

**OUTCOME OF CRYOTHERAPY ON ARTERIOVENOUS FISTULA
PUNCTURE PAIN AMONG PATIENTS ON HEMODIALYSIS.**



Dissertation Submitted to
THE TAMIL NADU DR. M.G.R.MEDICAL UNIVERSITY
CHENNAI
IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF
DEGREE OF
MASTER OF SCIENCE IN NURSING
APRIL, 2012

**OUTCOME OF CRYOTHERAPY ON ARTERIOVENOUS
FISTULA PUNCTURE PAIN AMONG PATIENTS ON
HEMODIALYSIS IN SELECTED HOSPITAL AT CHENNAI,
2011 – 2012.**

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**A STUDY TO ASSESS THE OUTCOME OF
CRYOTHERAPY ON ARTERIOVENOUS FISTULA
PUNCTURE PAIN AMONG PATIENTS ON
HEMODIALYSIS AT VIJAYA HEALTH CENTRE
VADAPALANI, CHENNAI 2011 – 2012.**

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ABSTRACT

Dialysis is typically needed when about 90 percent or more of kidney function is lost. This usually takes many months or years after kidney disease is first discovered. Early in the course of kidney disease, other treatments are used to help preserve kidney function and delay the need for replacement therapy.

Arteriovenous fistula is very important vascular access. Vascular access creates a way for blood to be removed from the body, circulate through the dialysis machine, and then return to the body.

The access should be created before hemodialysis begins because it needs time heal before it can be used. Having an intravenous line or frequent blood draws in the arm that will be used for access can damage the vein, which could prevent them being used for a hemodialysis access.

Pain during arteriovenous fistula puncture pain remains a common problem in hemodialysis patients. Cryotherapy is one of the non – pharmacological method of reducing pain. It is a non invasive procedure.

This study was conducted to the outcome of cryotherapy on arteriovenous fistula puncture pain among patients on hemodialysis and adopting a experimental pre test and post test design. Sixty clients undergone hemodialysis with arteriovenous fistula were selected for experimental and control group. The data was collected from who were undergone hemodialysis by using arteriovenous fistula.

Numerical pain rating scale was used to assess the pain level. Ethical aspects were considered throughout the study. The conceptual frame work adopted for this study was modified Orlando's Nursing Process Theory.

Analysis revealed that, outcome of pain was a decrease in mean value 4.73 to 2.60 decrease in standard deviation form 0.91 to 0.67 respectively the 't' value 33.796*** was found to be highly significant at $p < 0.001$.

In control group mean value from 5.13 to 4.97 and the standard deviation from 1.07 to 1.03 respectively the 't' value 0.623 was found to be not significant at $p = 0.538$.

Descriptive statistics were used as deemed appropriate. Chi square, paired t – test were used for inferential statistics and found that subjective pain score were significantly reduced within the experimental group with the application of cryotherapy.

This study highlights the need for adopting alternative therapies such as cryotherapy for effective pain management in hospital settings.

CHAPTER – I

INTRODUCTION

World's use is cold, world love is vain, world's cruelty is bitter bane, but pain is
not the fruit of pain

Elizabeth Barrett

Bones can break, muscle can atrophy, and even the brain can go to sleep without immediate danger to survival. But should the kidney fail.. neither bones muscle, nor brain could carry on(smith 1953). This statement underlines the value of kidneys in our lives.

Chronic renal failure is a devastating medical, social and economic problem for both patients and their families in India. Most chronic kidney disease patients reporting to tertiary care centres in India are in the final stage where renal replacement therapy (RRT) is the only option at that stage. Hemodialysis (HD) is the most frequently used RRT with the arteriovenous fistula (AVF) being the gold.

Pain inflicted by the insertion of large cannulae in to the AVF is a significant cause of concern for both children and adults on regular Hemodialysis. Although arteriovenous puncturing cause pain, local anesthesia is not frequently used due to concerns of vasoconstriction, burning sensation, scarring and infection. On an average, a patient on maintenance hemodialysis undergoes ten arteriovenous fistula punctures a month and would continue to do so throughout their lifetime or until a successful renal transplant. His or her comfort with the procedure is therefore of utmost importance for long term compliance with the treatment.

The kidneys excrete a number of end products of metabolism in urine. The kidneys eliminate these substances from the body at a rate that matches their production. In addition to the metabolic wastes the kidneys also excrete foreign substances from the body such as drugs, pesticides and other chemicals ingested in the food regulation of water and inorganic ion balance and regulation of water acid balance are also the functions of kidneys. So, the proper functioning of the kidneys highly essential for the normal bodily

homeostasis. If there is a complete kidney failure and treatment is not given death is inevitable.

Till 1943, the prognosis of patients with chronic kidney disease was a question mark. The mortality rate was very high, that there was no specific treatment to replace kidney function. It was during that period Dr. William Koff constructed the first working dialyser and after his intervention, a 67 year old woman in uremic coma regained consciousness following 11 hours of hemodialysis with aid of dialyzer and she lived for 7 years on hemodialysis. Although hemodialysis prevent death and prolong life indefinitely, it does not cure renal disease nor does it completely replaces kidney function. Patients must undergo treatment for the rest of their life or until they undergo successful kidney transplantation.

Research evidence shows that cutaneous stimulation is an independent nursing intervention that is advocated to minimize pain in patients. The effect of cutaneous stimulation is best explained by the gate control theory cutaneous stimulation modalities can be accupressure to increase its effectiveness in pain management. The large intestine meridian is an accupressure point located on the back site of the hand between the thumb and the first finger. Its dominant use is to relieve pain in the shoulder and arm, rigidity of the neck, scapula, and eye diseases, and to treat constipation or other bowel disorders.

BACKGROUND OF THE STUDY

The kidney have remarkable functional reserve up to 80% of the glomerular filtration rate may be lost with few obvious changes in the functioning of the body. The prognosis and the course of the chronic kidney diseases are highly variable depending upon the etiology, patient`s condition age and adequacy of the health care follow-up.

Chronic kidney disease is becoming a global health concern with an estimated 40 million people age at risk for each year. According to the united states Renal Data system reports in 2005, that the incidence of end stage renal disease has increased by almost 8% per year for the past five years, with more than 3,00,000 patients are diagnosed with the disease condition. Some form of renal replacement therapy. In that about 93,276 patients were put on hemodialysis

Another data in Canada says that 4,52,000 people with end stage renal disease were being treated with some form of renal replacement therapy. In that about 2,98,101 were started with hemodialysis. The number of patients with end stage renal disease is expected to reach 6,60,000 by 2010

In the most recent statistics available from Canada in one year over 4,800 new patients were started with some form of renal replacement therapy with a total of 17,116 80% were started with hemodialysis.

Till 1943, the prognosis of patients with chronic kidney disease was a question mark. The mortality rate was very high, that there was no specific treatment to replace kidney function. It was during that period Dr. William Koff constructed the first working dialyzer and after his intervention, a 67 year old woman in uremic coma regained consciousness following 11 hours of hemodialysis with the aid of dialyzer and she lived for 7 years on hemodialysis. Although hemodialysis prevents death and prolong life indefinitely, It does not cure renal disease nor does it completely replaces kidney function. Patients must undergo treatment for the rest of their life or until they undergo successful kidney transplantation. Hemodialysis usually done twice or thrice a week for at least 3 to 4 hours per sitting.

End stage renal disease (ESRD) or chronic renal failure (CRF) is a worldwide public health problem. It is a mammoth, medical, social and financial crisis for both patients and their families. Among India's total population around 7.85 million are suffering from CRF. This condition is progressive, irreversible deterioration in renal function in which the body fails to maintain metabolic and fluid and electrolyte balance and results in uremia or azotemia (retention of urea and other nitrogenous wastes in the blood) The incidence of ESRD has increased by almost 8% per year in the past 5 years with more than 3,00,000 being treated states (USRDS,2001), co-morbid conditions contribute to the high morbidity and mortality among patients with ESRD. Dialysis or kidney transplantation becomes necessary for patient's survival.

International Association for study of pain (1979) defined pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of in such damage Epidemiologic data of pain in patients with ESRD .

The literatures suggest that 37% to 50% of hemodialysis patients experience chronic pain and that for 82% of those patients pain is in moderate to severe intensity (Davidson 2003) moreover pain during arteriovenous fistula cannulation remains a common problem in hemodialysis patient.

Now a days, health professionals increasingly focus on the management of pain to improve the quality of life for many patients living with chronic and terminal pain (Ferrell, 1996, McCaffery & Ferrel, 1997, Howell, et al., 2000) pain management is now considered as the significant patient outcome when evaluating the effectiveness of nursing care (Padilla et al. 1990 Barnason et al., 1998). However a substantial body of research indicated that pain continues to be a problem for 45-75% of hospitalized patients who report experiencing moderate to severe levels of pain (Nash et al., 1994, Carr & Thomas, 1997; Breitbart, Rosenfeld & Pasik 1998, Yates et al: 1988).

In 2003 the study says found the objective and subjective pain score were found to be significantly reduced within the experimental group with the application of cryotherapy. This study highlights the need for adopting alternative therapies such as cryotherapy for effective pain management in hospital setting.

NEED FOR THE STUDY

Over 1 million people with CRF world wide are alive on dialysis with a functioning graft. Incidence of CKD has doubled in the last 15 years. In India, reports reveal that there is an increase in the prevalence of CKD by 35% as compared to the statistics a decade ago. It is one of the most common illnesses in the country as it is estimated that there is one CKD patient in every 2000 population.

Pain is the one of the least understood pain management is considered as an important part of health care that the American Pain Society coined the phrase "pain". The fifth vital sign (Campbell 1995) to emphasize its significance and importance of effective pain management.

The nurse who are spending most of their working hours in interaction with the patient unlike other members of the health care team have a central role in pain assessment

and management. The extent of nurse's involvement depends on the unique factors associated with the patient, the setting and cause of the pain

Strategies include both pharmacologic such as opioids, NSAIDS etc and non pharmacologic by making use of alternative therapies in order to control the pain these are widely in the clinical practice. The nurses assess the effectiveness of these interventions, monitoring for adverse side effects and serve as an advocate for the patient when prescribed interventions are ineffective in relieving pain. Procedural pain is one of the primary types of pain which the health care team encounter in their daily practice

Effective procedural pain control is an essential component of the care of a patient. Apart from being in human, inadequate pain control, may result in increased morbidity or decreased compliance to the treatment. Patients with end-stage and pain from approximately 300 punctures per year in their Arteriovenous fistula when they are on maintenance hemodialysis

Repeated punctures at the arteriovenous fistula site lead to a considerable degree of pain, due to the caliber and length of the bevel of fistula needles. Pain being a sensitive, emotional subjective and multifactorial feeling of the patient, lack of education, fear of complications associated with analgesic drugs, poor pain assessment, and inadequate staffing are the causes for insufficient pain control. After hundreds of years of advances, the main stay of procedural pain therapy is still the local anesthesia. When used properly local anesthetics are safe and are effective in reducing procedural pain, but they also carry with them undesirable side effects such as pain while injecting, allergic reactions, pruritus, and burning sensation. In high doses local anesthetics may produce toxic effect caused by being absorbed through the blood stream into the rest of the body (systemic toxicity) This may significantly affect patient's breathing, heartbeat, blood pressure, and other body functions (Webmed, 2010). The alternative medicine is an area of healthcare that has been rapidly evolving over the past few years. Some of the practices have been around for centuries, while others have become popular within the last few decades. Recent researches support nonpharmacological pain control measures such as distraction, especially humor, relaxation using the patient's own memory of peaceful events, and cutaneous stimulation, especially use of cold cutaneous stimulation can be effectively used at sites other than site of pain (McCaffery, 2000)

Touch is the language spoken through hands and understood by heart. Cutaneous stimulations will promote comfort by reducing the pain. Together intention and touches set the tone and provide the basis for healing. The cutaneous stimulation is an independent nursing intervention which is used in various painful conditions, and is explained by gate control theory. Cutaneous stimulation modalities are clubbed with acupuncture to increase its effectiveness in pain management. The large intestine meridian is an acupuncture point which is located on the back side of the hand between the thumb and the first finger. Its dominant uses are to relieve pain in the shoulder and arm, rigidity of the neck, scapula and eye diseases, and to treat constipation or other bowel disorders. Studies have also been conducted on the fact that cryotherapy is equally effective in alleviating pain as cutaneous stimulation technique safely and cost-effectively (Waters, 2003)

As recorded by Williams and Manias (2005) in their report on pain assessment and management of patients with chronic renal failure, although studies have examined the renal effect of analgesia and have identified that pain is poorly managed in the patient with end stage renal failure, then were no studies that examined pain assessment in renal prior to reaching end stage renal disease, or pain control in renal failure from the nurses prospective

This is only very little information available to guide health professionals in pain management in patients with renal failure. Renal text book also do not directly address the difficulties. Surrounding pain management in renal failure (Daugirdas et.al.2001), although drug dosing in renal failure in general has been described in pharmacological monographs not readily available in the nurses workplace (Aronoff et al 1999, Bunn & Ashley,2004).

Cryotherapy is easy to learn and can be used to relieve various symptoms in a wide range of patient care settings. Cryotherapy is being a natural treatments modality and has absolutely no side effects which motivated the researcher to come out a project on assessment outcome of cryotherapy on arteriovenous fistula pain among hemodialysis patients.

Nurses working in hospitals spend more time with patients who are having pain try to work closely with patients to facilitate the healing process and treat human response.

Cryotherapy can be included in this nursing practice. The effect of cryotherapy relieves pain patients with arteriovenous fistula on hemodialysis. Based on their effect it was recommended to develop an intervention programme on cryotherapy patients with arteriovenous fistula on hemodialysis.

TITLE

Outcome of cryotherapy on Arteriovenous fistula pain among hemodialysis patients.

STATEMENT OF PROBLEM

A study to assess the outcome of cryotherapy on Arteriovenous Fistula puncture pain among patients on hemodialysis at Vijaya Health Centre Vadapalani, Chennai 2011-2012.

OBJECTIVES

1. To assess the pretest level of Arteriovenous fistula puncture pain among experimental group and control group.
2. To assess the post test level of Arteriovenous fistula puncture pain among experimental group and control group.
3. To assess the outcome of cryotherapy on the pretest and post test level of Arteriovenous fistula puncture pain in the experimental and control group.
4. To associate the pre test and post test level of Arteriovenous fistula puncture pain in the experimental group and control group with the selected demographic variables.

VARIABLES

Independent Variable

Cryotherapy

Dependent Variable

Arteriovenous fistula puncture pain

RESEARCH HYPOTHESIS

H₁ – There is a significant difference between the pre-test and post test level of Arteriovenous fistula puncture pain between Experimental group and control group

H₂ – There is a significant difference between the post test level of Arteriovenous fistula Puncture pain between Experimental and Control Group.

OPERATIONAL DEFINITION

Outcome

refers to the impact on pain perception following the application of cryotherapy on arteriovenous fistula puncture site among patients on hemodialysis.

Cryotherapy

refers to local or general use of low temperature in medical therapy. Application of ice cubes wrapped in gloves on the web between thumb and index finger of the hand not having the anteriorvenous fistula(contralateral arm). The procedure is started ten minutes before venipuncture and continued throughout the puncturing procedure (approximately two minutes).

Patient

refers to individual medically diagnosed to have chronic loss of kidney function and advised to undergo hemodialysis.

Hemodialysis

refers to removal of waste product from the blood of a patient with acute or chronic renal failure by means of a dialyser machine.

Pain

refers to an unpleasant sensory and emotional experienced during puncture of anteriorvenous fistula. It is elicited by the numerical rating scale.

ASSUMPTIONS

1. Patients on hemodialysis may experience pain at the arteriovenous fistula site
2. Cryotherapy may have some effect on pain reduction among patients on hemodialysis.

DELIMITATIONS

1. The duration of the study was delimited to one month.
2. The study was delimited to selected setting.

PROJECTED OUTCOME

This study would enable the clients to feel comfortable with reduced pain

Application of cryotherapy would help in cost effectiveness and to reduce the side effects.

SUMMARY

This chapter dealt with the background of the study significant and need for the study, title, statement of the problem, objectives, variables of the study, hypothesis of the study, operational definition, assumption and organization of the report.

ORGANIZATION OF THE REPORT

The following chapter contains,

- | | | |
|-------------|---|-------------------------------------|
| Chapter II | - | Review of literature |
| Chapter III | - | Methodology |
| Chapter IV | - | Analysis and interpretation of data |
| Chapter V | - | Discussion |
| Chapter VI | - | Summary and conclusion |

(this is followed by reference and appendices)

CHAPTER – II

REVIEW OF LITERATURE

Review of literature is an important step in the development of a research project. It helps the investigator to develop a deeper insight into the problem and gain information on the problem and on what has been done before it provides basis for future investigation justified the need for replication, through light on the feasibility of the study to another with a hope to establish a comprehensive body of scientific knowledge in professional discipline from which, valid and pertinent theories may be developed.

Review of literature is a critical summary of research on a topic of interest generally proposed to put a research problem in context or to identify gaps and weakness in prior studies and as to justify new investigation. A review of literature involves systematic identification, location, scrutinizing and summary of the written material that contains information on a research problem.

The investigation carried out extensive review of literature relevant to the research topic to gain insight and to collect information for laying the foundation of the study.

This chapter has two sections:

Part I – Literature Review

Section A : General information related to hemodialysis, Arteriovenous fistula

Section B : Literature related to mortality and morbidity to hemodialysis.

Section C : Literature related to effect of cryotherapy and gate control theory.

Section D : Studies related to cryotherapy on post operative pain.

Section E : Studies and literature related to impact of sickness among hemodialysis patients.

Part II: deals with Conceptual Framework

PART – I

SECTION – A: General Information

Hemodialysis

Hemodialysis is a method for extracorporeal removing waste products such as creatinine and urea, as well as free water from the blood when the kidneys are in renal failure.

Hemodialysis one of the three renal replacement therapy (the other two being) an alternate method for extracorporeal separation of blood components such as plasma or cells.

Hemodialysis can be an or inpatient therapy. Routine hemodialysis is conducted in a dialysis outpatient facility, either a purpose built room in a hospital or a dedicated, stand alone clinic. Less frequently hemodialysis is done at home. Dialysis treatments in a clinic are initiated and managed by specialized staff made up of nurses and technicians; dialysis treatments at home can be self initiated and managed or done jointly with the assistance of a trained helper who is usually a family member.

Types

There are three types of hemodialysis: conventional hemodialysis, daily hemodialysis, and nocturnal hemodialysis. Below is the adaption and summary from a brochure of The Ottawa Hospital.

Conventional hemodialysis

Chronic hemodialysis is usually done three times per week, for about 3–4 hours for each treatment, during which the patient's blood is drawn out through a tube at a rate of 200-400 mL/min. The tube is connected to a 15, 16, or 17 gauge needle inserted in the dialysis fistula or graft, or connected to one port of a dialysis [[catheter] without needles]. The blood is then pumped through the dialyzer, and then the processed blood is pumped back into the patient's bloodstream through another tube (connected to a second needle or port). During the procedure, the patient's blood pressure is closely monitored, and if it becomes low, or the patient develops any other signs of low blood volume such as nausea, the dialysis attendant can administer extra fluid through the machine. During the treatment, the patient's entire blood volume (about 5000 cc) circulates through the

machine every 15 minutes. During this process, the dialysis patient is exposed to a weeks worth of water for the average person.

Daily hemodialysis

Daily hemodialysis is typically used by those patients who do their own dialysis at home. It is less stressful (more gentle) but does require more frequent access. This is simple with catheters, but more problematic with fistulas or grafts. The "buttonhole technique" can be used for fistulas requiring frequent access. Daily hemodialysis is usually done for 2 hours six days a week.

Nocturnal hemodialysis

The procedure of nocturnal hemodialysis is similar to conventional hemodialysis except it is performed three to six nights a week and six-ten hours per session while the patient sleeps.

Advantages

Low mortality rate

Better control of blood pressure and abdominal cramps

Less diet restriction

Better solute clearance effect for the daily hemodialysis: better tolerance and fewer complications with more frequent dialysis

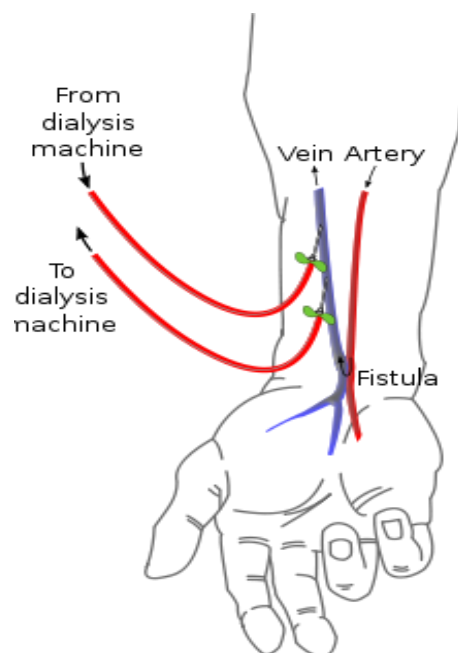


Fig.i

Definition of Anteriorvenous fistula

Anteriorvenous fistulas are recognized as the preferred access method. To create a fistula, a vascular surgeon joins an artery and a vein together anastomosis.

Recognition and function of Anteriovenous fistula

Since this bypasses the capillaries, blood flows rapidly through the fistula. One can feel this by placing one's finger over a mature fistula. This is called feeling for thrill and produces a distinct 'buzzing' feeling over the fistula. One can also listen through a stethoscope for the sound of the blood 'whoosing' through the fistula, a sound called bruit.

Fistulas are usually created in the non dominant arm and may be situated on the hand forearm the elbow. A fistula will take a number of weeks to mature, on average perhaps four to six weeks. During treatment, two needles are inserted in to the fistula, one to draw blood and one to return it.

ADVANTAGES

The advantages of the AV fistula use are lower infection rates, because no foreign material is involved in their information

Higher blood flow rate

Lower incidence of thrombosis.

LARGE INTESTINE 4

Location

On the dorsum of the hand, between the 1st and 2nd metacarpal bones, in the middle of the 2nd metacarpal bone on the radial side.

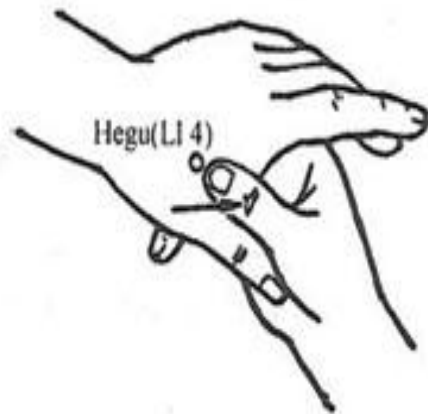


Fig.ii

LARGE INTESTINE PRIMARY CHANNEL PATHWAY

The Large Intestine Meridian starts from the tip of the index finger and runs between the thumb and index finger. It then proceeds along the lateral side of the forearm

the anterior side of the upper arm, until it reaches the highest point of the shoulder. From there, it has two branches. One goes internally towards the lungs, diaphragm and large intestine. The other travels externally upwards where it passes the neck and cheek, and enters the lower teeth and gums. It then curves around the upper lip and crosses to the opposite side of the nose. From there the channel of the left side turns right, while the right side channel turns left.

Section B: Literature related to mortality and morbidity to hemodialysis

Deiham (2010) have investigated on determinants of hemodialysis on access survival. The investigator retrospectively analysed the vascular access procedures performed over a two-year period and clinical data and concomitant medication were retrieved from files. Outcomes parameters observed were primary patency and secondary patency and freedom from repeated revascularization. The investigators minimal follow-up with functioning access was 679 days. During the observational period, 244 patients underwent vascular access procedures pp and sp were 35.6% and 45.6% respectively, at 540 days. Presence of diabetes mellitus was associated with lower sp whereas female gender was associated with lower secondary patency and freedom from repeated revascularization rates. In contrast, presence of hyperparathyroidism was observed by the investigator as associated with higher secondary patency and freedom from repeated revascularization rates.

Revani (2010) compared outcomes of arteriovenous grafts and fistulas and studied the variations at risk. Longitudinal data from 535 incident hemodialysis patients were collected and utilized by the investigators to study the relationship between access type and access survival. They reported that hazard for failure of fistulas and grafts declined over time, and become proportional after 3 months from surgery. The investigators considered the entire observation period and found out that grafts had slower hazard decline ($p < 0.001$) with shorter median survival times than fistulas (8.4 versus 38.3 months).

Lacson (2009) in a prospective observational study, with the aim of relation between change in vascular access and mortality in maintenance hemodialysis patients. At baseline 79,545 had 43% fistulas 29% catheters, and 27% grafts. The study data showed that compared with fistulas, deaths were higher for grafts and catheters. The

analysis proved that catheters have the worst associated mortality risk. Change from a catheter to a fistula or graft was noted by the investigators with significantly improved survival.

Brescia (2004) the primary arteriovenous fistula remains the best form of permanent vascular access. It is more-effective and is associated with less mortality when compared to other vascular accesses . Even then establishing and maintaining a vascular access is one of biggest problem among patients on hemodialysis 20% hospital admissions for clients on dialysis are for vascular access complications.

Antolin (2002) and his colleagues have performed a retrospective analysis with a follow-up time of seven years among 3106 hemodialysis patients and 542 peritoneal dialysis patients and they studied on the significance of co- morbidity factors such as age>70 years, cardiovascular disease, liver disease, diabetes mellitus and dyslipidaemia. They observed that the global survival as the same in both groups up to 32 months of treatment and they identified that those with co-morbidity had a better survival on hemodialysis.

Terrill (2002) End Stage Renal Disease is a worldwide public health problem and concern with increasing incidence and prevalence, poor patient outcome and high cost. Defined chronic renal failure and progressive loss of the ability of the kidneys to excrete wastes, concentrate urine, secrete hormones and conserve electrolyte. End stage kidney failure is the deterioration in renal function to the stage where renal dialysis or transplantation is required for survival.

Section C: Literature related to effect of cryotherapy and gate control theory.

Hubbard (2004) stated that one of the primary reasons that clinician's use cryotherapy in the management of acute injuries is due to its analgesic effect. Cold can increase pain threshold and decrease the sensation of pain by reducing nerve conduction velocity.

Nicholson (1990) stated with the purpose to identify and validates the effectiveness of selected cutaneous stimulation pain management interventions including heat and cold application, massage and transcutaneous Electrical nerve stimulation. The authors

concluded that cutaneous stimulation interventions are very effective means to manage pain.

Schafer (1990) among the physical treatments to reduce pain, ice had its place for many years. Cryotherapy is the simple and most commonly used method in the treatment of acute musculoskeletal injury to reduce pain and inflammation. It is used to reduce tissue temperature and has various physiological effects i.e. vasoconstriction of blood vessels, decreased local metabolism, decreased blood histamine release during inflammation and reduced nerve excitability. This makes cryotherapy first in line for management of acute relief among chiropractic practitioners it is the most often utilized (94.5%) passive adjunctive therapy.

Melzack (1960) and Wall had described Gate control theory of pain detail as follows: stimulation of the skin creates nerve impulses to the spinal cord. Nerve impulses traveling toward the brain in smaller nerve fibers of the spinal cord proceed at a steady rate. Continuous discharge keeps the pain gate open and enhances the transmission of pain. Burst type impulses are mainly inhibitory and have the effect of keeping the pain gate partially closed resulting in diminishing the perception of pain intensity. When the large fiber impulses get artificially stimulated by vibration, scratching, or ice massage, the gate further closes resulting in a decrease in the sensation of pain. That was the reason for ice being successfully used in the treatment of musculoskeletal pain over the years. Melzack studied the use ice massage of the web of skin between the thumb and forefinger for the reduction of acute dental pain. His work showed a 50 percent reduction in acute dental pain.

Section D: Studies related to cryotherapy on post operative pain.

Tez.M., Yoldatf .O., et.al., (2006) conducted a comparative Study in Ankara Numen Education and Research Hospital, Turkey. Hernia surgery has been associated with severe pain with in the first 24 hours post operatively. The cryotherapy applied by means of ice packs following inguinal hernia surgery controlled pain post operatively. Forty patients scheduled for inguinal hernia repair were enrolled in a double blind, randomized study, post operatively chipped ice in a plastic bad (cold group) and plastic bag containing only room temperature water (control group) were placed over the incision for 20 minutes. Post operative pain were collected at 24 hours after operation according to

the well validated visual analogue scale. There were significant difference in cold group ($p < 0.005$) this concluded cold therapy was very effective technique for inguinal hernia repair surgery.

Finan MA, et al., (2005) conducted a study in Lee Moffitt Cancer and Research Institute, University of South Florida, Tampa the purpose of the study was to determine the effect of cold therapy on the subjective assessment of pain, analgesic requirements, and wound complications in female patients undergoing major abdominal surgery. Twenty seven patients were entered in the study in a prospective randomized fashion. The hot/ice thermal blanket was applied to 13 patients, and twelve were in the control group. All patient under went exploratory, laporotomy and received post operative pain relief with intravenously self-administered morphine sulfate through a patient-controlled analgesic pump. Compared with the control group ($0.363 \pm 0.118 \text{ mg/kg/day}$), the cold pack group used less morphine sulfate on the first postoperative day ($0.529 \pm 0.236 \text{ mg/kg/day}$, $p < 0.05$). The mean amount of morphine sulfate used by both groups was similar on postoperative day 2. We conclude that the cold pack improve postoperative pain control in gynecologic patients undergoing exploratory laporotomy.

Saito.N et al., (2004) conducted a study in Shinshu University school of medicine, Japan. The purpose of the study is to evaluate continuous cryotherapy can relieve pain soon after total hip arthroplasty. Patients who had under gone total hip arthroplasty for osteoarthritis were divided into 2 prospective, randomized group. The cryotherapy group was fitted with a cooling device for 4 days and control group was not. The pain scores measured on a visual analogue scale . The data were analysed using a chi-square test with the level of significant at $p < 0.005$. Further more, post operative analgesic use by the cryotherapy group was significantly lower than by the control group.

Wanee S.et.al., (2004) conducted a study to compare the effectiveness of pain reduction between cold compression before passive exercise, and cold compression both before and during passive exercise in 30 total knee replacement patient at Sriraj Hospital. A simple cross over design was used for this study. All participants received both methods of cold compression on the fourth postoperatively. One group of participants received cold compression only before exercise in the morning and cold compression both before and during exercise in the afternoon. Pain intensity was evaluated before, during

and after passive exercise by the vertical 0-10 numeric rating scale. A comparison of pain scores between two groups of cold compression methods was analysed by Anova for a simple cross over design. The result revealed that the participants who received cold compression before and during passive exercise had statistically significant lower pain scores than those of the participants who received cold compression only before passive exercise ($p < 0.001$), furthermore, the participants who received cold compression before and during passive exercise had the most satisfaction.

Woolf SK et al., (2004) conducted a prospective randomized study compared postoperative pain control with use of continuous temperature controlled. Cryotherapy system versus a traditional ice therapy regimen following outpatient knee arthroscopy in medical university of South Carolina, USA. Patient with unilateral knee pathology scheduled for outpatient arthroscopic surgery were included. Patient with major ligament reconstructions were excluded. A specific cold therapy regimen was begun postoperatively and continued for 2 weeks management of postoperative pain, preoperative and postoperative pain intensity, pain type functionality, and sleep quality were assessed. Patients were randomly assigned to either an ice or a continuous cryotherapy group. Data were analysed using a chi-square test with a level of significance at $p < 0.05$. Fifty three patients completed the study. Among patients who reported experiencing night pain 36% of those in the continuous cryotherapy group were able to sleep soundly with minimal awakening through postoperative day 2 versus 5.9% among the ice therapy group ($p = 0.04$). These findings support use of continuous temperature controlled cold therapy devices for nighttime pain control and improved quality of life in the early period following routine knee arthroscopy.

Akan M et al., (2003) conducted study in Istanbul, Turkey. To evaluate the ice application to minimal pain in the split-thickness skin graft donor site. Pain in the graft donor site may be the primary concern of patients in the postoperative period the main goal of this practice is the fast recovery of the donor site and degrees in the pain. 36 patients were included in the study. Patient were divided in to 2 group with 18 patients in group I to whom ICE applied and 18 patient in group II which was specified as the control group the patients were evaluated according to the pain in the graft donor site. The visual analogue scale was used to evaluate the pain of the patients. The data were statistically

evaluated with the Man-Whitney U test mean score in the graft donor site were found to be quite low in patient in the group with ICE application($p < 0.005$)

Hochberg.J (2001) conducted prospective randomized study to comparing the efficacy of controlled cold therapy (CCT) or Ice therapy in the postoperative treatment of 72 patients with carpal tunnel syndrome. Immediately after surgery patients applied a controlled cold therapy or ice pack over their surgical dressings. Pain was assessed by visual analogue scale the significant difference between the groups. ($p < 0.005$) patients who used CCT should significantly greater reduction in pain than ice pack group. This study indicates that after carpal tunnel surgery, the use of CCT compared with the ice therapy provides patients with greater comfort and less than need for narcotics.

Singh. H et al., (2001) conducted a study on Duke University medical center. This prospective, randomized investigation evaluated the efficacy of cryotherapy on subjective responses after both open and arthroscopic on the shoulder. Seventy patient were randomly assigned to one of two study group cryotherapy group and control group visual analogue scale were used to assess subjective responses on post operative days. Patients receiving cryotherapy reported significantly less pain and significant reduction in frequency and intensity of pain, as well as less pain during shoulder rehabilitation than the control groups. These results indicate that cryotherapy is an effective method for post operative pain control.

Robinson.S.R.,(2000) conducted study in Dunedin Public Hospital, Newzealand, to evaluate the use of cryoanalgesia in reducing the post tonsillectomy pain. A prospective randomized double blind study of 59 consecutive patients undergoing tonsillectomy for recurrent tonsillitis. The cryotherapy patients had both their tonsillar fossa “super cooled” between 20 degrees and 32 c for one minute. Patients recorded their pain using a visual analogue scale over the next ten days. There was a 28.3% reduction in mean pain score over the 10 days in the cryotherapy compared to the control group. Cryotherapy is a new technique that significantly reduces post tonsillectomy pain without evidence of causing additional complication.

Schroder.D (1994) conducted a study in Stuttgart, Germany. The objective of this study was to investigate the effect of continuous long term application of cryotherapy on post operative swelling and pain of the knee surgery. We compared the cold compression

system with traditional ice therapy. There were 44 patients in the series, who were randomly assigned to control group or a study group. The control group consisted of 23 patients. The study group consisted of 21 patients. The control group received ice bag post operatively, the study group was provided with the cryotherapy during the hospital stay. Twelve week after surgery the study group, significantly less swelling was observed ($p<0.035$) on all examination days, ROM in the cold therapy group was upto 17 degree greater than control group ($p<0.002$). The functional knee scores was significantly increased in the study group($p=0.0025$). The result shows that cryotherapy was very effective in postoperative knee surgery

Section E: Studies and literature related to impact of sickness among hemodialysis patients

Glary Hart and (2009) assessed “The functional status of ESRD patients by the sickness Impact profile”. This study described and compared the perceived sickness related behavioural dysfunction of 859 end state renal failure (ESRD) patients from 11centres according to treatment modality via the sickness Impact profile (SIP) The unadjusted functional Status of ESRD patients differed significantly by treatment modality. Transplantation patients were least functionally limited followed in order by home dialysis and hemodialysis. The largest overall differences were for the sleep and rest, work, recreation home management in terms of sickness impact profile categories. Regression analysed that many of the large observed intermodality difference in functional status may have resulted from casemix variation (eg: age morbidity difference).

Adrican.Covie (2005) had done a study on “Illness representation and quality of life score in hemodialysis patients” in London. In this cross sectional study examined the impact of illness representation on quality of life of hemodialysis patients and the influence of hemodialysis duration on this relationship. 82 clinically stable hemodialysis patients completed short form – 36 health survey. Illness representation were assessed by a interview containing questions derived from the revised Illness perception questionnaire. The result indicates a higher personal control is associated with the lower emotional response and a better understanding of the disease. However, the perceived negative consequences of the disease upon patient’s personal lives are considerable, as is their emotional response. Four of 6 components of illness representation were strongly related

to quality of life parameters. Only the emotional response dimension of illness representation is related to treatment duration.

Margin (2002), conducted a study on Dialysis impact on quality of life of end state renal disease patients in UK. This study, 24 adequately dialysed renal patients were compared on self report measures of quality of life (kidney disease quality of life instrument and hospital anxiety and depression scale) on sub scale measure of HDQOL instrument, role-physical and pain are against the predicted direction Adequately dialysed patients were found to have better quality of life than inadequately dialysed patients. The premise that found to have a better quality is associated with a greater quality of life was supported.

PART – II

CONCEPTUAL FRAMEWORK

A conceptual framework or a model is made up of concepts, which are the mental images of the phenomenon. It offers framework of prepositions for conducting research. These concepts are linked together to express the relationships between them. A model is used is used to denote symbolic representation of the concepts.

The conceptual framework and model adopted for the study is based on the Id Jean Orlando who was one among the early leaders in the field of nursing, developed her theory in 1961 she furthered the development of her theory and published it as nursing process theory in 1972. This model focuses on how to produce improvement in the patient's condition. She asserts that the limitations on the patient's ability to meet her needs independently arises when the patient is receiving medical care or under medical supervision. Her follows the step in nursing process and meet the patient's needs. The theorist concept of nursing, person, health and environment are all interpreted to thus central concept.

PATIENT BEHAVIOR

The nursing process is set in motion by the patient's behavior. All patient behavior, how significant, may represent cry for help. The patient who cannot resolve a need feels helpless, and the person's behavior reflects this feeling.

In this study the investigator considered clients undergone arteriovenous fistula with hemodialysis presenting behavior of the patients is expressed in terms of verbal or non verbal language. The investigator considered as the level of pain the clients undergone arteriovenous fistula with hemodialysis.

NURSES REACTION

Can be activity is based on pharmacological and non pharmacological as per above non pharmacological measure

Investigator reaction to a patient's behavior forms the basis for determining how a investigator acts, it consists of perception, thought, and feeling. First what the investigator says to the patient must match one or all of the items contained in the immediate reaction; what the investigator does nonverbally must be verbally expressed, and this expression must match one or all of the items in the immediate reaction.

Investigator action by delivering the needed can be solve the patient's problem. In this study the investigator problem by applying cryotherapy this action help in pain reduction and improve the patient comfort.

NURSES ACTIVITY

Can be deliberative actions involve exploring the meaning and relevance of an action to the patient; these actions are evaluated for effectiveness immediately after completion, when performing an action, the investigator influenced by a stimuli related to the patient's need

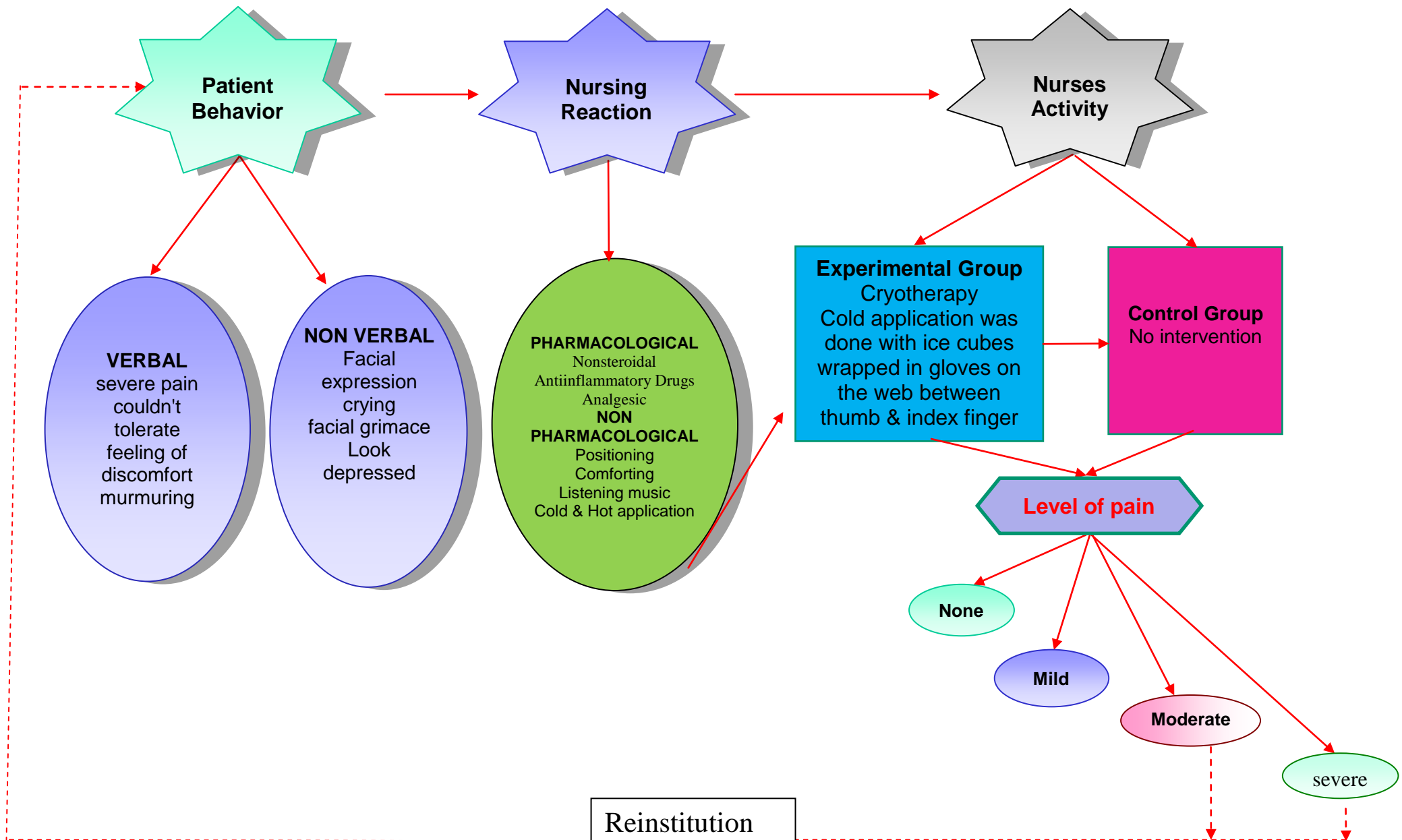
In this study patient grimaces in pain the investigator response is to validate the patient's cry for help and perform a action cryotherapy. Investigator applied, only cold application (cryotherapy) for experimental group. Pharmacological measured not used for experimental and control group.

VALIDATION

Validation is terms of patient satisfaction as the need for help is resolved.

Investigator assisted the outcome of cryotherapy on pain perception.

Fig.iii: MODIFIED ORLANDO'S NURSING PROCESS CONCEPTUAL FRAMEWORK



CHAPTER – III

METHODOLOGY

This chapter deals with the description of the different steps undertaken by the investigator for the study. It includes the research design, variable setting, population, sample technique, sample criteria, description of tool, content validity, pilot study, data collection procedure and plan for data collection procedure plan for data analysis and ethical consideration.

RESEARCH APPROACH

An evaluative approach

RESEARCH DESIGN

Experimental design

There were two groups, experimental and control group. The control group was similar to experimental group with regard to age and selected factors. Pretest and post test score was measured in both experimental and control group.

GROUP	PRE TEST O ₁	INTERVENTION X	POST TEST O ₂
Experimental group	Numerical pain rating scale	Cryotherapy	Numerical pain rating scale
Control group	Numerical pain rating scale	No intervention	Numerical pain rating scale

VARIABLE UNDER STUDY

Age, Gender, Educational qualification, Marital status, Duration of Illness, Co – morbid Illness, Family support.

Independent Variable

Cryotherapy

Dependent Variable

Arteriovenous fistula puncture pain

SETTING OF THE STUDY

The study was conducted at Vijaya health centre and Heart foundation Chennai; it is an 800 bedded super speciality hospital. Vijaya health centre has got an exceptional hemodialysis department run for 24 hours a day. There are two dialysis units. Totally there are 20 hemodialysis machines. There are 10 technicians and 20 staff nurses for the unit and the unit performs approximately 35 hemodialysis per day.

POPULATION

Population for the study were the adult patients with chronic renal failure who were undergoing hemodialysis at Vijaya Health Centre, Hemodialysis Unit

Target population

The population of the present study comprised of all patient those were anteriorvenous fistula on hemodialysis

Accessible population

Accessible population of present study comprised of 60 hemodialysis clients aged between 40 – 75 years admitted at vijaya health centre

SAMPLE SIZE

Sample size for the study was 60.

SAMPLE TECHNIQUE

Simple random sampling technique was adopted to select the sample from the population. Totally 150 patients were there under the consultant nephrologist out of them 78 patients have met the inclusion criteria. Lottery method was adopted to select 60 samples by giving equal chance to each patient to be a subject in this study.

CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria

1. Patients who had undergone maintenance hemodialysis with AV Fistula
2. Adult male patient between the age group of 40-75yrs
3. Patients who had undergone at least three dialysis per week.

Exclusion Criteria

1. Patients with any psychiatric illness
2. Who were not oriented and conscious

DEVELOPMENT OF TOOL

The investigator prepared and developed an interview schedule as a tool for present study after exploring all sources and consultation with experts. Numerical pain rating scale was used to assess the pain.

Description of Tool

The tools used in this study consisted of 3 sections.

SECTION - 1

Demographic and clinical profile

It includes age, sex, marital status, occupation and educational status, duration of illness and duration of treatment.

SECTION – 2

This section consisted items regarding disease related factor, such as diagnosis, type of dialysis, treatment option, purpose of treatment, site of anterior venous fistula, pain experienced, pain control through medication, sleep pattern at night and observation of the site before treatment.

SECTION – 3

This consists of doing cryotherapy for assessing the level of pain. The pre test and the post test level of pain was assessed by using numerical pain rating scale.

SCORING PROCEDURE

Numerical pain rating scale was used to assess the level of pain among hemodialysis client.

SCORE

None	-	0%
Mild Pain	-	10 to 30%
Moderate Pain	-	40 to 60%
Severe Pain	-	70 to 100%

DESCRIPTION OF THE INTERVENTION**Definition**

Cryotherapy is an application of ice cubes wrapped with gloves between the thumb and index finger among the hemodialysis patient.

Purpose

To relieve pain in the Arteriovenous fistula site among hemodialysis patient

Articles

A clean tray containing

1. Small mokintosh with towel
2. Ice cubes
3. Flannel cover
4. Gloves

Preparation of the patient and environment

1. Explained the procedure to the patient
2. Provide privacy if needed
3. Position the patient comfortable in the bed
4. Arrange the articles at the bed side
5. Assess the part of the body needs to be applied

Procedure

1. Before cannulation pain was assessed
2. Ten minutes cold application was done with ice cubes wrapped in gloves on the web between the thumb and index finger of the opposite hand not having the arteriovenous fistula
3. cold application continued throughout the procedure totally twelve minutes
4. After cryotherapy during cannulation pain was assessed both at the arterial and venous sites of the arteriovenous fistula.

After Care

1. Patient was placed in the supine position and dialysis continued
2. Replace the articles after cleaning
3. Wash hands
4. Record the procedure

VALIDITY OF THE TOOL

The tool was sent along with the request for validation to five experts including two nephrologist, and three nursing experts were requested to check for the relevance sequence, adequacy of language of the tool.

RELIABILITY

The test retest method was used to assess the level of pain for client undergone hemodialysis. The reliability value was found to be $r = 0.9$ which was found to be highly reliable

ETHICAL CONSIDERATIONS

Ethical consideration refers to a system of moral values that is concerned with the degree to which research procedure adheres to professional, legal and social obligations of the study participants.

The study was conducted after the approval of Dissertation Committee. The formal permission was taken from the Director of Vijaya Hospital, Vadapalani, before proceeding

the study. The patients were clearly explained about the study purpose and oral consent was obtained. It was assured to the clients that the result would be kept confidential

VALIDITY OF CRYOTHERAPY

This steps involved in the cryotherapy was demonstrated by the investigator before four nursing experts.

PILOT STUDY

The pilot study was conducted at Vijaya Health centre, Vadapalani, Chennai from 10.06.2011 to 17.06.2011. The formal permission was obtained from the director, Vijaya Hospital. Six clients who fulfilled the inclusion criteria were selected by simple random sampling technique. Oral consent was taken from the samples and confidentiality of the responses was assured. A brief introduction about the self and study were given and data was collected from the clients. The data related to the variables were collected. Pre test and post test level of pain was assessed daily for client which was followed by cryotherapy. The results were analyzed based on the scores obtained by the samples. The sample size and settings was accessible for this study.

DATA COLLECTION PROCEDURE

The study was conducted in selected Hospital in Chennai, from 03.06.2011 to 03.07.2011. Formal consent was obtained from the Director, Vijaya Hospital, Chennai.

The patient under the hemodialysis with arteriovenous fistula who fulfilled the inclusion criteria were selected by simple random sampling technique. Based on the selection criteria each of the 60 subjects were selected and 30 subjects were assigned to the experimental and control group respectively by client centered intervention.

A brief introduction about the self and study were given and data was collected from the clients. Oral consent was taken from the samples and confidentiality of the responses was assured.

The investigator, after selection of samples the first day before venipuncture and the pre test level of pain assessed for clients in both the experimental and control groups using a numerical pain rating scale . Third day before venipuncture given cryotherapy using the method such as application of ice cubes wrapped in gloves on the web between

the thumb and index finger of the hand not having the arteriovenous fistula. The procedure was started ten minutes before venipuncture and continued through out the puncturing procedure totally twelve minutes by the investigator for the experimental group and the control group were received no intervention. The post test pain assessment was done daily by the investigator for the experimental and control groups.

Date		No. of patients	
From	To	Experimental group Intervention	Control group Routine hospital care
03.06.11	05.06.11	2	2
06.06.11	09.06.11	3	3
09.06.11	11.06.11	3	3
12.06.11	14.06.11	2	3
15.06.11	17.06.11	2	2
18.06.11	20.06.11	4	4
21.06.11	23.06.11	2	2
24.06.11	26.06.11	2	2
27.06.11	29.06.11	3	3
29.06.11	01.07.11	4	3
01.07.11	03.07.11	3	3

DATA ANALYSIS PROCEDURE

Descriptive Statistics

1. Frequency and percentage distribution was used to analyze the variables of the study.
2. Mean and standard deviation was used to compute the level of pain and before and after cannulation.

Inferential Statistics

1. Paired “t” test was used to assess the effectiveness of cryotherapy on arterio venous puncture pain among patients on hemodialysis.
2. Chi square was used to associate the level of pain with demographic variables.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis interpretations of data collected from 60 clients with Arteriovenous Fistula on Hemodialysis (30 Experimental 30 Control) the study was to assess the outcome of cryotherapy on Arteriovenous Fistula puncture pain among patients on hemodialysis at Vijaya Health Centre, Vadapalani.

ORGANISATION OF DATA

The findings of the study were grouped and analysed under the following sections

- Section A:** Frequency and percentage distribution of demographic Variables in the experimental and control group.
- Section B:** Assessment of pretest and post test level of pain in the experimental group
- Section C:** Assessment of pretest and post test level of pain in the control group
- Section D:** outcome of pretest and post test level of pain in the experimental group
- Section E:** outcome of pretest and post test level of pain in the control group
- Section F:** Association of post test level of pain with demographic variables in the experimental group.
- Section G:** Association of post test level of pain with demographic variables in the control group.

SECTION – A

Table – I

Frequency and percentage distribution of demographic variables in the experimental and control group

n = 60

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Age in years				
40 – 45	2	6.67	2	6.67
46 – 60	15	50.00	15	50.00
61 – 75	13	43.33	13	43.33
Gender				
Male	30	100.00	30	100.00
Female	0	0.00	0	0.00
Occupation				
Unemployed	0	0.00	0	0.00
Self employed	8	26.67	14	46.67
Government employed	6	20.00	4	13.33
Private employed	16	53.33	12	40.00
Family income				
<1500/-	0	0.00	0	0.00
5001 - 10000/-	0	0.00	3	10.00
10001 - 15000/-	13	43.33	6	20.00
>15000/-	17	56.67	21	70.00
Educational Qualification				
Illiterate	0	0.00	0	0.00
Schooling	11	36.67	4	13.33
Graduate	18	60.00	14	46.67
Post Graduate	1	3.33	12	40.00
Marital Status				
Unmarried	0	0.00	0	0.00
Married	30	100.00	30	100.00
Widow/Widower	0	0.00	0	0.00
Divorced	0	0.00	0	0.00

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Duration of Illness				
1 to 6 months	3	10.00	3	10.00
1 to 3 years	17	56.67	17	56.67
4 to 5 years	10	33.33	10	33.33
Co-morbid illness				
Diabetes Mellitus	14	46.67	14	46.67
Hypertension	16	53.33	16	53.33
Family Support				
Yes	30	100.00	30	100.00
No	0	0.00	0	0.00

The table I shows frequency and percentage distribution of demographic variables in the experimental and control group that in the experimental group based on their aged out of 30 clients 2(6.67) of them were 40 – 45 years, 15(50) of them were 46 – 60 years, 13(43.33) of them were 61 – 75 years. In the control group 2(6.67) of them were 40 – 45 years, 15(50%) of them were 46 – 60 years, 13(43.33) of them were 61 -75 years.

Regarding the gender in the experimental and control group 30(100%) of them were males.

Regarding the occupation in experimental group 8(26.67) of them were self employed 6(20%) of them were government employed 16(53.33) of them were private employed. In the control group 14(46.67) of them were self employed, 4(13.33) of them were government employed, 12(40%) of them were private employed.

Considering monthly income in the experimental group 13(43.33) of them were 10001 – 15000/- , 17(56.67) of them were >15000/- in the control group 6(20%) of them were 10001 -15000/-, 21(70%) of them were <15000/-

Regarding the educational status in the experimental group 11(36.67) of them were schooling, 18(60%) of them were graduate, 1(3.33) of them were post graduate. In the control group 4(13.33) of them were schooling, 14(46.67) of them were graduate, 12(40%) of them were post graduate.

Considering the marital status 30(100%) of them were married.

Regarding the duration of illness in the experimental group 3(10%) of them were one to six month, 17(56.67) of them were one to three years, 10(33.33) of them were four to five years. In the control group 3(10%) of them were one to six month, 17(56.67) of them were one to three years, 10(33.33) of them were four to five years.

Regarding co-morbid illness in the experimental group 14(46.67) of them were diabetes mellitus, 16(53.33) of them were hypertension. In the control group 14(46.67) of them were diabetes mellitus 16(53.33) of them were hypertension.

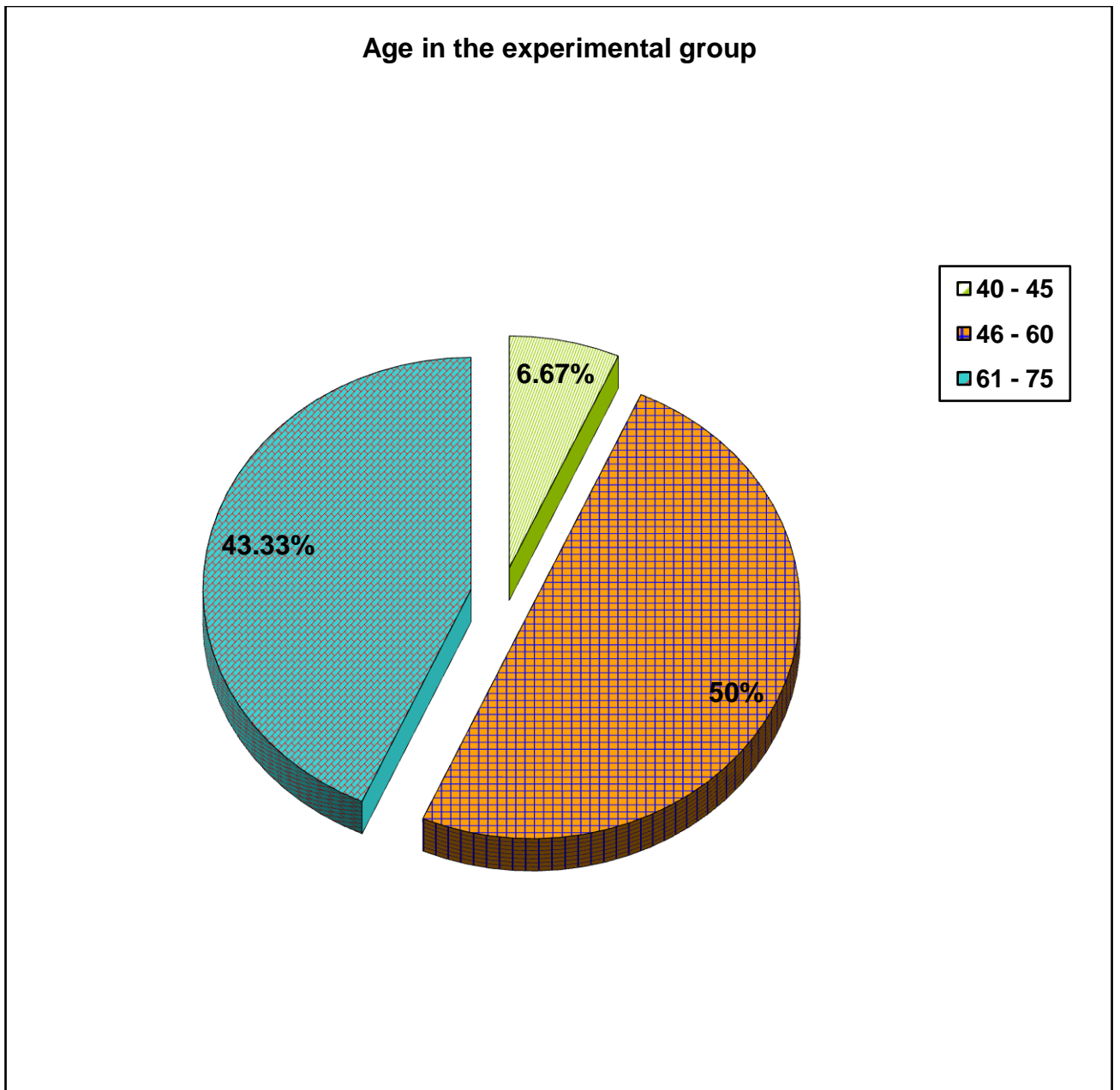


Fig.iv: Percentage distribution of age in the experimental group

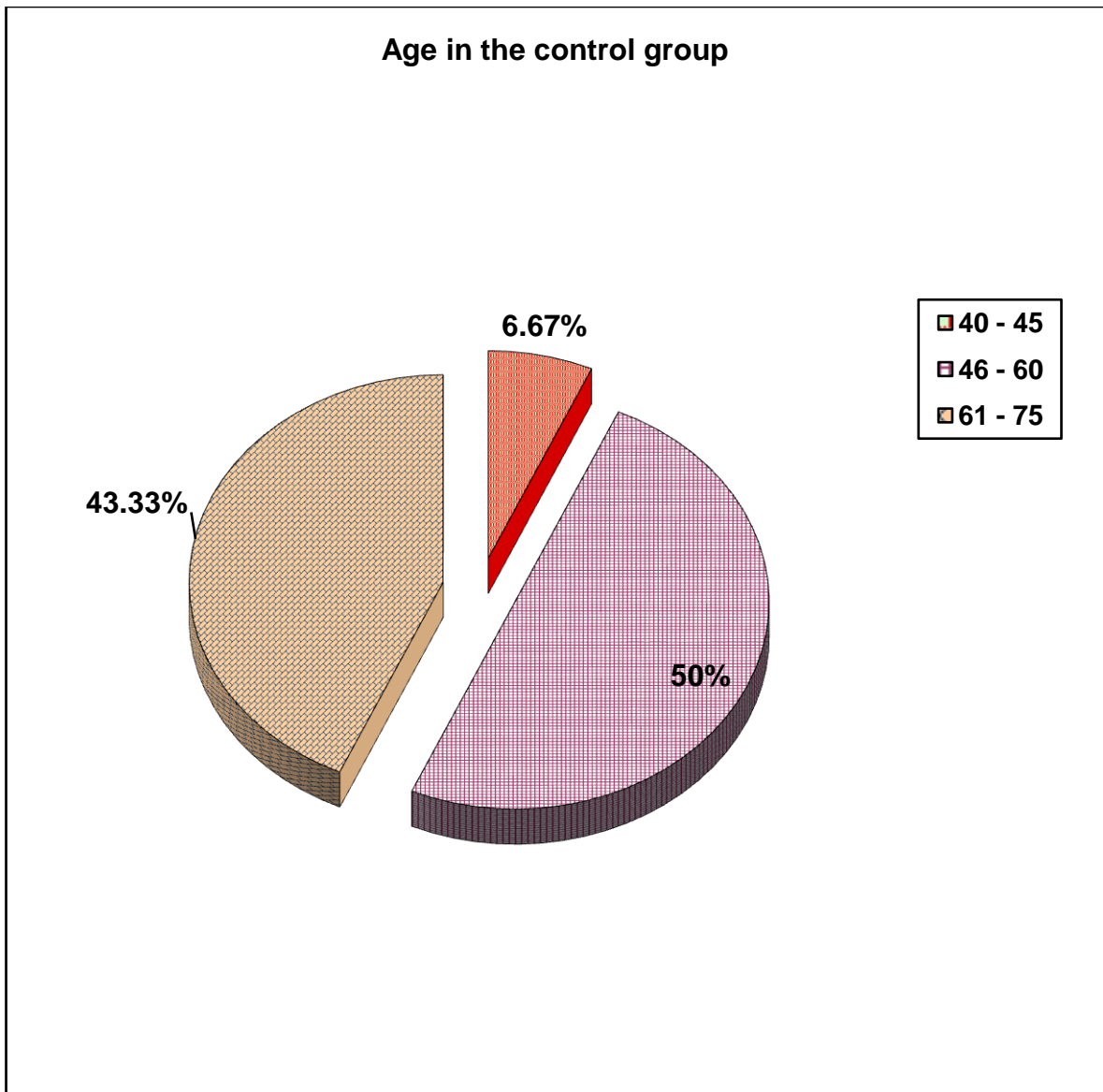


Fig.v: Percentage distribution of age in the control group

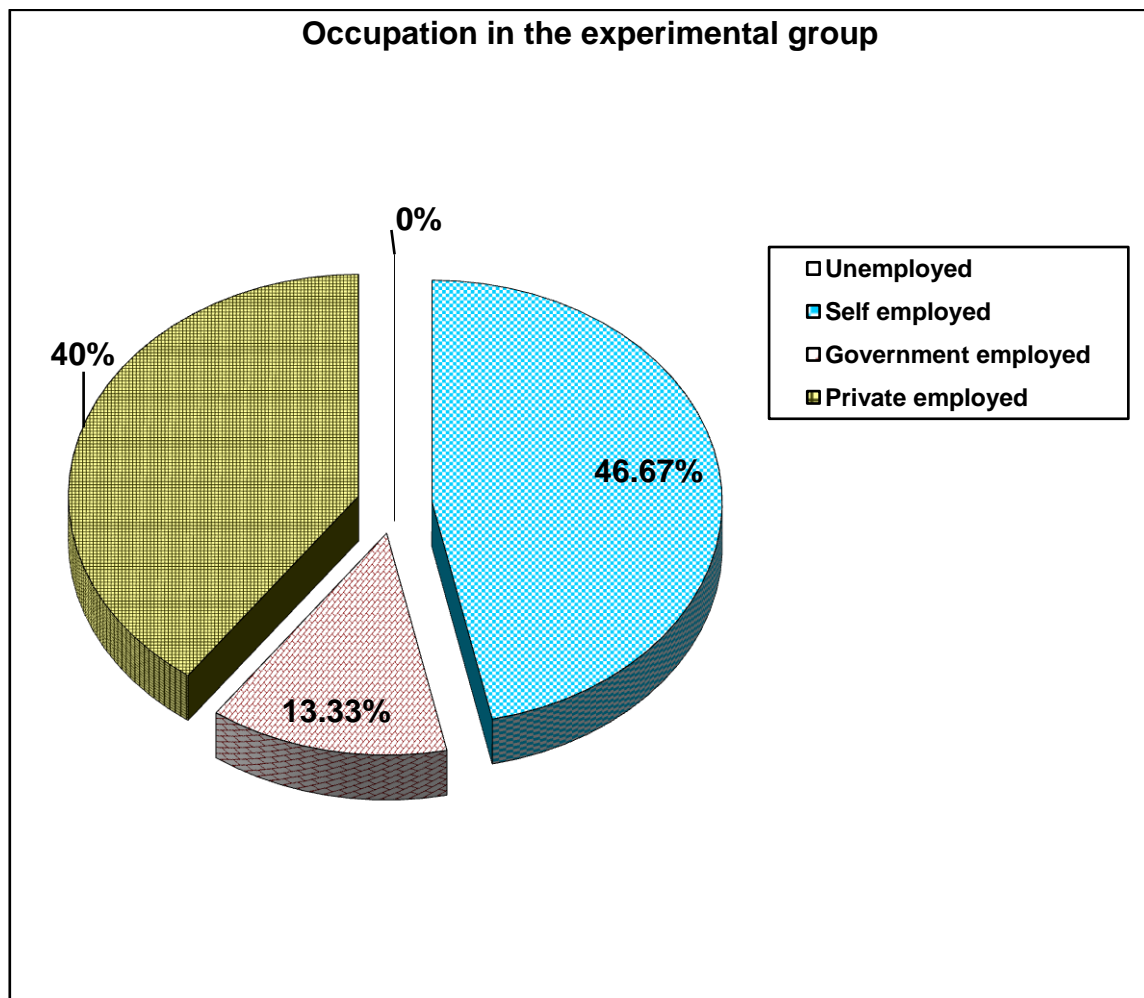


Fig.vi: Percentage distribution of occupation in the experimental group

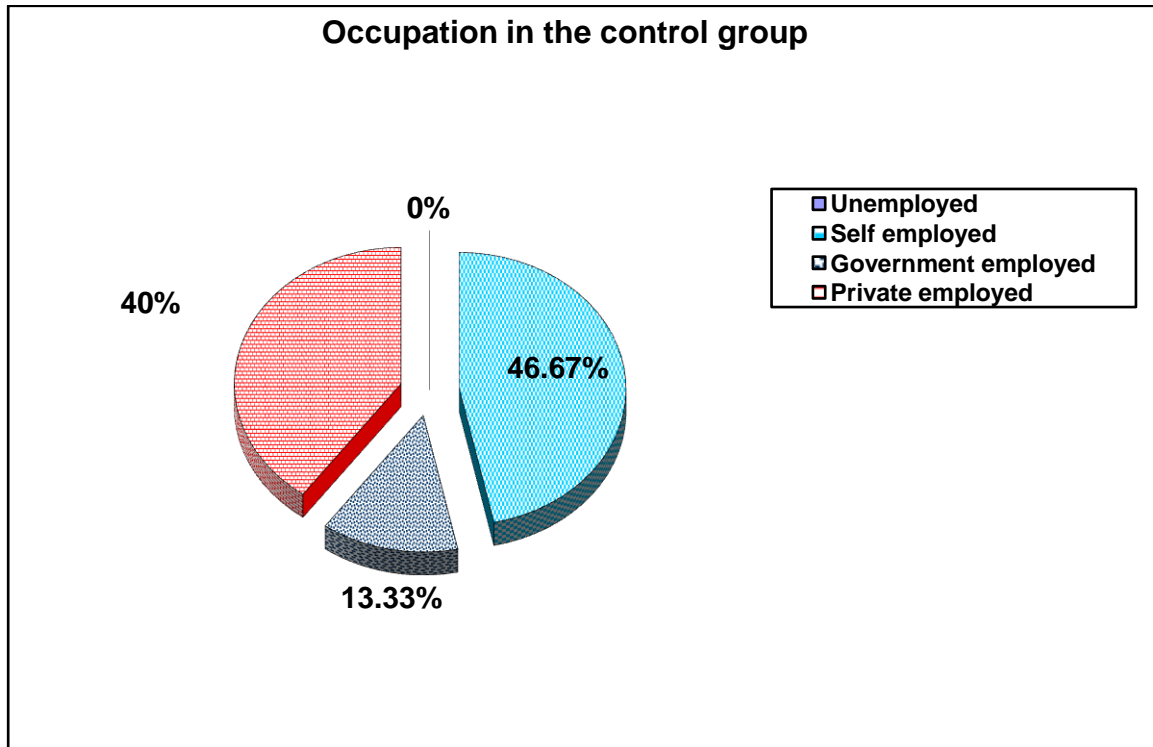


Fig.vii: Percentage distribution of occupation in the control group

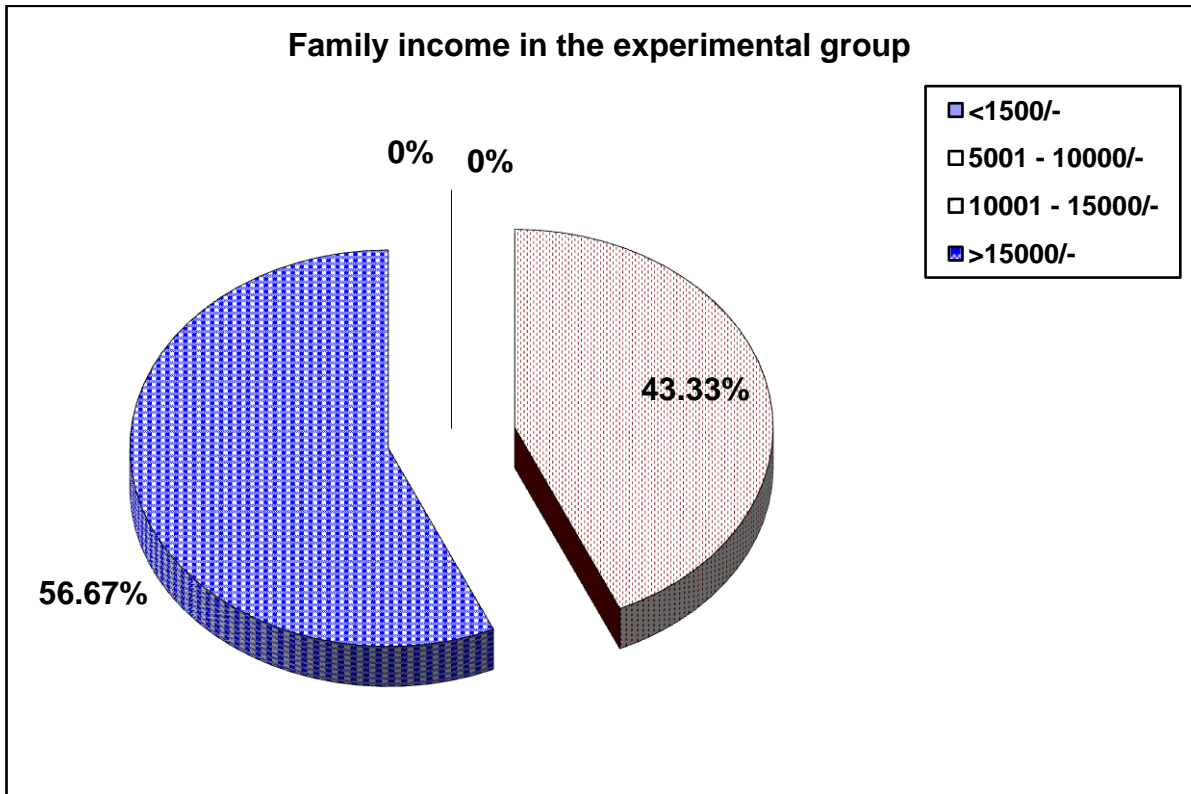


Fig.viii: Percentage distribution of family income in the experimental group

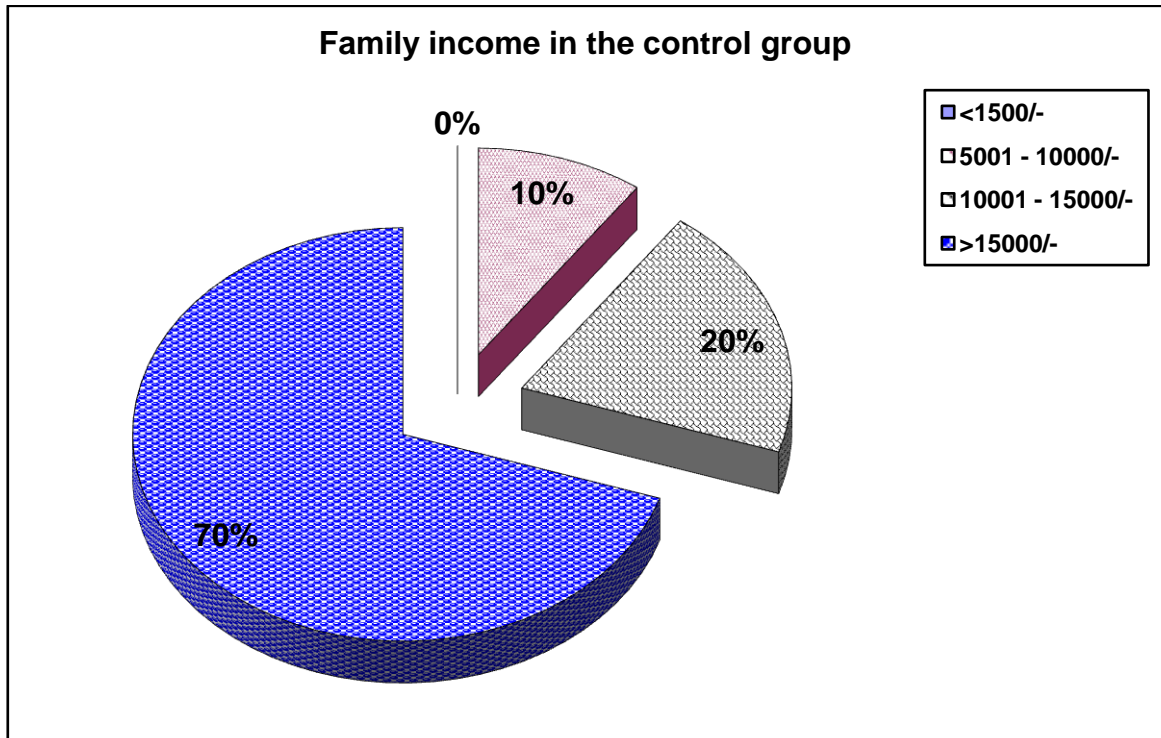


Fig.ix: Percentage distribution of family income in the control group

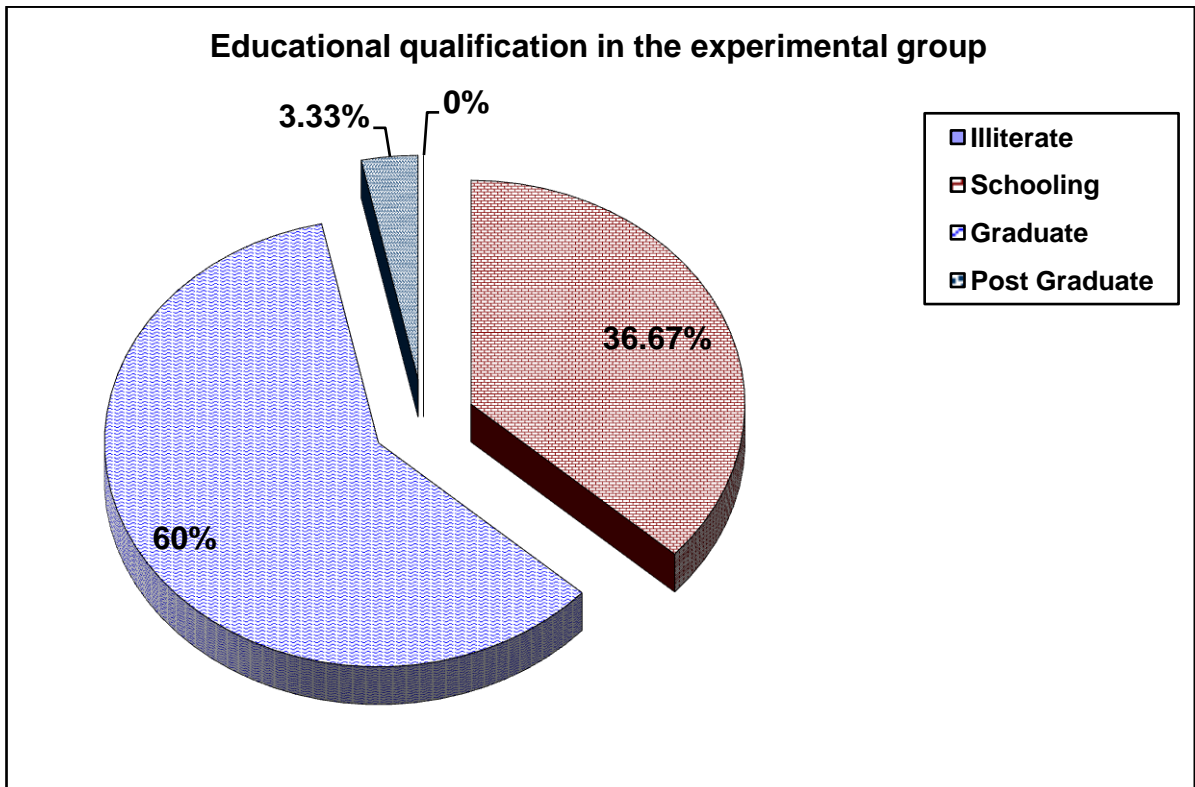


Fig.x: Percentage distribution of educational qualification in the experimental group

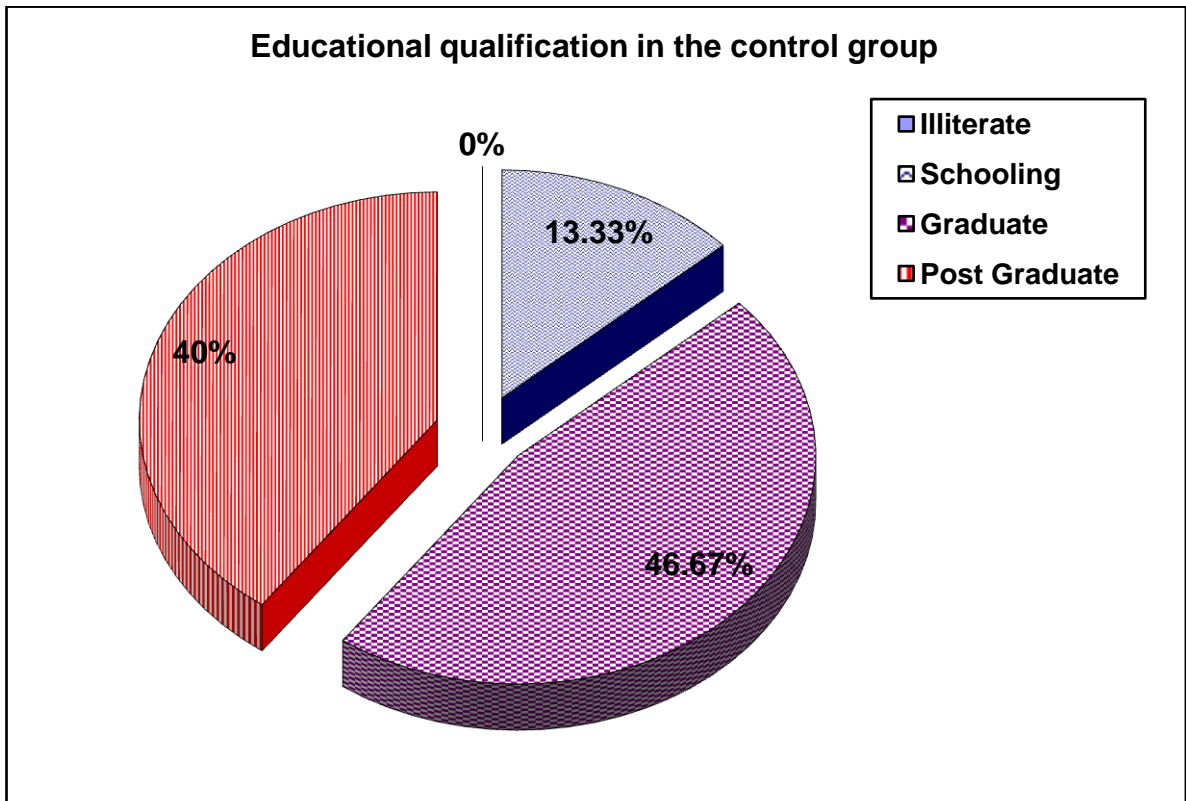


Fig.xi: Percentage distribution of educational qualification in the control group

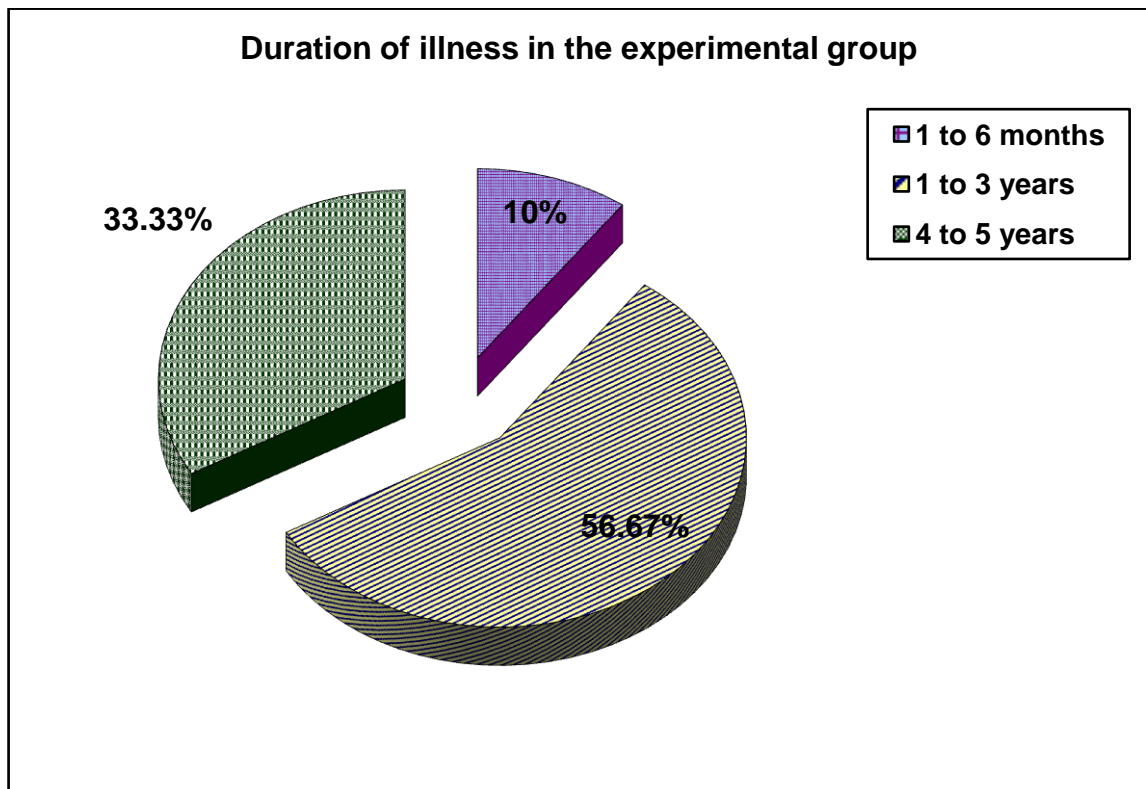


Fig.xii: Percentage distribution of duration of illness in the experimental group

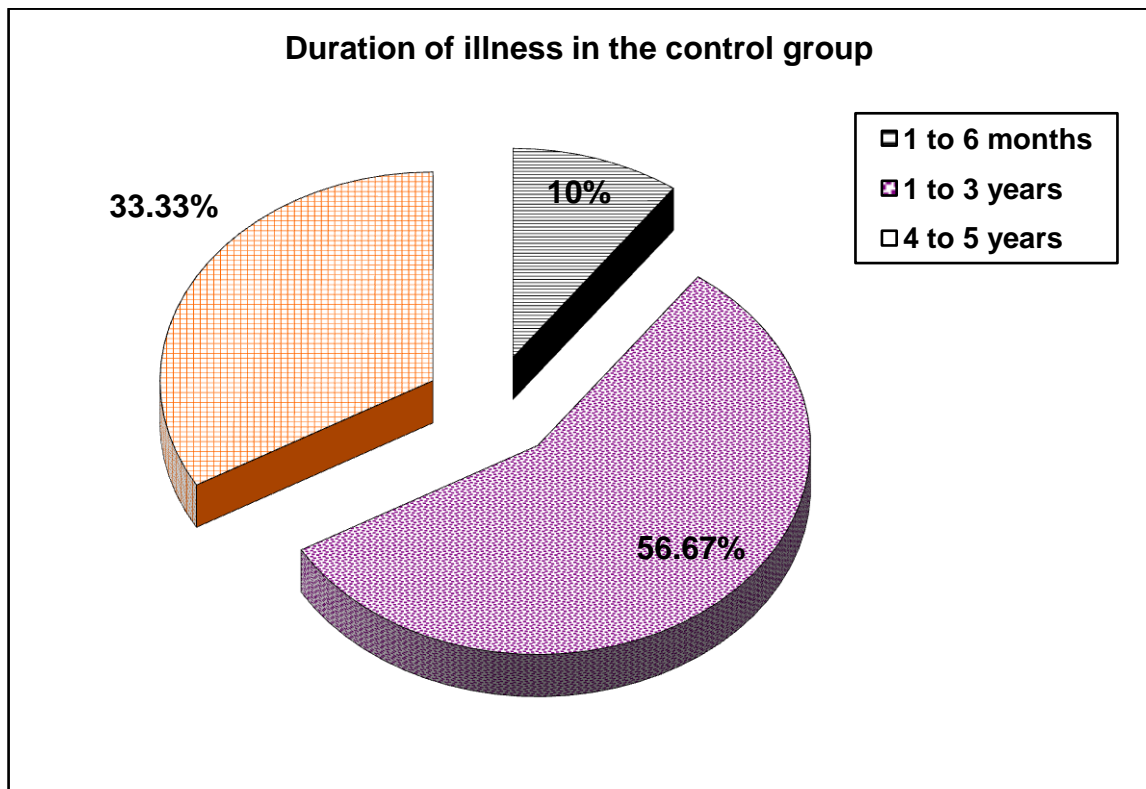


Fig.xiii: Percentage distribution of duration of illness in the control group

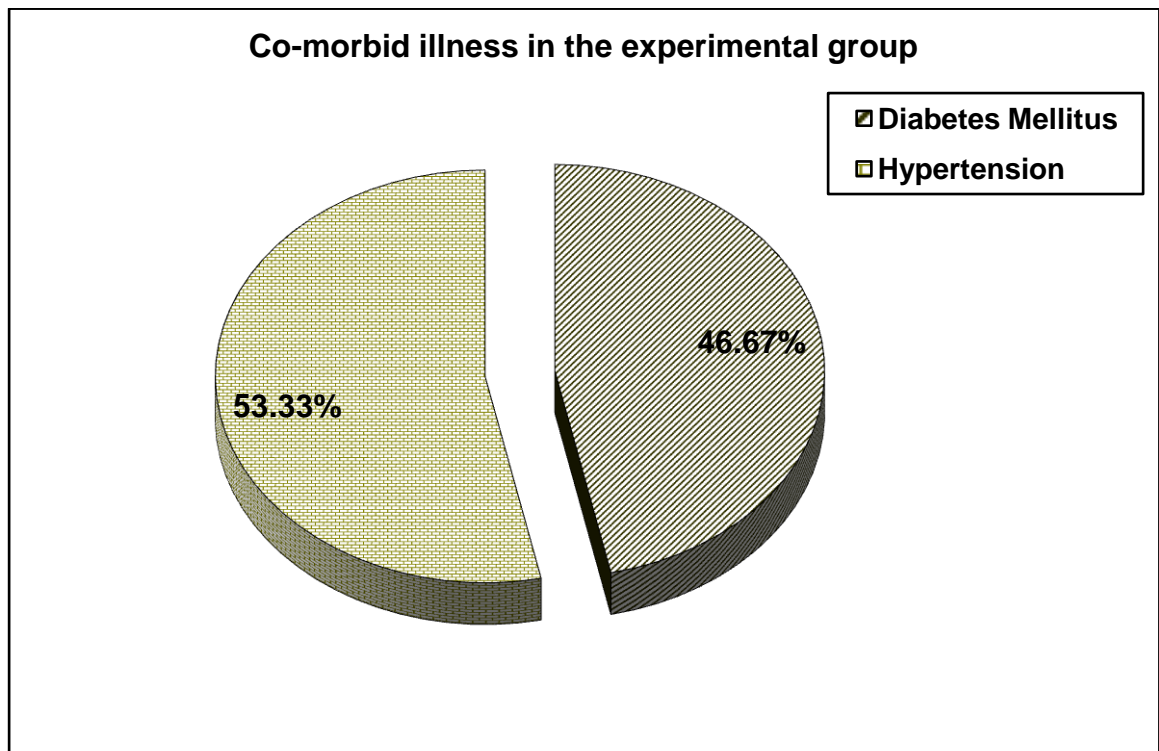


Fig.xiv: Percentage distribution of co-morbid illness in the experimental group

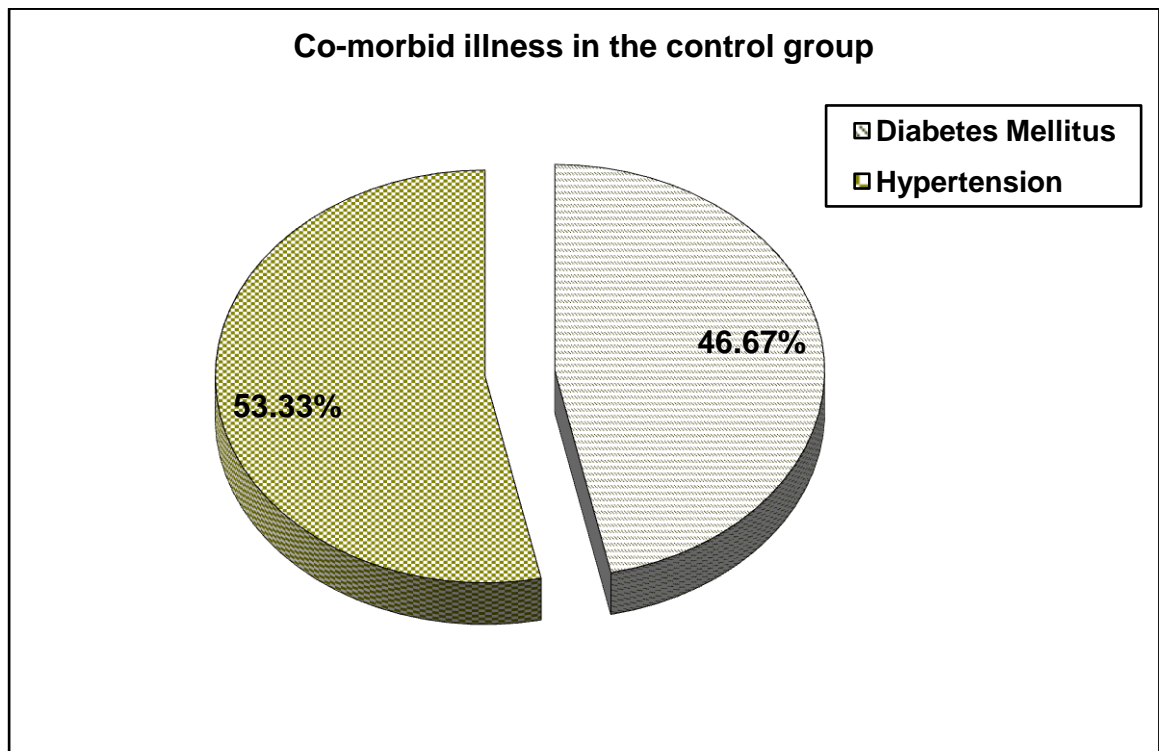


Fig.xv: Percentage distribution of co-morbid illness in the control group

SECTION – B

Table – II

Assessment of pretest and post test level of pain in the experimental group

n = 30

Pain	Mild Pain		Moderate Pain		Severe Pain	
	No.	%	No.	%	No.	%
Pretest	0	0	27	90.0	3	10.0
Post Test	27	90.0	3	10.0	0	0

The table II shows assessment of pretest and post test level of pain in the experimental that in the experimental group majority 27(90%) were had moderate level of pain in the pretest 27(90%) were had mild level of pain in the post test.

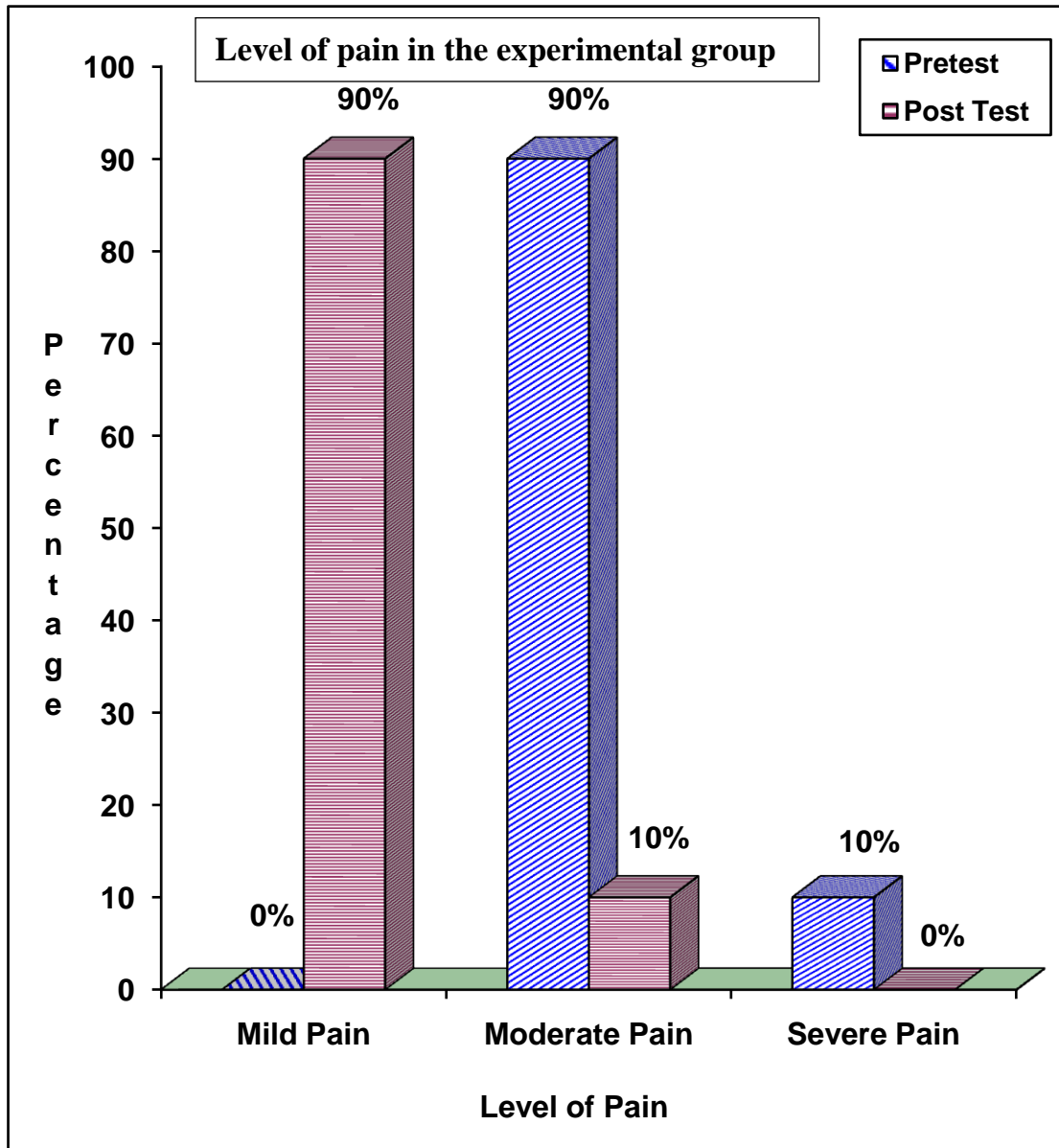


Fig.xvi: Percentage distribution of pre test and post test level of pain in the experimental group.

SECTION – C

Table – III

Assessment of pretest and post test level of pain in the control group

n = 30

Pain	Mild Pain		Moderate Pain		Severe Pain	
	No.	%	No.	%	No.	%
Pretest	0	0	24	80.0	6	20.0
Post Test	0	0	26	86.67	4	13.33

The table III shows assessment of pretest and post test level of pain in the control group 24(80%) were had moderate level of pain in the pretest, 26(86.67%) were had moderate level of pain in the post test

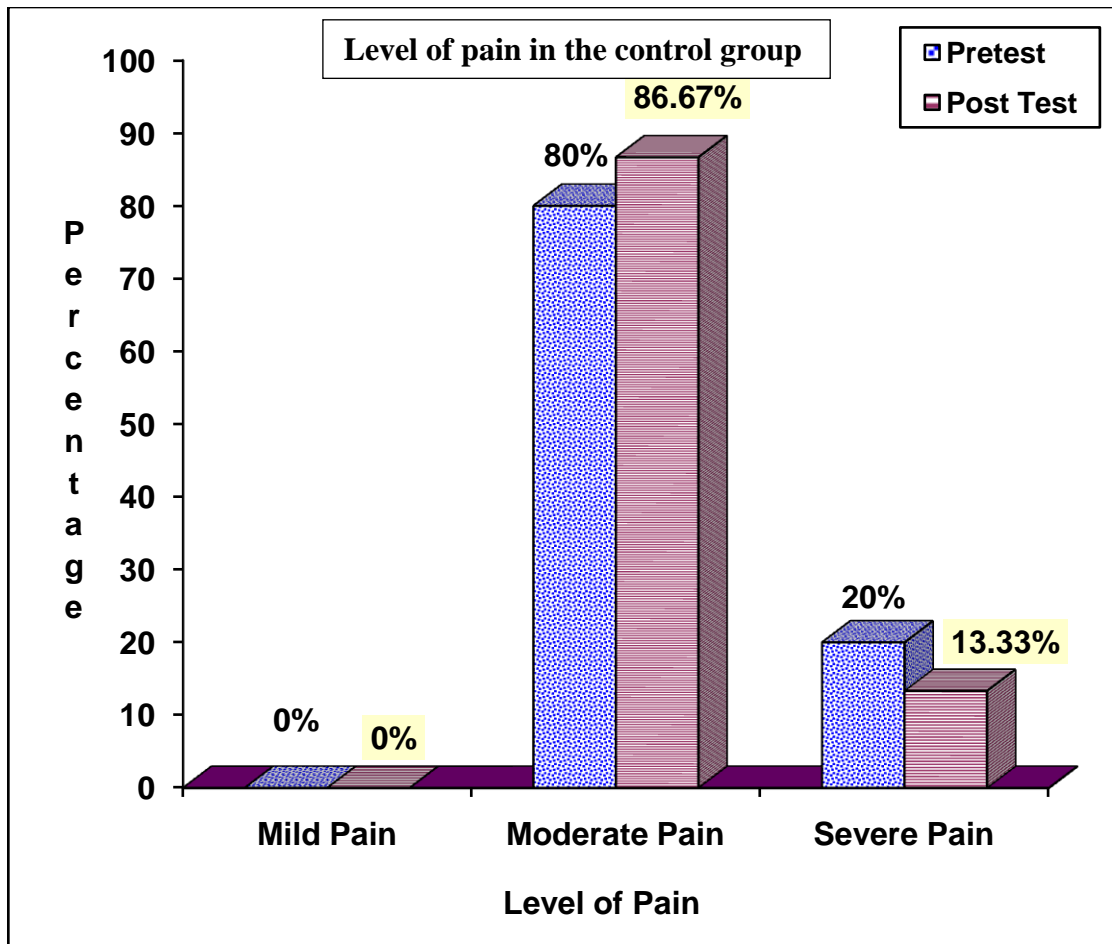


Fig.xvii: Percentage distribution of pre test and post test level of pain in the control group

SECTION – D

Table – IV

Outcome of pretest and post test level of pain in the experimental group

n = 30

Experimental Group	Mean	S.D	't' Value
Pretest	4.73	0.91	t = 33.796*** p = 0.000, (S)
Post Test	2.60	0.67	

***p<0.001, S – Significant

The table IV shows outcome of pretest and post test level of pain that in the experimental group the pretest mean score was 4.73 with S.D 0.91 and calculated t value was t = 33.796 which was statistically significant p<0.001

The above findings indicates a decrease in the level of pain following cryotherapy Hence the research hypothesis H₁ states that there is a significant difference between pre test and post test level of pain among hemodialysis client was accepted

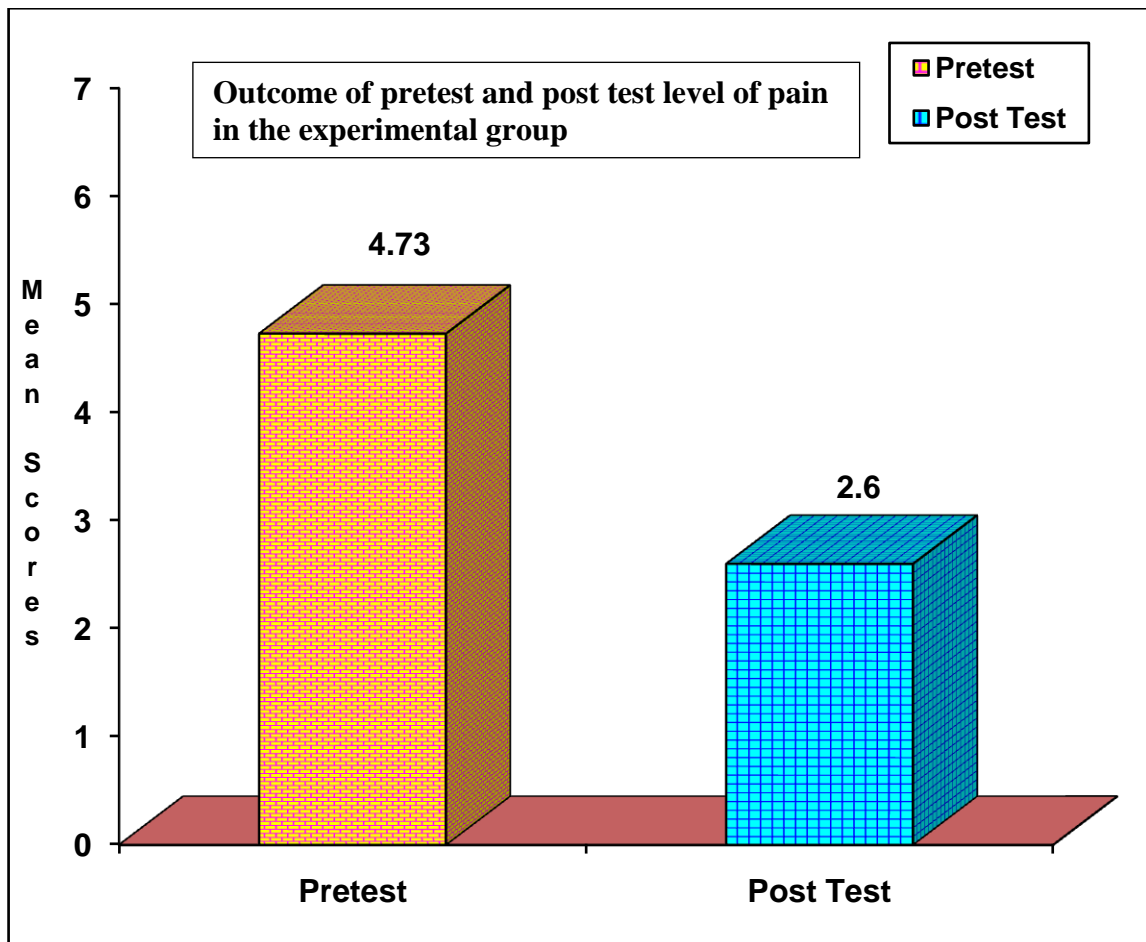


Fig.xviii: outcome of pretest and post test level of pain in the experimental group

SECTION – E**Table – V****Outcome of pretest and post test level of pain in the control group**

n = 30

Control Group	Mean	S.D	't' Value
Pretest	5.13	1.07	t = 0.623 p = 0.538, (N.S)
Post Test	4.97	1.03	

N.S – Significant

This table V shows outcome of pretest and post test level of pain that in the control group the pretest mean score was 5.13 with S.D 1.07 and calculated value $t = 0.623$, post test mean score was 4.97 with S.D. 1.03 and $p = 0.538$.

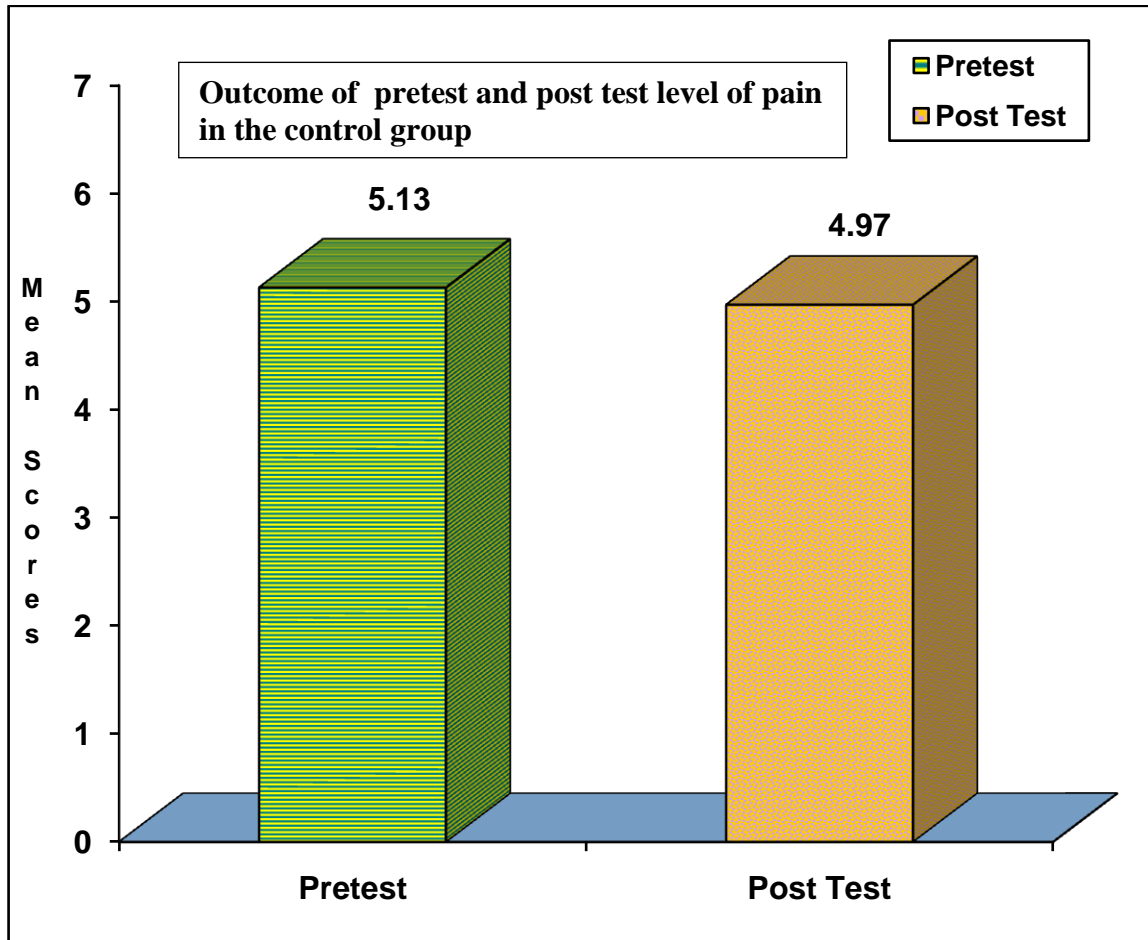


Fig.xix: outcome of pretest and post test level of pain in the control group

Table – VI
Outcome of pretest level of pain between the experimental and control group

n = 60

Pretest	Mean	S.D	‘t’ Value
Experimental Group	4.73	0.91	t = -1.558 p = 0.125 , (N.S)
Control Group	5.13	1.07	

N.S – Significant

This table VI shows outcome of pretest level of pain between the experimental and control group that in the experimental group the pretest mean score was 4.73 with S.D 0.91 and in the control group the pretest mean score was 5.13 with S.D 1.07 and calculated value t = -1.558 and p = 0.125

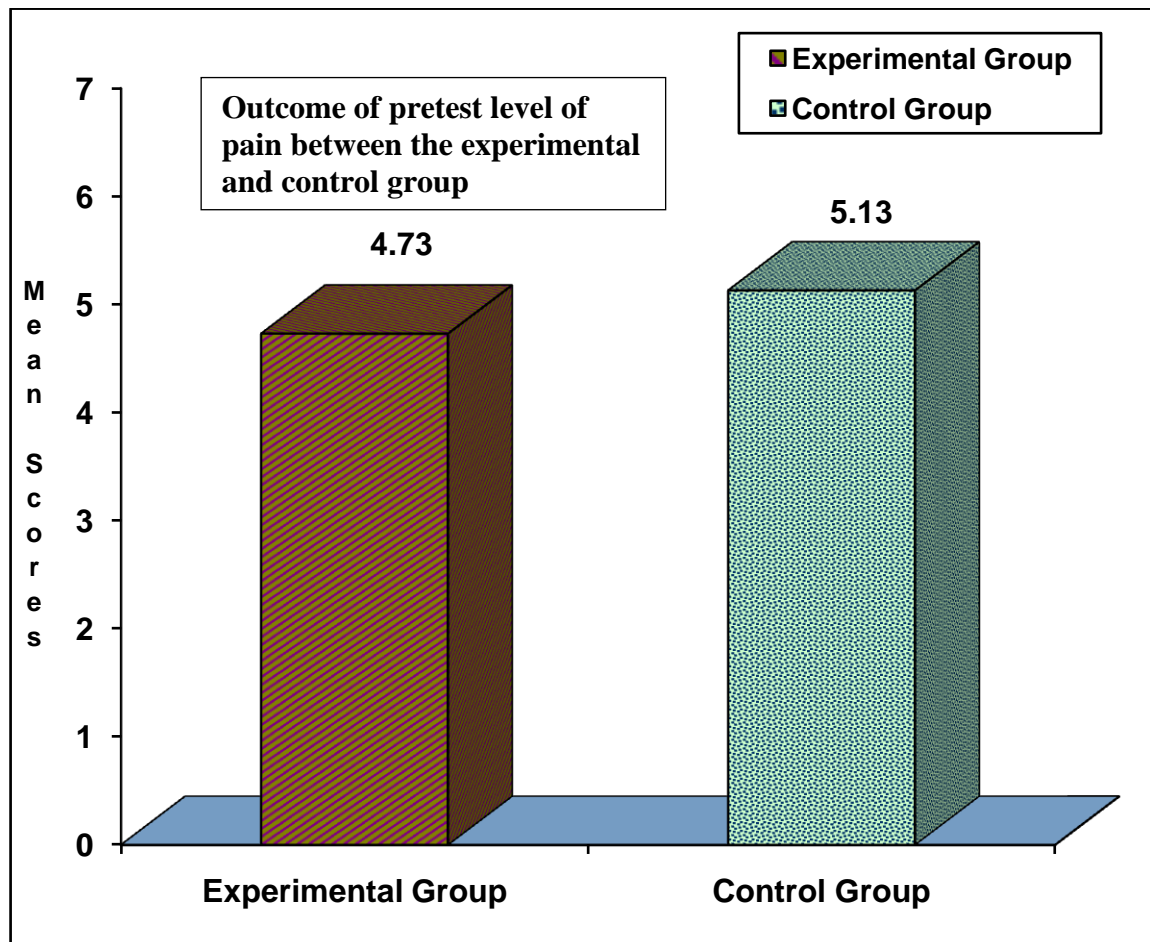


Fig.xx: outcome of pretest level of pain between the experimental and control group

Table – VII**Outcome of post test level of pain between the experimental and control group**

n = 60

Post test	Mean	S.D	't' Value
Experimental Group	2.60	0.67	T = -10.504 p = 0.000(.S)
Control Group	4.97	1.03	

.S – Significant

This table VII shows outcome of post test level of pain between the experimental and control group. In the experimental group the post test mean score was 2.60 with S.D 0.67 and in the control group the pretest mean score was 4.97 with S.D 1.03 and calculated value $t = -10.504$ and $p = 0.000(S)$.

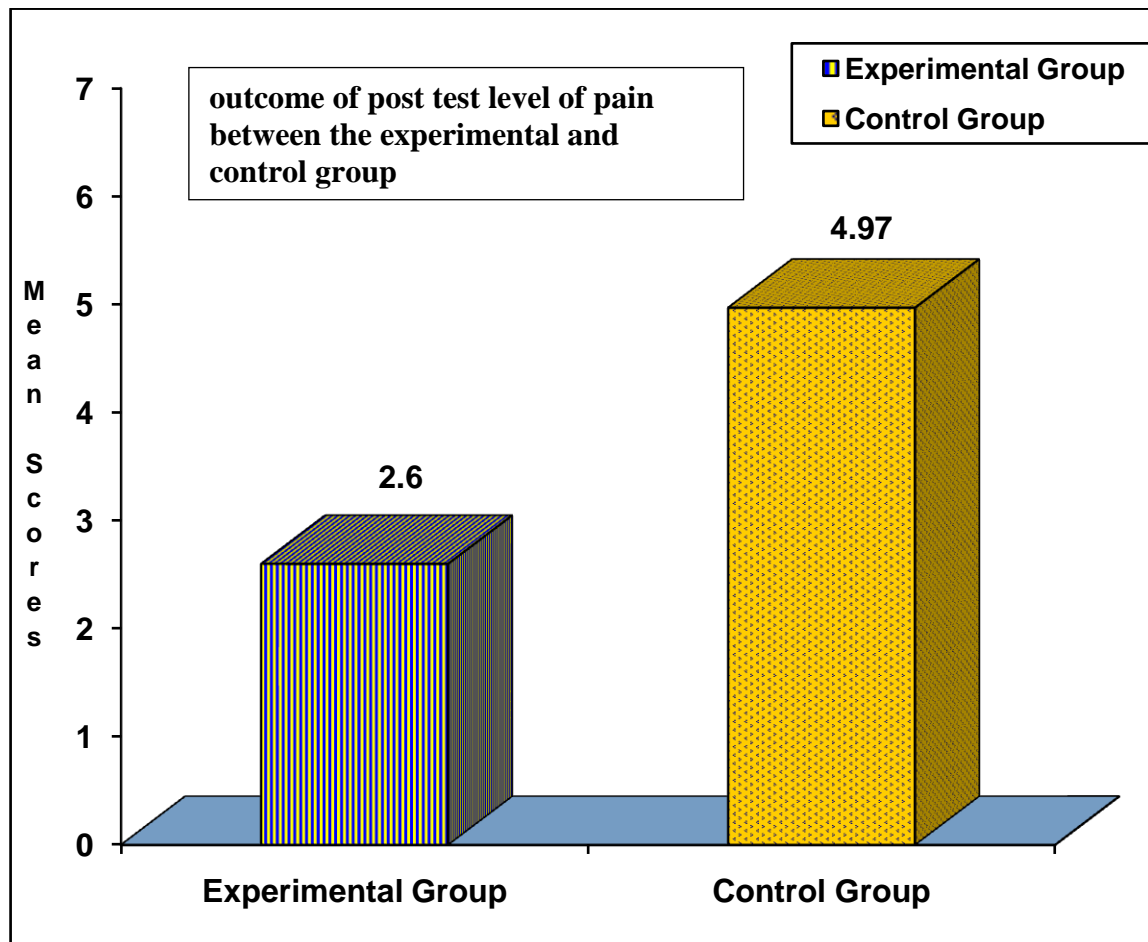


Fig.xxi: outcome of post test level of pain between the experimental and control group

SECTION – F

Table – VIII

Association of post test level of pain with demographic variables in the experimental group

n = 30

Demographic Variables	Mild Pain		Moderate Pain		Chi-Square Value
	No.	%	No.	%	
Age in years					$\chi^2 = 0.484$ d.f = 2 p = 0.785 N.S
40 – 45	2	6.7	0	0	
46 – 60	13	43.3	2	6.7	
61 – 75	12	40.0	1	3.3	
Gender					-
Male	27	90.0	3	10.0	
Female	-	-	-	-	
Occupation					$\chi^2 = 0.602$ d.f = 2 p = 0.740 N.S
Unemployed	7	23.3	1	3.3	
Self employed	5	16.7	1	3.3	
Government employed	15	50.0	1	3.3	
Private employed					
Family income					$\chi^2 = 0.739$ d.f = 1 p = 0.390 N.S
<1500/-	-	-	-	-	
5001 - 10000/-	-	-	-	-	
10001 - 15000/-	11	36.7	2	6.7	
>15000/-	16	53.3	1	3.3	
Educational Qualification					$\chi^2 = 1.324$ d.f = 2 p = 0.516 N.S
Illiterate	-	-	-	-	
Schooling	9	30.0	2	6.7	
Graduate	17	56.7	1	3.3	
Post Graduate	1	3.3	0	0	
Marital Status					-
Unmarried	-	-	-	-	
Married	27	90.0	3	10.0	
Widow/Widower	-	-	-	-	
Divorced	-	-	-	-	
Duration of Illness					$\chi^2 = 2.135$ d.f = 2 p = 0.344 N.S
1 to 6 months	2	6.7	1	3.3	
1 to 3 years	16	53.3	1	3.3	
4 to 5 years	9	30.0	1	3.3	
Co-morbid illness					$\chi^2 = 0.238$ d.f = 1 p = 0.626 N.S
Diabetes Mellitus	13	43.3	1	3.3	
Hypertension	14	46.7	2	6.7	
Family Support					-
Yes	27	90.0	3	10.0	
No	-	-	-	-	

N.S – Not Significant

The table VIII shows association of post test level of pain with demographic variables in the experimental group among undergone hemodialysis with the selected demographic variables was done by using chi square test.

SECTION – G

Table – IX

Association of post test level of pain with demographic variables in the control group

n = 30

Demographic Variables	Moderate Pain		Severe Pain		Chi-Square Value
	No.	%	No.	%	
Age in years					$\chi^2 = 2.951$ d.f = 2 p = 0.229 N.S
40 – 45	1	3.3	1	3.3	
46 – 60	14	46.7	1	3.3	
61 – 75	11	36.7	2	6.7	
Gender					-
Male	26	86.7	4	13.3	
Female	-	-	-	-	
Occupation					$\chi^2 = 0.742$ d.f = 2 p = 0.690 N.S
Unemployed	-	-	-	-	
Self employed	12	40.0	2	6.7	
Government employed	3	10.0	1	3.3	
Private employed	11	36.7	1	3.3	
Family income					$\chi^2 = 1.978$ d.f = 2 p = 0.372 N.S
<1500/-	-	-	-	-	
5001 - 10000/-	3	10.0	0	0	
10001 - 15000/-	6	20.0	0	0	
>15000/-	17	56.7	4	13.3	
Educational Qualification					$\chi^2 = 0.742$ d.f = 2 p = 0.690 N.S
Illiterate	-	-	-	-	
Schooling	4	13.3	0	0	
Graduate	12	40.0	2	6.7	
Post Graduate	10	33.3	2	6.7	
Marital Status					-
Unmarried	-	-	-	-	
Married	26	86.7	4	13.3	
Widow/Widower	-	-	-	-	
Divorced	-	-	-	-	
Duration of Illness					$\chi^2 = 0.882$ d.f = 2 p = 0.643 N.S
1 to 6 months	3	10.0	0	0	
1 to 3 years	15	50.0	2	6.7	
4 to 5 years	8	26.7	2	6.7	
Co-morbid illness					$\chi^2 = 4.038$ d.f = 1 p = 0.044 N.S
Diabetes Mellitus	14	46.7	0	0	
Hypertension	12	40.0	4	13.3	
Family Support					-
Yes	26	86.7	4	13.3	
No	-	-	-	-	

N.S – Not Significant

The table IX shows association of post test level of pain with demographic variable in the control group there is no significant difference between the control group.

CHAPTER – V

DISCUSSION

This chapter discusses the findings of the study derived from descriptive and inferential statistical analysis

The statement of the problem was A study to assess the outcome of cryotherapy on Arteriovenous Fistula cannulation among patients on hemodialysis at Vijaya Health Centre.

The objectives were

1. To assess the pretest level of Arteriovenous fistula puncture pain among experimental group and control group.
2. To assess the post test level of Arteriovenous fistula puncture pain among experimental group and control group
3. To assess the outcome of cryotherapy in the pre test and post test level of arteriovenous fistula puncture pain in the experimental and control group
4. To associate the pre test and post test level of Arteriovenous fistula puncture pain among patient on hemodialysis with the selected demographic variables of experimental and control group

The demographic variables selected in the study were age, gender, occupation, family income, educational qualification, marital status, duration of illness, co-morbid illness and family support

The frequency and percentage distribution of demographic variables in the experimental group majority 15 (50%) were aged between 46 – 60 years, 16(53.33%) were private employed, 18(60%) were graduate were more than >15,000/- family income, 30(100%) were married, 17(56.67%) 1 to 3 years duration of illness 16(53.33) were had hypertension.

In the control group majority 50(50%) were aged between 46 – 60 years, 100% were males, 14(46.67%) were self employed, 21(70.00%) were >15000/-family income,

14(46.67%) were graduate, 17(56.67%) were 1 to 3 years duration of illness 16(53.33%) were had hypertension.

The first objective was to assess the pretest level of arteriovenous fistula puncture pain among experimental group and control group.

The experimental group majority 27(90.00%) were had moderate level of pain. In the control group pre test 24(80.00%) were had moderate level of pain.

The above findings of the study was supported by the related study conducted Allegaert.K. et.al, intravenous injection of pain in neonates on prescription of analgesics. The number of prescribed vials increased from 3140/-619(mean +/-sp to 5915 +/-675($p < 0.05$) children who received cryotherapy.

The second objective was to assess the post test level of arteriovenous fistula puncture pain among experimental group and control group.

The experimental group majority 27(90.00%) were had mild level of pain in the post test. The control group majority 26(86.67) were had moderate level of pain.

Laureano et.al., reported the effectiveness of cryotherapy on reduction of pain swelling, and trimus after third molar extraction ($p < .05$) and it was found that cryotherapy was effective in reducing pain.

The third objective was to assess the outcome of cryotherapy in the pretest and post test level of arteriovenous fistula puncture pain among patients on hemodialysis experimental group and control group

In the experimental group the effectiveness of level of pain among clients undergone hemodialysis before cannulation providing cryotherapy was done by using paired “t” test. There was a decrease in mean value from 4.73 to 2.60 and decrease in standard deviation from 0.91 to 0.67 respectively the “t” value 33.796 was found to be highly significant at $p < 0.001$ level of significance indicating a decreased in the level of pain following cryotherapy

In control group, the level of pain among clients undergone hemodialysis before cannulation by using paired “t” test. Mean value from 5.13 to 4.97 and the standard

deviation from 1.07 to 1.03 respectively the “t” value -0.623 was found to be not significant at $p=0.538$ level of not significance indicating that the level of pain was not decreased .

Out come of pretest level of pain between the experimental and control group that in the experimental group the pretest mean score was 4.73 with S.D 0.91 and in the control group the pretest mean score was 5.13 with S.D 1.07 and calculated value $t = -1.558$ and $p=0.125$

Outcome of post test level of pain between the experimental and control group that in the experimental group the post test mean score was 2.60 with S.D.0.67 and in the control group the pretest mean score was 4.97 with S.D.1.03 and calculated value $t = -10.504$ and $p=0.000$

The present study findings were consistent with the study conducted by Ararwal M. (2007) to find the effectiveness of cryotherapy on pain in hemodialysis patients . A convenience sample of 60 patients (30 each in experimental and control group) Hemodialysis patients who met the inclusion criteria were randomly assigned to experimental and control group using a randomization table. Subjective pain score was done on two consecutive days of hemodialysis treatment (with cryotherapy for experimental and without cryotherapy for control group). The tools used were a questionnaire examining demographical and clinical and a numerical rating scale for subjective pain assessment and that subjective pain score found to be significantly ($p=0.001$) reduced within the experimental group with the application of cryotherapy. This study highlights the need for adopting alternative therapies such as cryotherapy for effective pain management in hospital settings.

Orlando Nursing process fulfills the criteria of a theory. Patients with end stage renal disease on maintenance hemodialysis require hemodialysis 3 – 4 times a week. This procedure requires arterial and venous access which is established by cannulation of arteriovenous fistula patients experience pain and discomfort during cannulation.

Investigator response to patient's problem is by assessing the pain. Investigator action is to solve the patient problem by applying cryotherapy which is a non – pharmacological measure for pain relief. This action helps pain reduction and improves the patient's comfort

The study findings concluded that the clients in experimental group had mild level of pain when compared with the control group. These findings indicate research hypothesis H1 and H2 states that there is a significant difference between the pretest and post test level of pain among clients undergone hemodialysis was accepted

The fourth objective was to associate the pretest, post test level of Arteriovenous fistula puncture pain among patient on hemodialysis with the selected demographic variables.

The demographical variable had not shown any statistical significant association with the pretest, post test level of pain with demographic variables in the experimental group and control group.

CHAPTER – VI

SUMMARY, IMPLICATIONS, RECOMMENDATIONS AND LIMITATION

This chapter presents the summary of the study and conclusion drawn. It clarifies the Nursing implication, Recommendation and Limitation of the study in different areas of life Nursing practice, Nursing education, Nursing research.

SUMMARY OF THE STUDY

The statement of the study was “An study to assess the outcome of cryotherapy on arteriovenou Venus Fistula puncture pain among patients on hemodialysis at Vijaya Health Centre at Vadapalani.

OBJECTIVES

1. To assess the pre test level of Arteriovenous fistula puncture pain among experimental group and control group.
2. To assess the post test level of Arteriovenous fistula puncture pain among experimental group and control group.
3. To compare the pre test and post test level of Arteriovenous fistula puncture pain among patients on hemodialysis experimental group and control group.
4. To associate the post test level of Arteriovenous fistula puncture pain among patient on hemodialysis with the selected demographic variables of the experimental and control group

The assumption of the study were

Patients on hemodialysis may experience pain at the arteriovenous fistula site
Cryotherapy may have some effect on pain reduction among patients on hemodialysis

The following Research hypothesis were set for the study:

H₁ – There is a significant difference between the pre-test and post test level of Arteriovenous fistula puncture pain between Experimental group and control group

H₂ – There is a significant difference between the post test level of Arterio Venous fistula Puncture pain between Experimental and Control Group.

Review of literature revealed studies related to hemodialysis and arterio veous fistula, and effect of cryotherapy the conceptual framework adopted for the study was based on verbal and non verbal language, nurses response by exploring the patient behaviour, nurse's action by delivering the needed care to solve the patients problems, outcome in terms of patient satisfaction as the need for help is resolved.

The evaluative approach and a experimental design was used. The study was conducted in Vijaya Health Centre. Arteriovenous fistula among hemodialysis patient who fulfilled inclusion criteria were selected using simple random sampling method and was assigned in to experimental and control group respectively. Pilot study and main study were conducted in the same setting.

NURSING IMPLICATIONS

The investigator has derived the following implication from the study which is vital concern in the field of nursing practices, administration, education and research.

Nursing Practice

1. Cryotherapy is an effective measure to block the pain pathway. Research evidence shows that cutaneous application is an independent nursing intervention to minimize the pain.

2. Plan the goal of nursing management and enhance the nurse patient relationship and sense of well being to the patient through the development of mutually agreed goals.

3. Cryotherapy should be considered as an integral part of pain relief management in nursing. Its numbs pain, reduce joint swelling, constricts blood vessels, and block nerve impulses to the affected area.

Nursing Education

1. Nurse educators should encourage nursing students to utilize cryotherapy as measure for reducing the pain

2. In service educational programme should be conducted for nursing personnel and help nurses to gain knowledge about cryotherapy.

Nursing Administration

1. Nursing department should have policy decision to use cryotherapy as an essential nursing activity to reduce the pain.

2. Administration must provide adequate cryotherapy packs and material for effective nursing care.

Nursing Research

1. The study will be a valuable reference material for further researches

2. The findings of the study would help to expand the scientific body of professional knowledge upon which further researches can be conducted.

3. Cryotherapy may be studied more scientifically and used as a specific nursing intervention.

RECOMMENDATIONS

1. A similar study can be conducted with a large sample size.
2. A similar study conducted by extending the period of data collection.
3. A similar study can be conducted as structured teaching programme.
4. Comparative study may be conducted to evaluate the effectiveness of dietary management and in combination with other complementary therapies.
5. A similar study can be conducted among various age group of women.
6. A similar study can be carried out in other areas such as community and hospital.

LIMITATION

The review of literature does not contain more Indian studies related to outcome of Anteriorvenous Fistula pain on hemodialysis.

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[http://medicine and publichealth.vanderbi.edu.](http://medicine.andpublichealth.vanderbi.edu)

<http://www.medscape.com>

www.amjsportsmed.com

www.bmj.com

www.gmail.com

www.google.com

www.jada.ada.com

www.medline.com

www.ndack.com

www.renalweb.com

www.warriopages.com

www.wikipedia.com

www.yahoo.com

APPENDIX – A

LIST OF EXPERTS FOR CONTENT VALIDITY

5. Sayeed Ahmed
Chief Medical Officer,
Department of Nephrology,
Vijaya Health Centre,
Chennai – 26.

6. Hemasuresh, R.N., R.M.,M.Sc(N),
Medical Surgical Nursing,
Vice Principal,
Meenakshi College of Nursing,
Maduravoyal,
Chennai.

7. Jolly Ranjith
Reader,
Omayal Achi College of Nursing,
Avadi.

8. N.Jayasri
Vice Principal,
Miot College of Nursing,
Chennai – 116.

9. Selvakani Pandian, M.Sc(N).,
Vice Principal,
SRM College of Nursing,
SRM University.

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

Mrs.Shali.G.S

M.Sc.(N) II Year,
Vel R.S Medical College – College of Nursing,
Avadi, Chennai – 600 062.

To

Respected Madam/Sir,

Sub: Requisition for expert opinion on suggestion for content validity of the tools.

I am Mrs.Shali.G.S., a student of M.Sc.(Nursing)- II year at Vel R.S Medical College - College of Nursing, Avadi, Chennai – 62, affiliated to Dr.M.G.R.Medical University, Chennai.

As a partial fulfillment of the requirement in the M.Sc. Nursing Programme, I have to complete a dissertation the topic I have selected is **“A study to assess the effectiveness of cryotherapy on Arteriovenous Fistula puncture pain among patients on hemodialysis at Vijaya Health Centre Vadapalani, Chennai 2011-2012”**.

Herewith I am sending the developed tools for content validity and for your expert opinion and valuable suggestions.

Thanking you,

Yours sincerely,

(SHALI.G.S)

Enclosures:


1. Statement and objectives of the study
2. Blue print of the tools
3. Content validity certificate

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by **Mrs.G.Shali**, M.Sc. Nursing, IInd year student , Vel.R .S. Medical College - College of Nursing, Chennai on the topic "**A Study to assess the effectiveness of cryotherapy on arterio-venous fistula puncture pain among patients on hemodialysis in Vijaya health center**" is validated by the undersigned and she can proceed with this tool to conduct the main study.

Place: *Chennai*.

Date: *13/6/11*.


SIGNATURE
DR. SAYEEDA AHMED
CHIEF MEDICAL OFFICER
DEPARTMENT OF NEPHROLOGY
VIJAYA HEALTH CENTRE
175, N.S.K. Salai, Chennai-28.

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by Mrs.G.S.Shali M.Sc.Nursing IInd Year student, Vel.R.S.Medical College –College of Nursing, Chennai on the topic “A Study to assess the effectiveness of cryotherapy on pain during arterio – venous fistula cannulation among patients on hemodialysis in vijaya health centre is validated by the undersigned and she can proceed with this tool to conduct the main study”



SIGNATURE

Hema Suresh

VICE PRINCIPAL

MEENAKSHI COLLEGE OF NURSING

CHIKKARAYAPURAM, NEAR MANGADU, CHENNAI - 600 069

Place: *Chennai*

Date: *09.6.2011*

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by **Mrs.G.Shali**, M.Sc. Nursing, IInd year student , Vel.R .S. Medical College - College of Nursing, Chennai on the topic "**A Study to assess the effectiveness of cryotherapy on arterio-venous fistula puncture pain among patients on hemodialysis in Vijaya health center**" is validated by the undersigned and she can proceed with this tool to conduct the main study.

Place: *Chennai*

Date: *4/6/11*

[Handwritten Signature]
4/6/11
SIGNATURE

Ms. Tolly Rajith
Reader,
Omayal Achi CON
Ayodi.



CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by **Mrs.G.Shali**, M.Sc. Nursing, IInd year student , Vel.R .S. Medical College - College of Nursing, Chennai on the topic "**A Study to assess the effectiveness of cryotherapy on arterio-venous fistula puncture pain among patients on hemodialysis in Vijaya health center**" is validated by the undersigned and she can proceed with this tool to conduct the main study.

Place: *Chennai*

Date: *4/6/11*



N. Jayasri

SIGNATURE

PROF. N. JAYASRI
VICE - PRINCIPAL
MIOT COLLEGE OF NURSING.
CHENNAI-116

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by **Mrs.G.Shali**, M.Sc. Nursing, IInd year student, Vel.R .S. Medical College - College of Nursing, Chennai on the topic "**A Study to assess the effectiveness of cryotherapy on arterio-venous fistula puncture pain among patients on hemodialysis in Vijaya health center**, Chennai is validated by the undersigned and she can proceed with this tool to conduct the main study.


SIGNATURE

Place: *Chennai*

Date: *3:06:11*

SELVAKANI PANDIAN, M.Sc(N),
Vice Principal
SRM COLLEGE OF NURSING
SRM UNIVERSITY
SRM Nagar, Kattankulathur - 603 203,
Kancheepuram - Dist. Tamil Nadu, India.

APPENDIX – B

INTRODUCTION

Dear participants,

I Mrs.Shali.G.S, M.Sc(N) II year student from Vel R.S Medical college- college of Nursing, Avadi, Chennai. I would like to conduct a study to assess the effectiveness of cryotherapy on Arteriovenous Fistula puncture pain among patients on hemodialysis at Vijaya Health Centre Vadapalani, Chennai. I request you participate in the study. Numerical pain rating scale will be used to assess the pain. I assure you that the responses given by you will be used only for my study purpose. So I request you to kindly give your full co-operation and willingness.

Thanking you.

DEMOGRAPHIC VARIABLES

Demographic Variables

Age in years

40 – 45

46 – 60

61 – 75

Gender

Male

Female

Occupation

Unemployed

Self employed

Government employed

Private employed

Family income

<1500/-

5001 - 10000/-

10001 - 15000/-

>15000/-

Educational Qualification

Illiterate

Schooling

Graduate

Post Graduate

Marital Status

Unmarried

Married

Widow/Widower

Divorced

Duration of Illness

1 to 6 months

1 to 3 years

4 to 5 years

Co-morbid illness

Diabetes Mellitus

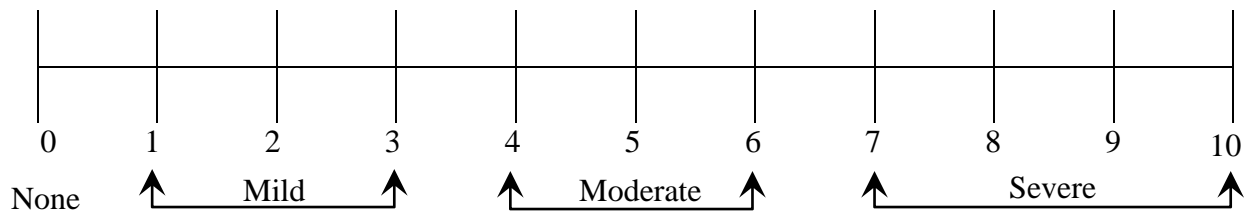
Hypertension

Family Support

Yes

No

NUMERICAL PAIN INTENSITY SCALE



- 0 – None
- 1 to 3 – Mild Pain
- 4 to 6 – Moderate Pain
- 7 to 10 – Severe Pain

முடிவுரை

நான் வேல். ஆர்.எஸ். மருத்துவ கல்லூரி, செவிலியர் கல்லூரியில் முதுகலை பட்டப்படிப்பு இரண்டாம் ஆண்டு செவிலியர் கல்வி பயில்கின்றேன். நான் என் படிப்பின் ஒரு பகுதியாக ஐஸ் துண்டு வைப்பதன் மூலம் நோயாளியின் வலியை போக்குவதற்கான ஆய்வை இரத்தம் சுத்திகரிப்பு (டயலிசிஸ்) நோயாளியிடம் நடத்துகின்றேன். இதன் தொடர்பாக நான் தங்களை எனது ஆய்வின் பங்கேற்பாளராக இணைத்துக் கொள்ள மிக தாழ்மையுடன் கேட்டு கொள்கின்றேன். இதில் நான் கேட்கும் கேள்விகளுக்கு சரியான உங்கள் பதிலை தெரிவிக்கவும் உங்கள் பதிலை என் ஆய்விற்காக மட்டும் நான் பயன்படுத்துவேன் என்று உறுதியளிக்கின்றேன்.

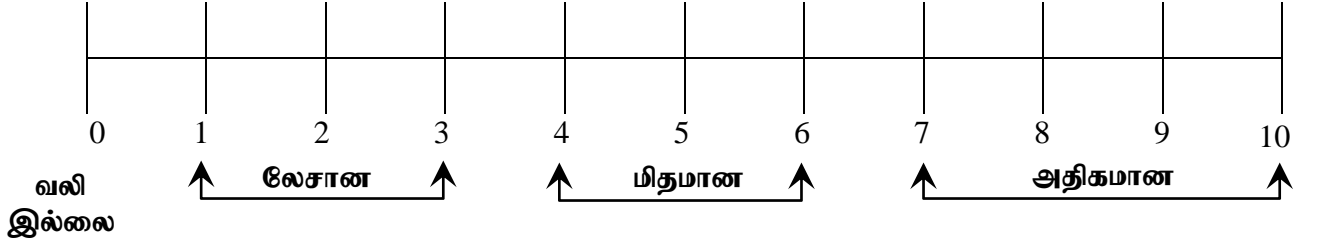
நன்றி

தகவலாளர் விவரம்

1. தகவலாளரின் வயது வரம்பு
(அ) 40 - 45
(ஆ) 46 - 60
(இ) 61 - 75
2. பாலினம்
(அ) ஆண்
(ஆ) பெண்
3. தொழில்
(அ) வேலையில்லாதவர்
(ஆ) சுய தொழில் புரிவோர்
(இ) அரசு வேலை
(ஈ) தனியார் வேலை
4. மாத வருமானம் (ரூபாய்)
(அ) ரூ. 5000 - க்கு கீழ்
(ஆ) ரூ. 5001 - 10,000
(இ) ரூ. 10000 - 15,000
(ஈ) ரூ. 15000க்கு மேல்
5. கல்வித் தகுதி
(அ) கல்லாதவர்
(ஆ) பள்ளிக் கல்வி
(இ) இளநிலைக் கல்வி
(ஈ) முதகலை கல்வி
6. திருமணத் தகுதி
(அ) திருமணம் ஆகாதவர்
(ஆ) திருமணம் ஆனவர்
(இ) விதவை
(ஈ) தனித்து வாழ்பவர்
7. நோய்க்கான கால வரம்பு (வருடங்களில்)
(அ) 1 - 6 மாதங்கள்
(ஆ) 1 - 3 வருடங்கள்
(இ) 4 - 5 வருடங்கள்
8. இதர நோய்
(அ) நீரிழிவு நோய்
(ஆ) உயர் இரத்த அழுத்த நோய்

9. குடும்பத்தின் ஆதரவு
(அ) ஆம்
(ஆ) இல்லை

எண்சார்ந்த வகையான அளவுகோல்



- 0 – வலி இல்லை
- 1 to 3 – லேசான வலி
- 4 to 6 – மிதமான வலி
- 7 to 10 – அதிகமான வலி



VEL R.S. Medical College

(College of Nursing)



Owned by R.S. Trust
(Approved by Govt. of Tamil Nadu,
Indian Nursing Council, New Delhi, Tamil Nadu Nurses & Midwives Council &
Affiliated to The Tamil Nadu Dr. M.G.R. Medical University)
No. 42, Avadi - Alamathi Road,
Vellanur (Post), Avadi, Chennai - 600 062
Phone : 044 - 26840605, E-mail : vrsmc_con@yahoo.com



Administrative Office:

"Santi Sudha", # 38 (Old No. 24),
ABM Avenue, (Opp. Park Sheraton Hotel),
Chennai - 600 028, India.
Phone off : 24355648, 24334845, 24335828
Residence : 24344708
Fax : 24340386, 24357591
Grams : VELGROUP CHENNAI - 28
E-mail : veltech@md3.vsnl.net.in
Website : WWW.vel-tech.org
Phone : 26841093 Fax : 26841601

31/01/2011

To

Sub: Seeking permission for conducting main and pilot study-reg.

Respected Sir/Madam,

This is to introduce Mrs.Shali. Master Degree Nursing student of this college. She has selected the following topic for the Research study to be submitted to the T.N Dr. M.G.R Medical University as partial fulfillment of the master degree in nursing program.

The topic for the study is "Effectiveness of cryotherapy on pain arteriovenous fistula puncture pain among hemodialysis patient-in selected hospitals at Chennai".

She is interested in conducting Main Study & Pilot study at your estimated institution.

I assure you that our student will abide by the rules and regulations of the Institution. I request you're at most help in regard to the same.

Thanking you.

Place:

Date


Prof. Mrs. M. Anuradha

PRINCIPAL
PRINCIPAL
VEL R. S. MEDICAL COLLEGE
(COLLEGE OF NURSING)
42, AVADI-ALAMATHI ROAD
VELLANUR, CHENNAI-62



VEL R.S. Medical College

(College of Nursing)



Owned by R.S. Trust
(Approved by Govt. of Tamil Nadu,
Indian Nursing Council, New Delhi, Tamil Nadu Nurses & Midwives Council &
Affiliated to The Tamil Nadu Dr. M.G.R. Medical University)
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E-mail : veltech@md3.vsnl.net.in
Website : WWW.vel-tech.org
Phone : 26841093 Fax : 26841601

31/01/2011

To
Dr. SAYFED AHMED,
DEPARTMENT OF NEPHROLOGY,
VIJAYA HEALTH CENTRE,
CHENNAI - 26.

Sub: Seeking permission for conducting main and pilot study-reg.

Respected Sir/ Madam.

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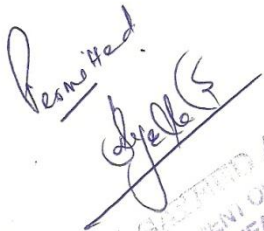
Thanking you.

Place: VADAPPALANI,
Date: 9/2/2011.


Prof. Mrs. M. Anuradha

PRINCIPAL

PRINCIPAL
VEL R. S. MEDICAL COLLEGE
(COLLEGE OF NURSING)
62, AVADI-ALAMATHI ROAD
VELLANUR, CHENNAI-60


Permitted
Dr. ANURADHA
DEPARTMENT OF NEPHROLOGY
VIJAYA HEALTH CENTRE
175, N.S.K. Salai, Chennai-26.



VIJAYA HEALTH CENTRE
(UNIT OF VIJAYA MEDICAL & EDUCATIONAL TRUST)
175, N.S.K. SALAI, VADAPALANI, CHENNAI - 600 026.

Phone : 2481 4261
2481 4263

15.07.2011.

To Whom it may Concern

This is to certify that Mrs. Shali, Master Degree Nursing Student has conducted a Pilot Study during the period from 08.06.2011 to 14.06.2011 and the main study from 03.06.2011 to 03.07.2011 for the study topic of "EFFECTIVENESS OF CRYOTHERAPY ON PAIN ARTERIOVENOUS FISTULA PUNCTURE PAIN AMONG HAEMODIALYSIS PATIENT"

The outcome of the study was really effective as observed by me.

Dr. SAYEED AHMED
CHIEF MEDICAL OFFICER
DEPARTMENT OF NEPHROLOGY
VIJAYA HEALTH CENTRE
175, N.S.K. Salai, Chennai-26.

Nursing Officer


2710



CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work *An study to assess the effectiveness of cryotherapy on Arterio Venus Fistula puncture pain among patients on hemodialysis* was done by Mrs. Shali G.S. II year M.Sc (N) student of Vel R.S. Medical College – College of Nursing, Chennai, is edited for English Language appropriateness by G. ARULDOSS

G. ARUL DOSS
M.A., M.Ed., M. Phil.
NAME: P.G. Asst in English
GOVT. HR. SEC. SCHOOL
MOLACHUR & P.O.-602 106.
KANCHIPURAM DISTRICT
SIGNATURE: 

CERTIFICATE OF TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the Tamil version of tool used for the dissertation work "*An study to assess the effectiveness of cryotherapy on Arterio Venus Fistula puncture pain among patients on hemodialysis*" was done by Mrs. Shali G.S. II year M.Sc(N) student of Vel R.S. Medical College-College of Nursing, Avadi, Chennai, is edited for Tamil Language appropriateness by M. ATHIMOOLAM



M. ATHIMOOLAM, M.A., M.Phil., B.Ed.,
P.G. ASSISTANT IN TAMIL
Govt. Hr. Sec. School,
Somangalam, Kanchi Dist - 602 109.

NAME:

SIGNATURE:





