SECTION III : DATA ON EFFECTIVENENSS OF COMPUTER ASSISTED TEACHING REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

TABLE - 2

MEAN, SD, RANGE, MD AND 't' VALUE OF KNOWLEDGE AMONG NON HEALTH PROFESSIONAL STUDENTS REGARDING ORGAN DONATION IN PRE TEST AND POST TEST

S.No	Experimental group	Mean	SD	Range	MD	"t" Value
1.	Pre test	7.94	2.71	4-16 (12)	12.28	17 Df = 49 P<0.05 S
2.	Post test	20.22	4.54	11-26 (15)		

Table 2 : Shows the Mean, SD, Range, Mean difference and Paired "t" value level of knowledge regarding organ donation among non health professional students.

In pre test the obtained overall mean score was 7.94, SD 2.71 whereas in post test the obtained overall mean score was 20.22, SD 4.54 and the mean difference was 12.28 which showed that there was a significant increase in knowledge after computer assisted teaching on organ donation.

It was inferred that there was a significant improvement in the level of knowledge after the computer assisted teaching programme regarding organ donation. Hence the computer assisted teaching programme was effective among nonhealth professional students.

SECTION III : DATA ON EFFECTIVENENSS OF COMPUTER ASSISTED TEACHING REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

FIGURE 5 : MEAN AND STANDARD DEVIATION OF PRE AND POST TEST LEVEL OF KNOWLEDGE REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

FIGURE : 5

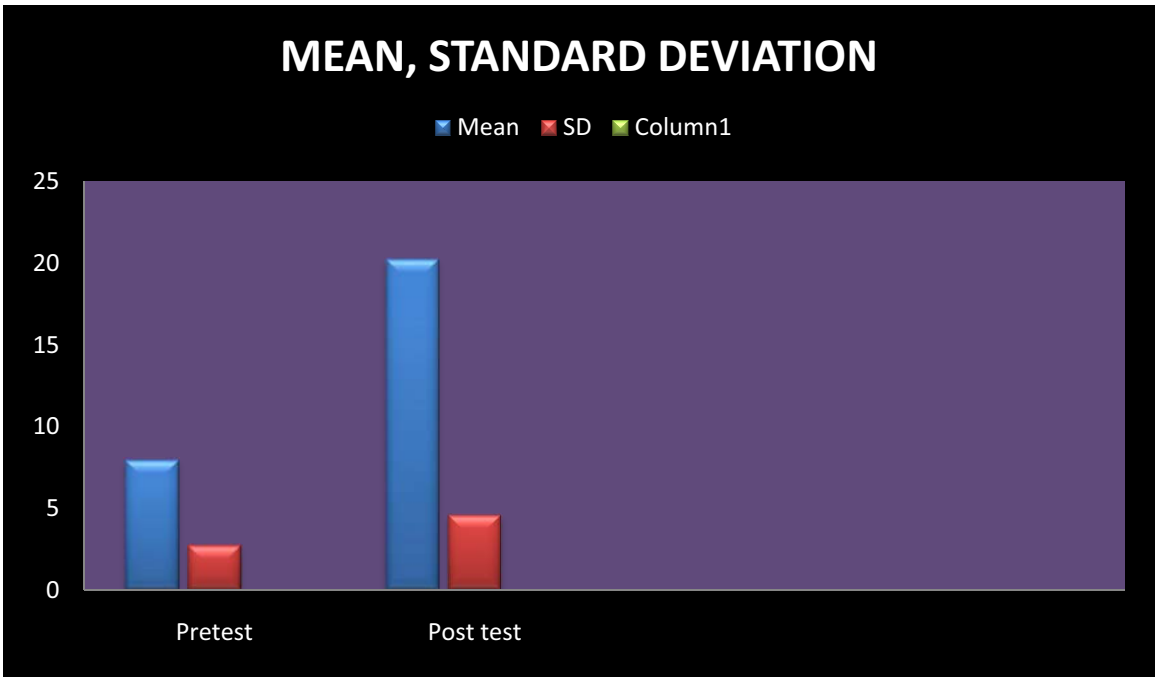

Figure 5 : Shows mean and standard deviation of pre and post test knowledge scores on organ donation among non health professional students.

The pretest overall mean score was 7.94, SD 2.71 and the overall post test mean score was 20.22, SD 4.54.

SECTION III : DATA ON EFFECTIVENENSS OF COMPUTER ASSISTED TEACHING REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

TABLE III : MEAN, SD, RANGE, 't" VALUE REGARDING POST TEST SCORE ON ATTITUDE REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

TABLE : 3

S.No	Experimental group	Mean	SD	Range	MD	"t" Value
1.	**Pre test**	16.42	5.64	11-28 (17)	8.22	11.20 Df = 49 P<0.05 S
2.	**Post test**	24.64	6.79	13-36 (23)		

S - Significant

Table 3 : Shows the Mean, SD, Range , Mean difference and paired "t" value of pre and post test level of attitude regarding organ donation among non health professional students.

The overall mean score in pretest was 16.42, SD 5.64, in post test the obtained overall mean score was 24.64, SD 6.79 and the mean difference was 8.22 and the obtained 't' value was 11.20 was significant at $P<0.05$.

It was inferred that post test score was significantly increased than the pre test scores. Therefore it was inferred that computed assisted teaching programme was effective in changing the attitude of non health professional students regarding organ donation.

SECTION III : DATA ON EFFECTIVENENSS OF COMPUTER ASSISTED TEACHING REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

FIGURE 6 : MEAN AND STANDARD DEVIATION OF PRE AND POST TEST SCORE ON ATTITUDE REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

FIGURE : 6

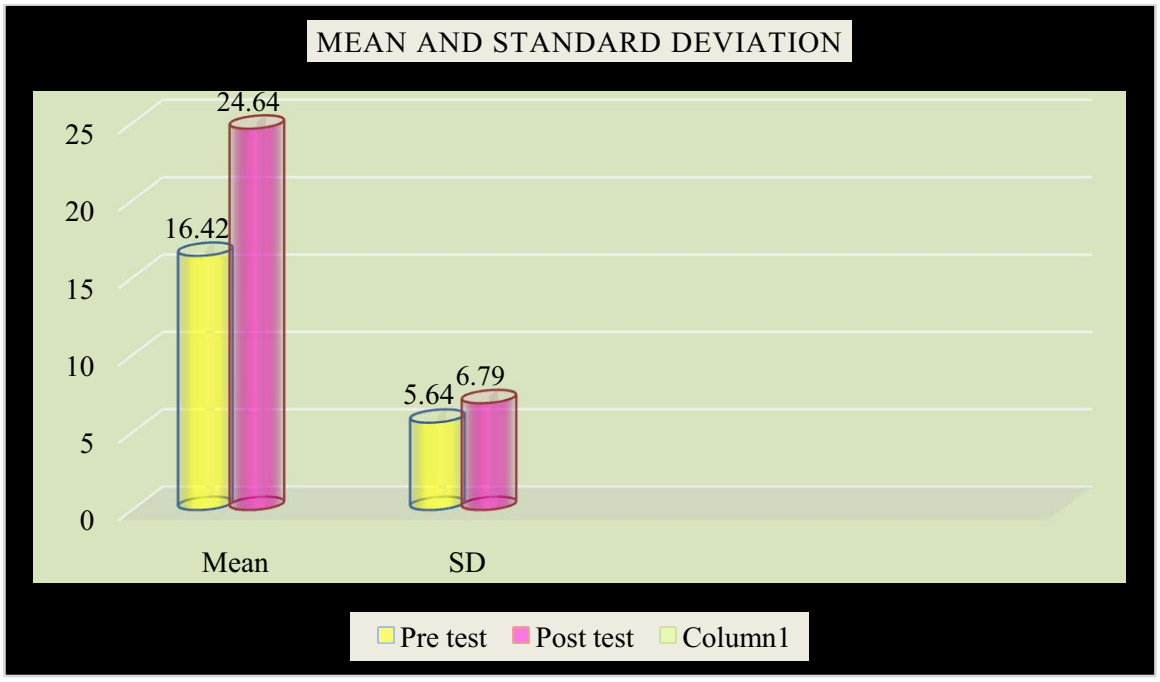

Figure 6 : Shows Mean and Standard deviation of pre and post test score on attitude regarding organ donation among non health professional students

The overall mean score in pretest was 16.42, SD 5.64, in post test the obtained overall mean score was 24.64, SD 6.79 and the mean difference was 8.22.

SECTION IV: DATA ON ASSOCIATION BETWEEN THE POST TEST LEVEL OF KNOWLEDGE WITH THEIR SELECTED DEMOGRAPHIC VARIABLES AMONG NON HEALTH PROFESSIONAL STUDENTS

TABLE IV : FREQUENCY, PERCENTAGE DISTRIBUTION AND CHI SQUARE VALUE REGARDING ASSOCIATION BETWEEN THE POST TEST LEVEL OF KNOWLEDGE WITH THEIR SELECTED DEMOGRAPHIC VARAIBLES AMONG NON HEALTH PROFESSIONAL STUDENTS

TABLE : 4

S.NO	DEMOGRAPHIC VARIABLES	NON HEALTH PROFESSIONAL STUDENTS		χ^2
		FRE	PER	
1.	Age			χ^2 = 3.69
	a) 17-18 years	48	96%	Df = 6
	b) 19-20 years	2	4%	P>0.05
	c) 21-22 years	0	0	NS
	d) Above 22 years	0	0	

2	Gender			χ^2 =1.92
	a) Male	24	48%	Df=2
	b) Female	26	52%	P>0.05 NS
3.	Religion			χ^2 =6.03
	a) Hindu	41	82%	Df=6
	b) Christian	6	12%	p>0.05
	c) Muslim	3	6%	NS
4.	Residential area			χ^2 =1.32
	a) Urban	38	76%	Df=2
	b) Rural	12	24	p>0.05 NS
5	Do you know regarding organ donation?	28	56%	χ^2 =5.4
	a) Yes	28	56%	Df=2
	b) No	22	44%	p>0.05 NS

6.	If Yes, Sources of information			χ^2=0.75
	a) Media	16	32%	Df=6
	b) Health Professionals	14	28%	p>0.05
	c) Family member and relatives	12	24%	NS
	d) Friends and neighbor	8	16%	
7	Are you willing to donate organ?			χ^2=0.75
	a) Yes	42	84%	Df=2
	b) No	8	16%	p>0.05
				S
8	Are you willing to donate your relatives organ			
	a) Yes	46	92%	χ^2=0.75
	b) No	4	8%	Df=2
				p>0.05
				NS

Table 4 : Shows the frequency, percentage distribution and chi square value regarding post test score on knowledge regarding organ donation among non health professional students.

It was inferred that among selected demographic variables, only the Willingness to donate organ was significant with the post test level of knowledge at P <0.05. But the other selected demographic variables such as Age, Gender, Religion, Residential area, Do you know regarding organ donation, Sources of information regarding organ donation, and willingness to donate to their relatives were not significant with the post test level of knowledge at P >0.05.

SECTION IV : DATA ON ASSOCIATION BETWEEN THE POST TEST SORE ON ATTITUDE WITH THEIR SELECTED DEMOGRAPHIC VARIABLES AMONG NON HEALTH PROFESSIONAL STUDENTS

TABLE V : FREQUENCY, PERCENTAGE DISTRIBUTION AND CHI SQUARE VALUE REGARDING ASSOCIATION BETWEEN THE POST TEST SCORE ON ATTITUDE WITH THEIR SELECTED DEMOGRAPHIC VARAIBLES OF NON HEALTH PROFESSIONAL STUDENTS

TABLE : 5

S.NO	DEMOGRAPHIC VARIABLES	NON HEALTH PROFESSIONAL STUDENTS		χ^2
		FRE	PER	
1.	Age			
	17-18 years	48	96%	χ^2 = 4.426
	19-20 years	2	4%	Df = 3
	21-22 years	0	0	P>0.05
	Above 22 years	0	0	NS
2.	Gender			χ^2 = 9.80
	Male	24	48%	Df = 1
	Female	26	52%	P<0.05 S

3.	Religion Hindu Chrisitian Muslim Others	 41 6 3 0	 82% 12% 6% 0	χ^2 = 8.646 Df = 3 P>0.05 NS
4.	Residential area Urban Rural	 38 12	 76% 24%	χ^2 = 2.34 Df = 1 P>0.05 NS
5.	Do you know regarding organ donation? Yes No	 28 22	 56% 44%	χ^2 = 0.31 Df = 1 P>0.05 NS
6.	If yes, Sources of information Media Health professionals Family members and relatives Friends and neighbour	 16 14 12 8	 32% 28% 24% 16%	χ^2 = 2.687 Df = 3 P>0.05 NS

7.	Are you willing to donate organ? Yes No	 42 8	 84% 16%	χ^2 = 1.41 Df = 1 P>0.05 NS
8.	Are you willing to donate your relatives organ? Yes No	 46 4	 92% 8%	χ^2 = 9.236 Df = 1 P<0.05 S

S – Significant, NS – Not Significant

Table 5: Shows the frequency, percentage distribution and chi square value regarding post test score on attitude regarding organ donation among non health professional students.

It was inferred that the selected demographic variable such as Gender and Willingness to donate their relatives organ were significant with the post test score on attitude at P <0.05. Other demographic variables such as age, religion, residential area,knewregarding organ donation, sources of information, willing to donate organ were not significant with the post test score on attitude at P >0.05.

SECTION V : DATA ON CORRELATION BETWEEN LEVEL OF KNOWLEDGE AND ATTITUDE REGARDING ORGAN DONATION AMONG NON HEALTH PROFESSIONAL STUDENTS

TABLE VI: MEAN AND 'r' VALUE ON THE POST TEST LEVEL OF KNOWLEDGE AND ATTITUDE REGARDING ORGAN DONATION

TABLE: 6

Post test	Mean	SD	'r' value knowledge and attitude
Knowledge	20.22	4.54	0.001
Attitude	24.64	6.79	

Table 6 : Shows the correlation between post test level of knowledge and attitude regarding organ donation among non health professional students.

The post test knowledge mean was 20.22 with SD 4.54 and the attitude mean was 24.64 with SD 6.79 and the obtained 'r' value was 0.001 which was calculated by Karl Pearson correlation coefficient method. It was found to be positively correlated.

Hence, it was inferred that when the knowledge was increased, attitude also changed.

Chapter – V

Summary, findings, Discussion, Implication, Recommendations& Conclusion

CHAPTER – V

SUMMARY, FINDINGS, DISCUSSION, IMPLICATIONS, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

This chapter deals with summary, findings, discussion, implications, limitations, recommendations and conclusion. The essence of any research project is based on study findings, limitations, interpretation, of the research results and recommendations to incorporate the study implications. It also gives meaning to the results obtained in the study.

SUMMARY

The main aim of the study was to assess the effectiveness of Computer Assisted Teaching regarding organ donation among non health professional students.

OBJECTIVES OF THE STUDY

- To assess the pre-test and post-test level of knowledge and attitude regarding organ donation among non health professional students.

- To assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non health professional students.
- To find out the association between post-test level of knowledge and attitude regarding organ donation and the selected demographic variables among non health professional students.
- To assess the correlation between knowledge and attitude regarding organ donation

The study attempted to examine the following research hypothesis

H_1 : There is a significant difference between the pretest and post-test level of knowledge and attitude regarding organ donation among non health professional students.

H_2 : There is a significant association between the post-test level of knowledge and attitude regarding organ donation and their selected demographic variables among teacher education students.

H_3 : There is a significant correlation between knowledge and attitude regarding organ donation.

Extensive literature was done for the present study and the reviews were presented in the following headings, Studiesrelated to knowledge, attitude, awareness and perception regarding organ donation, Studies related to effectiveness of education regarding organ donation, Studies related to barriers and facilitators regarding organ donation.

The conceptual framework adopted for the present study was based on Modified general system theory(Betralanff& JW Kenny) . This theory helped the investigator to assess the effectiveness of computer assisted teaching regarding organ donation among non health professional students.

The research design selected for the present study was pre experimental design to evaluate the effectiveness of Computer Assisted Teaching regarding organ donation among non health professional students. The independent variable was Computer assisted teaching regarding organ donation and the dependant variable was knowledge and attitude regarding organ donation.

The investigator developed a structured knowledge questionnaire and attituderating scale to measure knowledge and attitude as a tool for the present study. The content validity of the tool was established by 5 experts. The reliability of the tool was ascertained by test retest method and r = 0. 8 for knowledge and r = 0.87 for attitude and the tool were found to be reliable. Pilot study was conducted in Jai Ram College of Engineering, Padiyur, Tirupur district among 10 engineering students who fulfilled the sample selection criteria. The study was found to be feasible.

The main study was conducted in Erode Builders Educational Trust Group of Institution, Nathakadaiyur, Tirupur district. Prior permission from the authorities was sought and obtained. Non probability convenient sampling technique was used to select the samples and informed consent was obtained.

Computer assisted teaching was administered and datas were collected by distributing structured knowledge questionnaire and attitude scale prior and after the computer assisted teaching. The data gathered were analyzed and interpreted manualy. A probability of $P<0.05$ level of significance was considered significant.

FINDINGS

The major findings of the study were classified under following headings.

I. Findings related to selected demographic variables of non health professional students in experimental group.

Among the non health professional students 48(96%) were between 17-18 years of age, 26(52%) were males, 41(82%) belong to Hindu religion,38(76%) were living in urban area, all of them were in the first year, 28(56%) knew about organ donation, 10(35%)knew about organ donation through media, 42(84%) were willing to donate their organs, 46(92%) were willing to donate their relatives organ.

II. Findings on pre and post test level of knowledge and attitude regarding organ donation among non health professional students.

Regarding knowledge, among 50 participants in pre test majority 43(86%) had inadequate knowledge and 7(14%) had moderately adequate knowledge. The post test was administered after computer assisted teaching. The posttest knowledge scores showed a significant difference. In posttest, Majority of them 32(64%)gained adequate knowledge and 18(36%)had moderately adequate knowledge.

Regarding attitude, in pretest majority 38(76%)had negative attitude and only 12(24%) had positive attitude. After computer assisted teaching majority 34(68%) changed their attitude from negative to positive and only 16(32%) showed negative attitude towards organ donation.

III. Findings effectiveness of computer assisted teaching regarding organ donation among non health professional students

Regarding knowledge, in pretest the obtained overall mean score was 7.94, Standard deviation was 2.71, mean percentage 15.88% and range was 12. The obtained overall post test mean score was 20.22 and standard deviation was 4.54, mean difference 40.44% and the range was 15. The mean difference was 2.28 and the obtained 't' value 17 was significant at $P<0.05$ level.

Regarding attitude, in pretest the obtained overall mean score was 16.42, standard deviation was 5.64, mean percentage was 32.84%and range was 17. The obtained over all post test mean was 24.64 and standard deviation was 6.79 mean percentage was (49.28%)and the range was 23.. The mean difference was 8.22 and the obtained 't' value was 11.20 significant at P<0.05.

IV. Findings on correlation between post test level of knowledge and attitude regarding organ donation among non health professional students.

The post test knowledge mean was 20.22 with SD 4.54 and the attitude mean was 24.64 with SD 6.79. The obtained r value was 0.001which was calculated by Karl Pearson correlation coefficient method. It was found to be positively correlated.

V. Findings association between the post test level of knowledge and attitude and the selected demographic variable among non health professional students.

The selected demographic variable willingness to donate organ was significant with the post test level of knowledge at P<0.05. The other demographic variables were not significant with the post test level of knowledge at P>0.05. Hence the Hypothesis 2 was accepted.

The selected demographic variable such as Gender and Willingness to donate relatives's organ was significant with the post test score on knowledge at P <0.05. Other variables were not significant with the post test score on knowledge at P <0.05.

DISCUSSION

The results of the study were discussed according to the objectives of the study

Objective 1:To assess the pre test and post test level of knowledge and attitude regarding organ donation among non health professional students.

Among 50 non health professional students in pretest 43(86%) had inadequate knowledge and 7(14%) had moderately adequate knowledge and no one had adequate knowledge score regarding organ donation before computer assisted teaching. After computer assisted teaching 32(64%)had adequate knowledge score and 18(36%)had moderately adequate knowledge.

Among 50 non health professional students inpre test majority 38(76%) had negative attitude and only 12(24%) had positive attitude. After computer assisted teaching majority 34(68%)had positive attitude and only 16(32%) had negative attitude towards organ donation which shows that increase in knowledge brings positive attitude regarding organ donation.

The above findings were supported by **JalalaAzmandian, (2013).**study findings that before education the least knowledge was about three organs of lung, pancreas and bone marrow that it was 7.3%, 57.5% and 54.2% respectively while after education it had been increased 95%, 91.7% and 80% respectively. Total average of nurse's attitude towards organ donation before training course was 65.7 (±13.7) which had been significantlyincreased to 76.9 (±8.7) two weeks after education ($p<0.001$).

Objective 2 :To assess the effectiveness of computer assisted teaching regarding organ donation among non health professional students.

It was inferred that in pretest the overall mean score was 7.94, Standard deviation was 2.71, mean percentage 15.88% and range was 12. The obtained overall post test mean score was 20.22 and standard deviation was 4.54, mean difference 40.44%and the range was 15. The mean difference was 2.28 and the obtained 't' value 17 was significant at $P<0.05$ level.

It was inferred that in pretest the overall mean score was 16.42, standard deviation was 5.64, mean percentage was 32.84%and range was 17. The obtained over all post test mean was 24.64 and standard deviation was 6.79 mean percentage was (49.28%)and the range was 23.. The mean difference was 8.22 and the obtained 't' value was 11.20 significant at $P<0.05$.

The above findings were supported by **RYkhoff ME etal(2010)** they conducted a quasi experimental study to assess the health sciences college

student's knowledge, attitude and beliefs about organ donation and to determining if an educational session increases awareness and influences their attitudes regarding organ donation in Canada. The study revealed that in the post intervention survey 86% were more aware of organ donation and the percentage of participants willing to donate their organs increased from 52% to 63%. The study concluded that educational sessions can increase awareness of organ and tissue donation.

Objective 3 : To find the association between the posttest level of knowledge and attitude regarding organ donation among nonhealth professional students and the selected demographic variables.

It was inferred that there was a significant association between posttest level of knowledge and the willingness to donate organ. Other demographic variables were not associated with knowledge.

The above findings were supported by **Vicky Cardenas et.al, (2010)**they conducted a quasi experimental study to assess the effectiveness of classroom education on knowledge and attitude regarding organ donation, and to find out the association between posttest level of knowledge and the demographic variables. The study concluded that students receiving the intervention would have a positive change in willingness to donate. So the study concluded that there willingness to donate organ associated with post test score on knowledge.

It was inferred that there was a significant association between post test score on attitude and the selected demographic variable Gender and willingness to donate relatives organ.

The above findings were supported by **Jonathan Ling, (2013)** conducted a cross sectional study to examine the attitude of British adults towards donation their own organs and those of their family members in UK. Majority were in favour of donating family members organs and female respondents being more likely to agree to donate relative's organ.

Objective 4 :To find the correlation between the post test level of knowledge and attitude regarding organ donation among non health professional students.

It was inferred that the post test knowledge mean was 20.22 with SD 4.54 and the attitude mean was 24.64 with SD 6.79 and the obtained 'r' value was 0.001 which was calculated by Karl Pearson correlation coefficient method. It was found to be positively correlated.

The above findings were supported by **Heyke M. Chako, (2014)** carried out a co-relational study to assess the knowledge and attitude regarding eye donation among the adolescents and to identify the relationship between them at Yenepoya University, Mangalore, Karnataka, India. The mean percentage of the knowledge scores among adolescents were 57% the mean percentage of the attitude scores

among adolescents were 70.5% and there was a positive correlation between knowledge and attitude among adolescent.

IMPLICATIONS

The main aim of the study was to assess the effectiveness of computer assisted teaching to improve the knowledge and attitude regarding organ donation among non health professional students studying engineering at Erode Builders Trust Educational Institutions, Nathakadaiyur, Tirupur dist. The following conclusion was drawn on the basis of findings of the study.

Computer assisted teaching was effective in improving knowledge and attitude regarding organ donation among non health professional students.

Nursing Implications

The findings of the study have implications on the field of nursing education, nursing practice, nursing administration and nursing research.

Nursing Education

- Student nurses can be motivated to organize teaching programme to enhance the knowledge regarding organ donation and practice of non health professionals to donate their organs.

- Encourage the student nurse to participate actively in awareness of community in awareness compaign and it should be conducted on regular basis with emphasis on organ donation.
- Organ donation should be included in the curriculum of Basic Nursing courses.

Nursing practice :

- In-service education can be planned for the nurse to keep them updated with latest guidelines on organ donation, process of brain death, convincing the family members to donate the organs of brain dead, preserving the organs after donation, guidelines to transport the organs,etc.

Nursing administration:

- Nurse administrator has to plan and organize training program for the students nurses and the nurses regarding organ donation and counseling of relatives to donate organ.
- Nurse administrator has to organize educational programs in the schools, colleges, community health centers, primary health centers and the other community settings.
- Necessary administrative support has to be provided to conduct health educational workshops in schools, colleges and other community area with appropriate A.V. aids, mass media, posters and role plays, drama and puppet show.

- Nurses should be motivated to take keen interest in preparing different teaching strategies suitable for the schools, colleges as well as other community settings on organ donation.
- Nurse educator has to pay more attention of training of non health professional regarding organ donation. So that they can impart appropriate knowledge to them and thusby motivate them to donate their organs.

LIMITATIONS :

- No standardized tools were available therefore the investigator prepared a tool for the purpose of the study.
- The questionnaire with multiple choices must have prompted the teacher education students to give responses. Hence, the possibility of getting average or good score could be a chance factor in this study, which was a limitation of the tool.
- Random sampling technique could not be used because of difficulty in controlling.
- The study was confined to a small number of subjects which limits the generalization that can be made.
- The study was not conducted with a control group.

RECOMMENDATIONS:

Based on the findings, the investigator recommends that :

- Repetitive periodic educational sessions regarding organ donation should be carried out to ensure that the public are aware about organ donation.
- A large scale study can be carried out with different demographic characteristics to generalize the findings.
- A study can be carried out on knowledge and practice of organ donation among the public.
- A comparative study can be conducted to assess the knowledge, practice and attitude regarding organ donation among health professional and non health professional students.

CONCLUSION:

Organ donation is a huge public health concern worldwide. The biggest advantage to organ donation is, it saves lives that would otherwise be lost. A single organ donor has the chance to save the lives or improve the quality of life for several people. Families of organ donors may be able to correspond with the recipients of their loved one's organs, which may give them the sense that some good came out of tragedy, particularly if the donor were very young. It gives the sense that all life is sacred and one recipient is not more valuable than another.

When the organs are donate to the persons belong to different religion, indirectly it helps the community to grow in love, affection, tenderness, humanity, etc. etc. So the organ donation should be encouraged and the people should be motivated to donate their organs by conducting periodical educational programmes regarding organ donation.

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Appendices

APPENDIX -I

LETTER SEEKING PERMISSION TO CONDUCT MAIN STUDY

Date **:---------**

To

Dr. P.Govindasamy,

Director,

Erode Builder Educational Trust's Group of Institutions,

Nathakadaiyur, Thirupurdt.

Respected Sir,

Greetings from Shiv parvathiMandradiar Institute of Health Science, Thirupur.

Sub : requisition to avail the permission to conduct project – Regarding.

This is to certify that RegNo : 301412152 is a bonafide student of our college studying M.Sc. Nursing II year in the academic year of 2014-2016. As part of the M.Sc Nursing Curriculum prescribed by the Tamilnadu Dr. M. G. R. Medical University, Chennai. He needs to conduct a project and he is willing to do at your esteemed institution. So, kindly do the needful and grant permission to conduct the study.

The details of the project will be briefed to you by him in person.

Thanking you ,

Yours sincerely,

(PRINCIPAL)

APPENDIX – II

LETTER GRANTING PERMISSION TO CONDUCT MAIN STUDY

G.O.M.S.No. : 40 dt : 05.02.2007

SHIVPARVATHI MANDRADIAR INSTITUTE OF HEALTH SCIENCE

(COLLEGE OF NURSING)

Palayakottai (Po) Tirupur (Dt) - 638 108. TamilNadu.
Tel : 04257-242200, 241800, Mobile : 9486033000 Fax : 04257-242200
E-Mail : spmihs@gmail.com. Web : www.spmihscollegeofnursing.org
(Recognized by Indian Nursing Council, Tamilnadu Nurses & Midwives Council, Affiliated to The TamilNadu Dr.M.G.R.Medical University)

Date : .....

REQUISITION LETTER

To,

The principal,
Erode Builders Educational Trust,
Nattakadaiyur& (P.O)
Tirupur(Dt)

Respected Sir/Madam,

Greetings from ShivparvathiMandradiar Institute of Health Sciences, Palayakottai,

Subject: Requisition to avail the permission to conduct Project-Regarding.

This is to certify that **Mr.Brightlinvigil.V** is a bonafied student of ShivparvathiMandradiar Institute of Health Sciences, Palayakottai, Tirupur pursuing II year M.Sc. Nursing, under The Tamil Nadu DR.MGR Medical University, Chennai. As a partial fulfilment of the university requirement for the award of Master of Science in Nursing Degree, he needs to conduct a research. And he is interested to conduct the study in your esteemed institution. So kindly do the needful and grant him permission to conduct the research study.

Research topic: **"A study to assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non-health professional students at selected college in Tirupur district"**

The details of the research will be briefed in person by him.

Thanking you

Yours sincerely,

PRINCIPAL
SHIVPARVATHI MANDRADIAR
INSTITUTE OF HEALTH SCIENCES
PALAYAKOTAI-638 108.

Permitted

Dr. P. GOVINDASAMY
DIRECTOR
Erode Builder Educational Trust's
Group of Institutions
KANGAYAM - 638 108.

APPENDIX – III

LETTER SEEKING EXPERTS OPINION FOR THE CONTENT VALIDITY OF THE TOOL USED FOR THE STUDY

From

301412152,

M.Sc nursing 2nd year,

SPM college of nursing,

Palayakottai,

Thirupur Dt.

To

Forward through

The Principal,

SPM college of nursing,

Thriupurdt.

Respected Sir/Madam,

Sub: Requisition for expert opinion and suggestion for content validity of the tool.

I am, 301412152 post graduate student in Medical and Surgical Nursing ,ShivparvathiMandradiar College of Nursing affillated to The Tamilnadu Dr.

MGR Medical University, Chennai. As a partial fulfillment of the M.Scnursingprogramme, I have selected the following topic for the research.

Topic :"A study to assess the effectiveness of Computer Assited Teaching on knowledge and attitude regarding organ donation among non health professional students in a selected college at Thirupur district.

I hereby , enclose the following documents for your kind reference

1. Introduction
2.Statement of the problem
3. Objectives of the study
4. Operational definition
5. Research methodology
6.Structuredknowledge questionnaire and attitude rating scale

Hence,I request you to kindly examine the tool item wise and give your valuable opinion and suggestions for improvements of this tool.

Kindly sign the certificate of validation starting that you have validate the tool,Your kind co-operation and expert judgement will be very much appreciated and gratefully acknowledged.

Thanking you,

Date:

Place: Palayakottai. Your's sincerely,

(301412152)

APPENDIX – IV

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of 301412152, MSc Nursing student who is undertaking "**A study to assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non health professional students in a selected college at Thirupur district."**

Signature of the Expert:

Name:

Designation:

Date:

APPENDIX – V

LIST OF EXPERTS

1.Dr. R.K. VinodhKannaMch,

Associate professor,

Maruthi Hospital, Trichy**.**

2.Dr.S.Stalin Raja Ms

Associate professor,

SRM Hospital.Trichy.

3. Mrs.G.Beulah

Associate professor,

RVS College of Nursing,

Coimbatore.

4. Mrs.R.Ouvai

Associate professor,

St.Xavier College of Nursing,

Sakkottai, Kumbakonam.

5. Ms.J.Petrisia Esther Elavarasi,

Assistant Professor

SPM College of Nursing,

Palayakottai, Thirupur Dt.

APPENDIX – VI

CONSENT FORM FOR STUDY PARTICIPANTS

I ---------- give my consent to participate in the research titled, **" Apreexperimental study to assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non health professional students in a selected college, Thirupurdt"** which is being conducted by 301412152, II Year M.Sc(N), Shiv ParvathiMandradiar Institute of Health Sciences, Palayakottai, Tamil Nadu, as part of his curriculum. I understand this participation is entirely voluntary and I can withdraw consent at any time. I have understood that

1. The reason for the research is to assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non health professional students at selected college, Thirupurdt.
2. No discomforts or stresses are foreseen.
3. No risks are foreseen. This choice will not affect my grade in my studies.
4. No invocatory procedures are involved.
5. The results of this participation will be confidential.
6. The researcher will answer any further questions about the research, now or during the course of the project, and can be reached by phone at 9543134317.

Please sign both copies of this form. Keep one and return the other to the investigators.

Name and Signature of Researcher Name and Signature of the Participant

APPENDIX – VII

This section requires your personal information. Please tick appropriate answers from the given options;

PART I – DEMOGRAPHIC VARIABLES

1) Age
   a) 17-18 years
   b) 19-20 years
   c) 21-22 years
   d) Above 22 years

2) Gender
   a) Male
   b) Female

3) Religion
   a) Hindu
   b) Christian
   c) Muslim
   d) Others

4) Residential area
   a) Urban
   b) Rural

5) Year of studying
   a. First year
   b. Second year
   c. Third year
   d. Final year

6)Do you know regarding organ donation
   a) Yes
   b) No

7) If yes, Sources of information
   a) Media
   b) Health professionals
   c) Family members and relatives

d) Friends and neighbor

8) Are you willing to donate organ?
   a) Yes
   b) No

9) Are you willing to donate your relative's organ when it is needed?
   a) Yes
   b) No

PART II; STRUCTURE KNOWLEDGE QUESTIONNAIRE REGARDING ORGAN DONATION

Please tick appropriate answers from the given options

1) What is organ donation ?

a) Donation of biological tissue
b) Donation of biological organ
c) Donation of biological organ and tissue
d) Donation of blood

2) How many organs can be harvested from the body?

a) 5
b) 7
c) 9
d) 11

3) What is the basics of organ donation ?

a) Blood type
b) Appearance
c) Sex
d) Ethnicity

4)When can be organ donated?

a) When alive
b) When died
c) Soon after the brain death
d) All the above

5) Who can be the organ donors?

a) People belong to all age groups
b) Senior citizens
c) Young adults
d) Adolescent and children

6) When organ donation day is celebrated ?

a) 12 th May
b) 13 th June
c) 13 th August
d) 14th November

7)When a donor is below 18 years of age which one of the following is necessary?

a) Individual consent to donate organ
b) Parents or guardian consent to donate organ
c) relatives consent to donate organ
d) All the above

8) Under what circumstances Vital organs like heart, liver, kidneys can be donated?

a) Brain death
b) Natural death
c) Whenever a person wants to donate
d) All the above

9)Which one of the following can be donated under natural death?

a) Heart
b) Heart valves
c) Pancreas
d) Intestines

10)Which one of the following can be donated when a person is living in this earth ?

a) Blood and platelets
b) Umbilical cord blood and amnion
c) Stem cells
d) All the above

11)Which one of the following organ can be donated partially when a person is alive?

a) A portion of the liver
b) A lobe of the lung

c) A&B
d) Pancreas

12)Who is not eligible to donate any organ?

a) Person with Bronchial asthma
b) Intravenous drug users
c) Person with peptic ulcer
d) Handicapped persons

13) Which one of the following can be donated by HIV patients ?

a) All vital organs
b) Tissues like skin, bone, etc
c) Corneas
d) Bone

14)What is brain death?

a) The heart stops beating
b) The lungs stop breathing
c) Total and irreversible loss of all brain functions
d) All the above

15)What do you mean by cadaver?

a) It is one of the organ in the body
b) It is a dead body
c) It is one type of tissue in the body
d) It represents the whole organs in the body

16)What type of Blood is ideal for platelet donation?

a) O
b) AB
c) B
d) All the blood type

17)Umbilical cord blood of newborn babies is rich in --------

a) Stem cells
b) Immunoglobulin

c) Hemoglobulin
d) Lymphocytes

18)In eye donation which one of the following is donated?

e) Entire eyeball
f) Cornea
g) Conjunctiva
h) Retina

19)When the eyes have to be removed after death?

a) Within six hours of death
b) Immediately after death
c) Within 24 hours of death
d) Within 8 hours of death

20)How long kidneys can be stored after harvesting?

a) 6 hours
b) 10 hours
c) 20 hours
d) 30 hours or less

21) How long the heart and lungs can be stored after harvesting?

a) Less than 6 hours
b) 6 hours
c) 10 hours
d) 12 hours

22)How long the patient can live after successful heart transplantation?

a) 10 years
b) 20 years
c) One year
d) Two years

23) Howlong the processed and packaged heart valves can be stored after it is removed from the dead body?

a) 10 years
b) 5 years

c) 3 years
d) 8 years

24)What is the major advancement in paediatric liver transplantation?

a) 5% of the liver is used
b) 10% of the liver is used
c) 20% of the liver is used
d) 25% of the liver is used

25) How many living donors required to have lung transplant for one recipient?

a) Three living donor
b) Two living donor
c) One donor
d) One or two living donors

26) Intestinal transplantation is most common among in which age group?

a) Adolescents
b) Infants and Children under age five
c) Senior citizens
d) Young adults

27)How long pancreas and the liver can be stored before transplantation?

e) 6 hours
f) 12 hours
g) 18 hours
h) 24 hours

28) In which condition pancreatic transplantation is done?

a) Insulin dependent diabetes
b) Non Insulin dependent diabetes
c) Diabetes during preganancy
d) Juvenile diabetes

29) When did the Transplantation of Human Organs Act passed?

a) 1994
b) 1993
c) 1991
d) 1992

30) When a person died who has the first line of authority to take decision regarding organ decision?

a) Adult child
b) Sibling
c) Spouse
d) All the relatives

PART – III : ATTITUDE RATING SCALE REGARDING ORGAN DONATION

Please tick appropriate answers from the given options

S.No	Statements	Strongly agree	Agree	Disagree	Strongly disagree
1.	Agree to donate organ after death				
2.	Donating organ helps to improve another person's quality of life				
3.	The possible misuse of my organs after death makes me feel less supportive of organ donation				
4.	Organ donation intentions must be shared with the family members				
5.	Inadequate informations regarding organ donation				
6.	Preservation of intact body after death				
7.	Religious belief avoids me to donate				
8.	Feel uncomfortable to think or talk about organ donation				
9.	Organ donation contradicts the nature's law				
10.	Organ donation ruins the donor's health.				

ANSWER KEY for part II - structured knowledge questionnaire

S.No	Answer
1.	C
2.	B
3.	A
4.	D
5.	A
6.	C
7.	B
8.	A
9.	B
10.	D
11.	C
12.	B
13.	C
14.	C
15.	B
16.	B
17.	B
18.	B
19.	A
20.	D
21.	A
22.	A
23.	B
24.	C
25.	B
26.	B
27.	B
28.	A
29.	A
30.	C

SCORE KEY FOR STRUCTURED KNOWLEDGE QUESTIONNAIRE

S.No	A	B	C	D
1.	0	0	1	0
2.	0	1	0	0
3.	1	0	0	0
4.	0	0	0	1
5.	1	0	0	0
6.	0	0	1	0
7.	0	1	0	0
8.	1	0	0	0
9.	0	1	0	0
10.	0	0	0	1
11.	0	0	1	0
12.	0	1	0	0
13.	0	0	1	0
14.	0	0	1	0
15.	0	1	0	0
16.	0	1	0	0
17.	0	1	0	0
18.	0	1	0	0
19.	1	0	0	0
20.	0	0	0	1
21.	1	0	0	0
22.	1	0	0	0
23.	0	1	0	0
24.	0	0	1	0
25.	0	1	0	0
26.	0	1	0	0
27.	0	1	0	0
28.	1	0	0	0
29.	1	0	0	0
30.	0	0	1	0

SCORE KEY FOR ATTITUDE RATING SCALE

S.No	Statements	Strongly agree	Agree	Disagree	Strongly disagree
1.	Agree to donate organ after death	4	3	2	1
2.	Donating organ helps to improve another person's quality of life	4	3	2	1
3.	The possible misuse of my organs after death makes me feel less supportive of organ donation	1	2	3	4

4.	Organ donation intentions must be shared with the family members	4	3	2	1
5.	Inadequate informations regarding organ donation	1	2	3	4
6.	Preservation of intact body after death	4	3	2	1
7.	Religious belief avoids me to donate	1	2	3	4
8.	Feel uncomfortable to think or talk about organ donation	1	2	3	4
9.	Organ donation contradicts the nature's law	1	2	3	4
10.	Organ donation may ruin the donor's health.	4	3	2	1

APPENDIX – VIII

LESSON PLAN

Reg.no of the investigator: 301412152
Course :.M.Sc(Nursing) II nd year
Participants :BE (Electronics and Communications) First year students
Venue :Erode Builders Educational Trust Group of Institutions, Nathakadaiyur, Thirupurdt.
Duration : One hour
Date and Time :11.01.2016 , 10
Audio Visual aids :Computer Assisted Teaching
GENERAL OBJECTIVE :

At the end of the class the teachers should gain knowledge about organ donation and develop the attitude to donate the organs of their own and their relatives.

SPECIFIC OBJECTIVE : At the end of the class the students will be able to

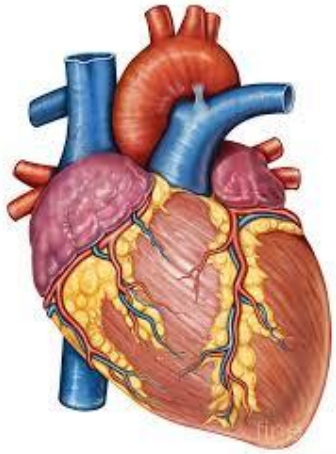
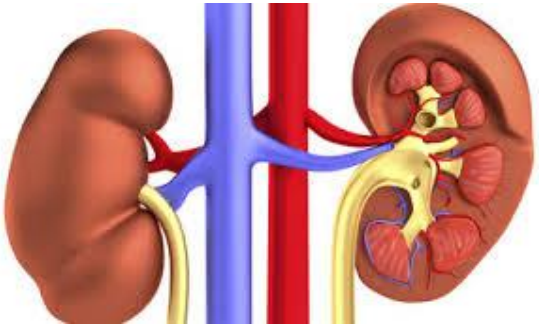
1) Give introduction about organ donation
2) Define organ donation
3) Explain the importance of organ donation in our country
4) Describe the history of organ donation
5) List out the sources of donor organs
6) List out the criteria for organ donation
7) Enlist the organs and tissues can be donated
8) Enumerate the advantages and disadvantages of organ donation
9) Enlist the indications and contraindications of organ donation
10) Explain the myths regarding organ donation
11) Describe the ethical issues and acts regarding organ donation
12) Explain the procedure to register for organ donation in Tamilnadu

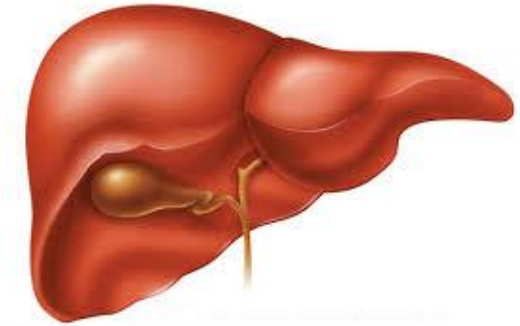
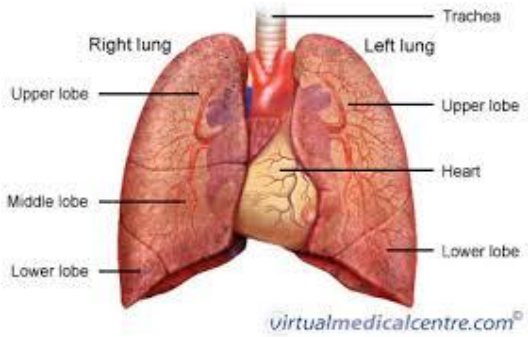
S.No	Time	Specific objective	Content	Teacher's activity	Student's activity	Remarks
1.	2 min	Give introduction about organ donation	**INTRODUCTION** An organ is defined as a unit in the body with a special function, usually constructed from several different types of tissue. A human being only has one of some organs, and the organ's function can be crucial to maintaining life. In case of failure of such organs to carry out their normal functions, it will be difficult for the human beings to maintain their normal routine life and sometimes the end result may be death. But nowadays it is possible to remove organs like kidneys, heart, lungs and liver from one person and transfer them to another person, where they can resume their function and thusby we can help the sufferers to increase their lifespan and to improve their quality of life. So this lesson will be helpful to know some valuable informations regarding organ donation.	Explaining	Listening	
2.	1 min	Define organ donation	Organ donation is the donation of biological tissue or an organ of the human body from a living or dead person to a living recipient in need of transplantation.	Explaining	Listening	
3.	1 min	Explain the importance of organ donation in our country	**IMPORTANCE OF ORGAN DONATION IN OUR COUNTRY :** ➢ In India every year nearly ➢ 500,000 people who die because of non-availability of organs ➢ 1,50,000 people await a kidney transplant. Of which, only 5000 get a transplant whereby only ➢ 2 lakh people die of liver disease ➢ 50,000 from heart disease and ➢ 10 lakh people suffer from corneal blindness and await transplant ➢ Tamil Nadu is the most active state for organ donation in India. Following it is Karnataka, Maharashtra & Andhra Pradesh.	Explaining	Listening	
4.	3 min	Describe the history of organ donation	**HISTORY OF ORGAN DONATION :** **1954 :** A kidney is taken from one identical brother and transplanted in another where it worked for 8 years. **1962 :** The first successful cadaveric transplant uses a deceased donor kidney. The kidney worked for almost 2 years. **1966 :** First successful liver transplant. The liver worked for over one year. **1967 :** First successful heart transplant. The heart worked for 2 and half weeks. **1981 :** First successful heart lung transplant. The organs worked for 5 years.	Explaining	Listening	

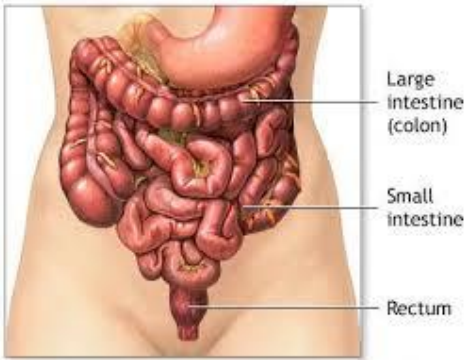
			1982 : First artificial heart transplant. **1983 :** Cyclosporine, an immunosuppressant drug, was approved by the FDA. **1986 :** A baboon heart was transplanted into Baby and worked or 20 days. **1989 :** The first successful living related living transplant. **1996 :** The first split liver transplant was performed where one cadaveric liver was split into several pieces to transplant into more than one person. **2000 :** First culture of human embryonic stem cells. **ORGAN DONATION IN TAMILNADU :** Multi Organ Harvesting Aid Network (MOHAN) Foundation, a non-governmental organization, had taken a major effort in the initiation and promotion of organ donation program in Tamil Nadu. In 2008, Government of Tamil Nadu had started Cadaver Transplant program (CTP), the first of its kind with the best organ-sharing network in the country. CTP is the backbone of organ donation that integrates government hospitals, private hospitals, NGO, donors, recipients, police and social workers. This is an excellent example for a successful public-private partnership program. Tamilnadu is the leading state in organ donation when compared to other parts of india.			
5.	5 min	List out the sources of donor organs	**SOURCES OF DONOR ORGANS :** **a) Cadaveric organs :** The first source for organs removes them from recently deceased people. These organs are called cadaveric organs. Cadaver is a latin word for a dead body. A person becomes a cadaveric organ donor by indicating that they would like to be an organ donor when they die. One cadaveric donor can provide organs for several different people. 7 major organs can be removed and transplanted to others.Which organs and tissues can be recovered may depend on the cause of death or damage to an organ, but typically several organs can be recovered from a single cadaver. **b) Living organ donation:** The second source for donor organs is a living person. Living donors are often related to the patient, but that is not always the case. Spouses and close friends frequently donate organs to ailing loved ones. Some people who wish to donate their organs may decide to donate to a stranger. Living people who wish to donate their organs can donate in two ways: Donate one half of a paired organ set . Ex : kidney	Explaining	Listening	

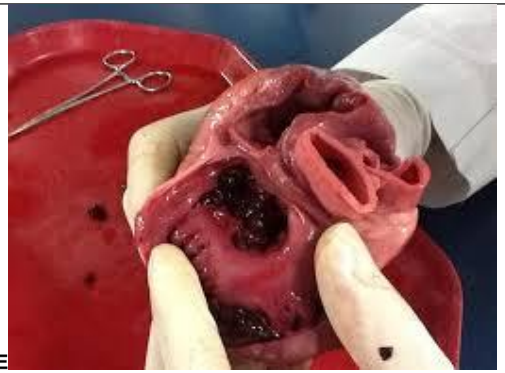
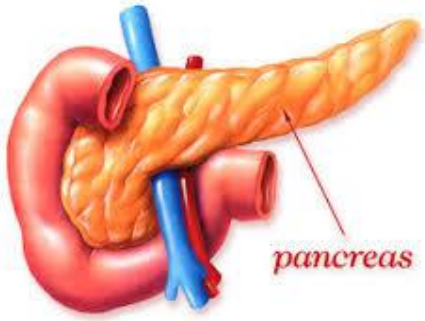
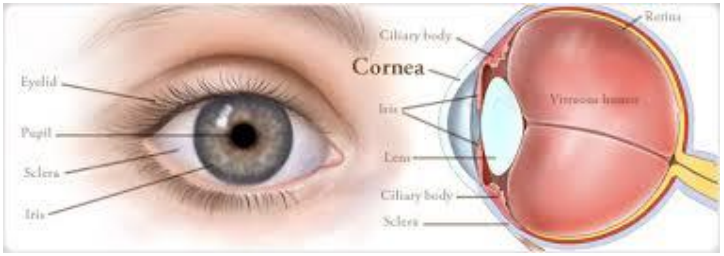
			Donate a portion of an organ that will still be able to function without it. Ex : A portion of the liver and a lobe of the lung. **Types of living donation :** **Related :**Blood relatives of transplant candidate including brothers, sisters, parents, children over 18 years of age, aunts, uncles, cousins, half brothers and sister, nieces and nephews. **Non related :**Individuals emotionally close to, but not related by blood to tansplant candidates, including spouses, in-law relatives, close friends, coworkers, neighbors or other acquaintances. **Non directed :**Individuals who are not related to or known by the recipient, but make their donation purely out of selfless motives. **ALTERNATIVE ORGAN SOURCES :** Some potential non traditionalsoures of organs are **Animal organs :** Experiments with baboon hearts and pig liver transplants have received extensive media attention in the past. One cautionary argument in opposition to the use of animal organs concerns the possibility of transferring animal bacteria and viruses to humans. **Artificial organs :** people who receive artificial organ transplants might require further transplanting if there is a problem with the device. **Stem cells :** Stem cells are cells that can specialize into the man different cells found in the human body. Researchers have great hopes that stem cells can one day be used to grow entire organs, or at least groups of specialized cells. **Aborted fetuses :** Aborted fetuses are a proposed source of organs when it is a late term abortions.			
6.	5 min	List out the criteria for organ donation	**CRITERIA FOR ORGAN DONATION :** ✓ There is no age limit for organ donation. Newborns as well as senior citizens have been organ donors. Parental or guardian consent is very much needed for the donors who are below 18 years of age. ✓ Physicall fit. ✓ Should not have diabetes, cancer, high blood pressure, kidney disease, heart disease and active infection ✓ Active HIV patients can donate only corneas. ✓ Intravenous drug users are not eligible donors. ✓ Hepatitis C may still donate organs to a patient who also has Hepatitis C.	Explaining and Questioning	Listening and answering	

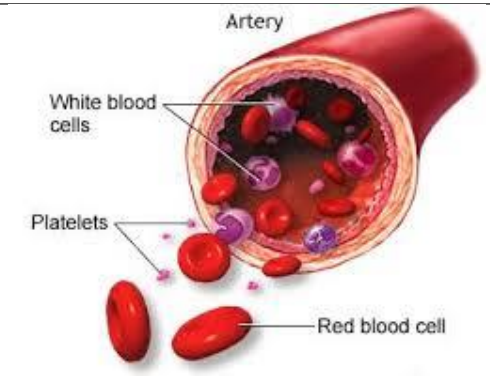
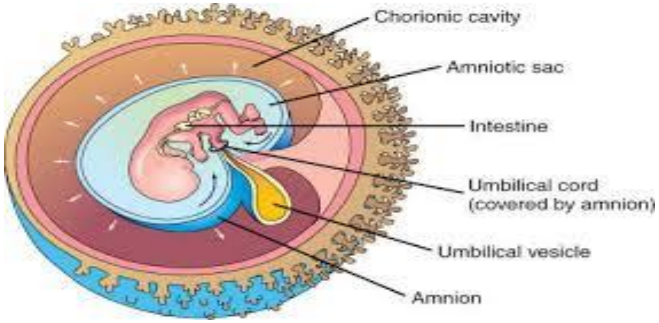
			✓ Hepatitis B may still donate organs to a patient who has Hepatitis B. **Medical suitability of the organ donor is determined by an assessment of the following donor parameters :** ➢ Detailed medical and social history ➢ Completed physical examination ➢ Review of current hospital course ➢ Organ specific function ➢ Age ➢ Infectious disease status ➢ Screen for malignancy **The following investigations are mandatory.** ➢ Blood group for ABO and Rhesus ➢ HIV antibody ➢ Hepatitis B surface antigen and Hepatitis B core Ig G antibody ➢ Hepatitis C antibody **ORGAN AND TISSUE DONATION AFTER DEATH** The vital organs should be removed as early as possible. Eyes have to be removed within 6 hours of death. But their tissues such as bone, skin, heart valves and corneas can be donated within the first 24 hours of death. **STORAGE OF ORGAN** : If kept chilled in preservation solution, donated organs can remain viable for transplantation for a duration ranging from a few to many hours, although it is best if they are transplanted as quickly as possible after the donation surgery. Typical storage times are 30 hours or less for a kidney, less than 12 hours for a pancreas or liver, and less than 6 hours for a heart or lungs. These times vary because of the relative speed at which deterioration begins in the organs' tissues.			
7.	15 min	Enlist the organs and tissues can be donated	**ORGANS AND TISSUES CAN BE DONATED :** ✓ Vital Organs like heart, liver, kidneys, intestines, lungs, and pancreas can be donated only in case of Brain death.(Total and irreversible loss of brain fuctions is called brain death).	Explaining and questioning	Listening and answering	

			✓ Other tissues like corneas, heart valves, skin, bones, bone marrow, connective tissue, middle ear, veins, cartilage, tendons, ligaments,etc can be donated only in case of natural death. ✓ A living person can donate Blood, stem cells and platelets, umbilical cord blood, amnion. **HEART :**  **KIDNEY :** 			

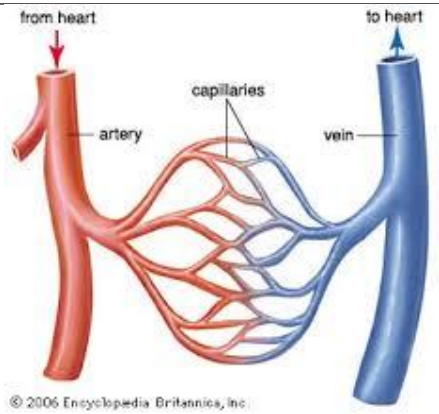
			LIVER :  **LUNGS :**  			

			INTESTINE  **SKIN** 			

			HEARTVALVE   **CORNEA :**  **PLATELET**			

			 **AMNION**  **BLOOD** 			

			UMBILICAL CORD BLOOD  BONE AND TENDON   **BLOOD VESSEI**			



Amnion donation : The amniotic memebrane is the innermost layer of the placenta, which lines the amniotic cavity. This membrane is comprised of cellular components that allow it to provide specific functions to aid in wound healing. Currently it is used in areas of dentistry, ophthalmic surgery, and sports medicine. There is no age limit for placenta donation. Any illness which could be transmitted to a recipient, including viruses and certain types of infections, will prevent the mother from donating. Before donation the mother's blood checked for HIV, Syphilis, HTLV,CMV, Hepatitis B, Hepatitis C.

Platelet donation : During platelet donation, a small portion of blood is drawn from the donor's arm and passed through a sophisticated cell-separating machine. The machine collects the platelets and safely returns the remaining blood components, along with some saline. After the donation, the donor can resume his normal activities, avoiding heavy lifting or strenuous exercise that day. Platelet donation will be very helpful for the people undergoing chemotherapy or organ transplant. Donor with type AB blood is ideal for platelet donation.

Cartilage donation : The tissue that covers the bone surfaces within the knee joints is called articular or hyaline cartilage. Normally, cartilage is a tough tissue that absorbs shock and weight bearing joint movements, especially during sports activities. When it becomes damages, the damage can lead to progressive breakdown of the joint to the point where the cartilage tissue cannot heal properly.

Vein donation :A tissue donor's veins or arteries can replace blood vessels that have been destroyed by disease or injury. Donated veins are most commonly used for heart bypass surgeries,

			repairing critical aneurysms, or diabetics who are threatened with losing limb. Normally, the saphenous vein found on the inside of the leg is one most commonly donated. Aoritc and femoral arteries are also eligible for donation. **Stem cell donation :** Stem cells are the parent cells from which all other blood cells develop. These are mainly red blood cells, platelets and white blood cells. Stem cells are found in bone marrow, peripheral blood and the umbilical cord blood of newborn babies. Patients suffering from leukemia, and other cancers, hereditary diseases are in need of stem cells. Anyone aged between 18 to 35 in good health can donate stem cells. **Bone marrow donation :**Donating bone marrow usually involves a 24 hour stay in hospital. It does not compromise the donor's health, because the marrow that has been removed soon forms again naturally within 3 to 4 weeks. **Umbilical cord blood donation :**For umbilical cord blood donation, the donor can sign up to donate when she is between 28 and 34 weeks pregnant. In some of the hospitals donation will take at the last minute. Under certain conditions mothers are not allowed to donate cord blood. These include multiple birth, Premature birth, family history of cancer, the mother has diabetes, mother has received an organ or tissue transplant in the last 12 months, the mother has had a tattoo or ear, skin, or body piercing in the last 12 months in which shared or non sterile inks, needles, the mother has lived in a part of the world where it is more common to contrat certain diseases that are carried in the blood. **Blood donation :** One unit of blood can save upto 3 lives. The blood type most often requested by hospitals is Type O. Type O negative blood can be transfused to patients of all blood types. Type AB positive plasma can be transfused to patients of all other blood types. Both type are usually in short supply. Sickle cell patients require frequent blood transfusions throughout their lives. Many of the cancer patients need blood sometimes daily, during their chemotherapy treatment. A single car accident victim can require as many as 100 units of blood. The actual blood donation usually takes less than 10-12 minutes. The average adult has about 10 unitso blood in his body. Roughly one unit is given during a donation. A healthy donor may donate red blood cells every 56 days, or double red cells every 112 days. A healthy donor may donate platelets as few as 7 days apart, but a maximum of 24 times a year. All donated blood is tested for HIV, Hepatitis B and C, Syphilis and other infectious diseases before it can be transfused to patients. Examples of blood use. Automobile accident – 50 units of blood			

			Heart surgery – 6 units of blood/ 6 units of platelets Organ transplant – 40 units of blood/30units of platelets Bone marrow transplant – 120 units of platelets / 20 units of blood Burn victims – 20 units of platelets **Heart valve donation :** Heart valves must be recovered within 15 hours if the body is not refrigerated or within 24 hours if the body is refrigerated within 12 hours of death. Processed and packaged heart valves must be stored at 100 celsius or older and have an expiration date of 5 years. There is no need for anticoagulation therapy since it provides excellent hemodynamic performance due to a more natural function of the surrounding structures.			
8.	5 min	Enumerate the advantaged and disadvantages of organ donation	**ADVANTAGES AND DISADVANTAGES OF ORGAN DONATION :** **Advantages :** Organ donation saves lives or improve the quality of life or several people. One organ donor can save upto eight lives. One tissue donor can save or improve the lives ofupto 50 people. This means one donor can potentially impact the lives of 58 people. One donor can provide bone to help 30 different patients. One donor can benefit eight recipients heart valves. One donor can provide two heart valves – the aortic and the pulmonary. Organs are used for people who have serious diseases or tissue damage such as severe burns. Families of organ donors may be able to correspond with the recipients of their loved one's organs, which may give them the sense that some good came out of tragedy, particularly if the donor were very young. Those who donate the whole body often are making contributions to medical advancement, as cadavers may be used for the education of medical students. **Disadvantages :** Organs may be donated to recipients who have very different religious or political views or to people the donor may not have considered deserving. For this reason, donors have to believe all life is sacred and one recipient is not more valuable than another. A disadvantage to living organ donation is that all surgery carries the risk of medical error, Bleeding, infection and even death. There is also a risk of future health problems. For instance, if you donate a kidney, there is no guarantee your remaining kidney will remain healthy throughout your life.			

			An additional disadvantage is the donation may be rejected. If this happens, the donor may end up feeling she went through the discomfort and risk for nothing. **To the donors :** **Health consequences :** Pain, discomfort, infection, bleeding and potential future health complications are all possible. **Psychological consequences :** Family pressure, guilt or resentment **Pressure:** Family members may feel pressured to donate when they have a sick family member or loved one. **No donor advocate :** Donors do not have surgeon or medical team to guide them can be faced with an overwhelming and complicated process with no one to turn to guidance or advice. **To the recipient :** Most people who received an organ can live a pretty normal life. But post transplant medication will suppress the immune system. As a result, the recipient will have the following problems. ➢ Diabetes ➢ High cholesterol ➢ High blood pressure ➢ Gastro intestinal problems ➢ Gout ➢ Anxiety and depression ➢ Sexual problems ➢ Unwanted hair growth			
9.	10 min	Enlist the indications and contra indications of organ donation	**ORGAN SPECIFIC INDICATION FOR DONATION** **HEART :** ➢ End stage heart failure ➢ Ischemic heart disease ➢ Cardiomyopathy ➢ Congenital heart disease **LIVER:** ➢ End stage liver disease ➢ Acute liver failure ➢ Cirrhosis	Explaining and questioning	Listening and answering	

			➢ Hepatocellular carcinoma ➢ Longterm alcohol abuse ➢ Longterm untreated Hepatitis C infection **PANCREAS:** ➢ Insulin dependent diabetes ➢ Pancreatic cancer ➢ Longter untreated Hepatitis B infection **LUNG :** **Chronic obstructive pulmonary disease :** A general term that refers to a number of diseases that damage the lungs, most commonly as a result of smoking. **Cystic fibrosis :** A genetic condition that causes the lungs and digestive system to become clogged up with a thick sticky mucus. **Pulmonary hypertension:** High blood pressure inside the vessels that carry blood from the heart to the lungs **Idiopathic pulmonary fibrosis :** Scarring of the lung **KIDNEY :** **Failure of two kidneys** **ORGAN SPECIFIC CONTRA INDICATIONS FOR ORGAN DONATION** **Liver :** Acute hepatitis of viral, drug or other known etiology Cirrhosis Metabolic diseases that would be harm to the recipient **Bowel :** DCD donors DBD donor age ≥56 years or weight of 80 kg more Underlying chronic intestinal disease **Kidney :** Chronic kidney disease Long term dialysis Renal malignancy Previous kidney transplant			

			Pancreas : Insulin dependent diabetes Non insulin dependent diabetes Any history of pancreatic malignancy Donor BMI More than 40kg/m2 Donor below 15 Kg DBD donors ≥ 66 years DCD donors aged ≥ 56 years **Heart :** DCD donor age ≥ 65 years DBD donor age ≥ 70 years Previous intra thoracic malignancy Lung disease **ABSOLUTE CONTRAINDICATION TO CONSIDERATION OF DECEASED DONATION** ➢ Age more than 85 years ➢ Any active cancer ➢ TB active and untreated West Nile Virus infection HIV disease			
10.	5 min	Explain the myths regarding organ donation	**MYTHS REGARDING ORGAN DONATION :** **There are certain things that can keep me from being an organ donor such as age, illness or physical defects.** **Fact :** People living with chronic diseases or those who have a history of cancer or other serious diseases are still encouraged to join the donor registry. **If doctors know that I am registered to be an organ or tissue donor, they won't work as hard to save my life.** **Fact :**Organ and tissue donation is not even considered or discussed until after death is declared. **If you are rich or a celebrity, you can move up the waiting list more quickly.** **Fact :**A patient's income, race or social status are never taken into account in the allocation process. Severity of illness, time spent waiting, blood type and match potential are the factors that determine your place on the waiting list. **After donating an organ or tissue, a closed casket funeral is the only option.**	Explaining	Listening	

			Fact : Organ procurement organizations treat each donor with the utmost respect and dignity allowing a donor's body to be viewed in an open casket funeral. **My religion does not support organ and tissue donation.** **Fact :**Most major religions support organ and tissue donation. Typically, religions view organ and tissue donation as acts of charity and good will. **My family will be charged for donating my organs.** **Fact :** The family is expected to pay for medical expenses incurred before death is declared and for expenses involving funeral arrangements. **Organs can be bought or sold on the black market.** **Fact :** These stories are untrue. The buying and selling of organs and tissues is illegal, as part of the National Organ Transplant Act. **Even if I say I want to only donate my corneas, they will take all of my organs.** **Fact :** You can specify which organ and tissues you want to donate in your will or by telling your family which specific gifts you would like to donated at the time of your death. Your wishes will be followed. **I don't need to tell my family that I would like to be a donor because it is already in my will.** **Fact :** By the time your will is read, it will be too late for your to be a donor. Telling your family now that you want to be an organ and tissue donor is the best way to make certain your wished are honored. **The recipient will know who I am** **Fact :** Information about the donor is released to the recipient only if the family of the donor requests or agrees to it. Otherwise, the strictest confidence of patient privacy is maintained for both donor families and recipients. **It's better to just let my family decide at the time.** **Fact :** If you want to become an organ or tissue donor – you need to tell your family. **It's my choice – I don't need to discuss it with my family.** **Fact :** Your family needs to know. They will be asked to confirm your decision. **I am not healthy enough to donate because of my lifestyle choices.** **Fact :** You don't have to be in perfect health. People who smoke, drink or don't have a healthy diet can still donate. **Enough people become donors so I don't need to think about it.** **Fact :** Donation is a rare event – only 1% of hospital deaths allow for organ donation.			

11.	5 min	Describe the ethical issues and acts regarding organ donation	**Ethical issues regarding organ shortage** **Distributive justice :** The list of possible distributive justice criteria are ➢ To each person an equal share ➢ To each person according to need ➢ To each person according to effort ➢ To each person according to contribution ➢ To each person according to merit ➢ To each person according to free market exchanges **Equal access criteria** include : ➢ Length of time waiting (i.e first come, first served) ➢ Age (i.e youngest to oldest) **Maximum benefit criteria include :** ➢ Medical need : (i.e the sickest people are given the first opportunity for a transplantable organs) ➢ Probable success of a transplant : (i.e giving organs to the person who will be most likely to live the longest). **Ethical issues in organ donation :** Currently, once a person dies, his or her organs may be donated if the person consented to do so before they passed away. After death, the organs are taken from the deceased person's body. If the deceased person's organ donation wished are unknown, the hospital, physician, or organ procurement organization will approach a family member to obtain consent to remove the organs. The family members with the authority to do so is generally determined by this hierarchy : ➢ Spouse. If no spouse, then….. ➢ Adult child. If no adult children, then….. ➢ Parent . If no parents, then….. ➢ Adult sibling. If no siblings, then …. ➢ Legal guardian.			

ACTS IN ORGAN DONATION :

The primary legislation related to organ donation and transplantation in India, Transplantation of Human Organs Act, was passed in 1994 and is aimed at regulation of removal, storage and transplantation of human organs for therapeutic purposes and for prevention of commercial dealings in human organs.

In India, matters related to health are governed by each state. The Act was initiated at the request of Maharashtra, Himachal Pradesh and Goa (who therefore adopted it by default) and was subsequently adopted by all states except Andhra Pradesh and Jammu &Kashmir. Despite a regulatory framework, cases of commercial dealings in human organs were reported in the media. An amendment to the act was proposed by the states of Goa, Himachal Pradesh and West Bengal in 2009 to address inadequacies in the efficacy, relevance and impact of the Act. The amendment to the Act was passed by the parliament in 2011, and the rules were notified in 2014. The same is adopted by the proposing states and union territories by default and may be adopted by other states by passing a resolution.

The main provisions of the Act (including the amendments and rules of 2014) are as follows:

A. Brain death identified as a form of death. Process and criteria for brain death certification defined (Form 10)

B. Allows transplantation of human organs and tissues from living donors and cadavers (after cardiac or brain death)

C. Regulatory and advisory bodies for monitoring transplantation activity and their constitution defined.

(i) Appropriate Authority (AA): inspects and grants registration to hospitals for transplantation enforces required standards for hospitals, conducts regular inspections to examine the quality of transplantations. It may conduct investigations into complaints regarding breach of provisions of the Act, and has the powers of a civil court to summon any person, request documents and issue search warrants.

			(ii) Advisory Committee: consisting of experts in the domain who shall advise the appropriate authority. (iii) Authorization Committee (AC): regulates living donor transplantation by reviewing each case to ensure that the living donor is not exploited for monetary considerations and to prevent commercial dealings in transplantation. Proceedings to be video recorded and decisions notified within 24 hours. Appeals against their decision may be made to the state or central government. (iv) Medical board (Brain Death Committee): Panel of doctors responsible for brain death certification. In case of non-availability of neurologist or neurosurgeon, any surgeon, physician, anaesthetist or intensivist, nominated by medical administrator in-charge of the hospital may certify brain death. D. Living donors are classified as either a near relative or a non-related donor. (i) A near-relative (spouse, children, grandchildren, siblings, parents and grandparents) needs permission of the doctor in-charge of the transplant center to donate his organ. (ii) A non-related donor needs permission of an Authorization Committee established by the state to donate his organs. E. Swap Transplantation: When a near relative living donor is medically incompatible with the recipient, the pair is permitted to do a swap transplant with another related unmatched donor/recipient pair. E. Authorization for organ donation after brain death (i) May be given before death by the person himself/herself or (ii) By the person in legal possession of the body. A doctor shall ask the patient or relative of every person admitted to the ICU whether any prior authorization had been made. If not, the patient or his near relative should be made aware of the option to authorize such donation. (iii) Authorization process for organ or tissue donation from unclaimed bodies outlined. F. Organ retrieval permitted from any hospital with ICU facility once registered with the			

			appropriate authority. Any hospital having Intensive Care Unit (ICU) facilities along with manpower, infrastructure and equipment as required to diagnose and maintain the brain-stem dead person and to retrieve and transport organs and tissues including the facility for their temporary storage, can register as a retrieval center. G. Cost of donor management, retrieval, transportation and preservation to be borne by the recipient, institution, government, NGO or society, and not by the donor family. H. Procedure for organ donation in medico-legal cases defined to avoid jeopardizing determination of the cause of death and delay in retrieval of organs. I. Manpower and Facilities required for registration of a hospital as a transplant center outlined. J. Infrastructure, equipment requirements and guidelines and standard operating procedures for tissue banks outlined. K. Qualifications of transplant surgeons, cornea and tissue retrieval technicians defined. L. Appointment of transplant coordinators (with defined qualifications) made mandatory in all transplant centers. M. Non-governmental organisations, registered societies and trusts working in the field of organ or tissue removal, storage or transplantation will require registration N. The central government to establish a National Human Organs and Tissues Removal and Storage Network i.e. NOTTO (National Organ & Tissue Transplant Organisation), ROTTO (Regional Organ & Tissue Transplant Organisation) and SOTTO (State Organ & Tissue Transplant Organisation). Website www.notto.nic.in. Manner of establishing National or Regional or State Human Organs and Tissues Removal and Storage Networks and their functions clearly stated. O. The central government shall maintain a registry of the donors and recipients of human organs and tissues. **P.** Penalties for removal of organ without authority, making or receiving payment for supplying human organs or contravening any other provisions of the Act have been made very stringent in order to serve as a deterrent for such activities.			

12.	3 min	Explain the procedure to register for organ donation in tamilnadu	**HOW TO REGISTER FOR ORGAN DONATION :** **You may contact Postal Address :** Convenor – Cadaver Transplant Program, 165 A, Tower Block I, 6th Floor, [Next to Bone Bank], Rajiv Gandhi Government General Hospital, EVR Periyar Road (Poonamalle High Road) Chennai – 600 003 **E-Mail :** organstransplant@gmail.com **Phone/Fax :** • (91)44 25363141 **PLEDGE YOUR ORGANS - DONOR CARD** The **Donor Card** enables people to express their wish to become an organ donor. It is like making a will. By signing the 'Donor Card' you have agreed to organ donation. Keep the Donor Card with you always in your purse or wallet. Inform your close relatives about your wish to be an organ donor. The Donor Card also substitutes as an emergency card as it has the contact number in case of any emergency. MOHAN Foundation provides you with a printable format of the Donor Card in not only English but also in Indian languages like Hindi, Tamil, Malyalam and Gujarati. **SUMMARY :** So far we have discussed about organ donation in a very detail manner. Hope this class will be useful to you to create awareness regarding organ donation and motivate you to donate your own organs and will help you to convince your family members to donate their organs. Thank you.	Explaining And clearing the doubts regarding registration	Listening and questioning	