“A COMPARATIVE STUDY TO EVALUATE THE EFFECTIVENESS OF TOPICAL ANESTHETIC CREAM APPLICATION AND CRYOTHERAPY ON PAIN EXPERIENCING AMONG PATIENT UNDERGOING INTRAVENOUS CANNULATION IN SELECTED HOSPITAL AT PUDUKKOTTAI”.

BY

REGISTER NUMBER:300123576003

DISSERTATION SUBMITTED TO

THE TAMILNADU DR.M.G. R MEDICAL UNIVERSITY CHENNAI, TAMILNADU.

IN PARTIAL FULLFILMENT

OF THE REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NURSING

SEPTEMBER-2025

“A COMPARATIVE STUDY TO EVALUATE THE EFFECTIVENESS OF TOPICAL ANESTHETIC CREAM APPLICATION AND CRYOTHERAPY ON PAIN EXPERIENCING AMONG PATIENT UNDERGOING INTRAVENOUS CANNULATION IN SELECTED HOSPITAL AT PUDUKKOTTAI”.

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M.SC NURSING (2023-2025)

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CHENNAI

ACKNOWLEDGEMENT

“Research is not an individual journey but a collective effort, built upon the guidance of mentors, the support of loved ones, and the inspiration drawn from every experience along the way”.

First and foremost, I express my profound gratitude to **ALMIGHTY GOD** ,whose blessing, wisdom and guidance have been my strength throughout this research journey.

God has a reason for allowing things to happen, we may never understand his wisdom but we simply have to trust his will. Thankyou God for all your blessings to me and my family, for the strength he had given me each day and for all the people around me who make my life more meaningful.

I acknowledge here with respect for the golden opportunity offered to me by **THIRU.R.CHINNATHAMBI** founder Mother Terasa Group of Institutions for giving me an opportunity to undertake my M.Sc Nursing program in this esteemed institution.

I expressed my sincere thanks to THIRU.**R.C.UDHAYAKUMAR** chairman Mother Terasa Group of Institutions for awarding me opportunity to facilitate this course.

I expressed my deep sense of gratitude and indebtedness to **Dr.Mrs.J.SUGANTHI M.Sc Nursing,Ph.D Principal** ,Mother Terasa College of Nursing For her guidance, sustained presence, Critical comments,Constant availability and Continuous inspiration right from the planning phase to till the completion of the study.Her patient listening ,Encouraging words and deep understanding indeed have been pillars of strength for me.

I am deeply grateful to respected vice principal **PROF.MRS.FLORA.P M.SC. NURSING, MBA,(PH.D)** for kind support in obtaining permission for the which enabled me to carry out my research work smoothly.

I Extend my heartfelt gratitude to my research guide**, Mrs.M.Amutha Bharathi M.Sc Nursing ,Assistant professor** for their constant guidance, Valuable suggestions, and Encouragement throughout the course of my study.

I express my sincere thanks to my class coordinator**,Prof. Mrs.Leema mary MScNursing,(Ph.D**) for support.

I extend my thanks to the Entire faculty of Mother Terasa College of Nursing for their constructive criticism and encouragement which lead to the successful completion of the study.

I wish to extend my sincere thanks to **Prof.K.SENDHIL KUMAR(Biostatistician)** Mother Terasa Group of Institutions.

Greatful acknowledgement is expressed by all the experts who spared their valuable time for content validity of the tool and their guidance.

I am grateful to the Dr.K.H.Salim MBBS.D.Diab.(Diabetologist) at TEAM hospital , Pudukkottai and Dr.Ahamad Marzook,Urologist,at Bewell Hospital for granting permission to conduct the study.

I extent my warm thanks to Mrs.Chanthra nursing superintendent and staff nurses to facilitate the execution of this project

My special thanks to Mr.Chandrasekaran Mother Terasa college of arts and science for English editing

I also owe my gratitude to my friends who shared the ups and downs of the past two years and were a constant source of fun and support

My heartful thanks to my husband Mr.Milton Solomon for support, encouragement, prayers, financial support, valuable suggestion, inspiration, which boosted up my morale during the

course of this study and my lovable thanks to my daughter baby M.Jessa zionah and all my family members for support and encouragement.

Above all ,I express my deep sense of gratitude to God Almighty for his ever abiding grace and blessing which gave me strength for the successful completion of this project.

Researcher

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ABBREVIATTIONS

IV - Intravenous cannulation

BMI - Body Mass Index

χ^2 - Chi -square

p - probability level

t - test of significance

DF - Degree of Freedom

H - Hypothesis

SD - Standard deviation

(S) - Significant

(NS) - Non Significant

CV - Critical Value

ABSTRACT

A Comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experiencing among patient undergoing intravenous cannulation in selected hospital at Pudukkottai

An comparative study was carried out to find the effectiveness of using Topical anesthetic cream application and cryotherapy for patient undergoing intravenous cannulation pain experiencing .Purposive sampling technique was used.60 male and female patients who are receiving intravenous cannulation admitted in medical ward at Team hospital and be well hospital were selected 30 patient for each experimental group-I and experimental group-II . Quasi experimental design was used to conduct study . using topical anesthetic cream application was given for experimental group-I and cryotherapy for experimental group-II

Post assessment was done after the interventions for both groups by using Visual Analogue Scale. Data was analyzed with both descriptive and inferential statistical methods. Unpaired T test was used to compare the effectiveness between experimental group-I and experimental group-II and karl pearson's co efficient of correlation was used to find out the relationship between demographic variable. After topical anesthetic cream application the mean pain score in experimental group-I was 5.37 and after cryotherapy the mean pain score in experimental group-II 2.85 (unpaired t test $t=4.21$, $p=0.05$) This shows that using cryotherapy is more effective in reducing pain during intravenous cannulation .

The investigator thereby concludes that using cryotherapy has reduced pain on patient undergoing intravenous cannulation. Thus it encompasses commitment by the nurse who can practice cryotherapy to reduce level of pain experience during intravenous cannulation.

CHAPTER -I

INTRODUCTION

"To do what else will do, a way that nobody else can do, inspire for all, we go through, is to be a nurse".

Pain derived from Latin word 'poena ' means 'punishment'. The relief of pain has been one of the primary reasons for development of health care , yet often it is difficult to understand the meaning of the complaint of pain or how effectively they can assist the patient to region control over his or her life .Pain has been introduced as the fifth vital sign by Joint Commission of Health Care Organization (JCAHO) and they have published the standards for pain management in the hospital setting in 2001 .Pain is omnipresent , an intolerable sensation and make the patient vulnerable . There is a saying that there is gain without pain.

Pain is an unpleasant subjective experience which can be related to actual or potential tissue damage .It under treated health problems most commonly .Cannulation for IV access is very common procedure in the health care settings which cause mild to severe level of pain in the majority of the patients . A small plastic tube which is called cannula is inserted into the vein during the IV cannulation procedure , which later can be used for administration of various fluids , medication etc. peripheral intravenous cannulation (PIVC) is an invasive procedure which is most commonly used during in the healthcare system for administration of drugs etc ,which can lead to anxiety ,discomfort and pain .Topical local anesthetic cream can be used for reducing this pain and discomfort . use of topical analgesics before IV cannulation is one of the emergency practice to reduce the pain. Pain is considered as the fifth vital signs. It occurs with many disorder , diagnostic tests, and treatment. since nurses spend more time with the patient in pain than to do other health care providers ,nurses need to understand the causes of pain implement pain strategies and evaluate the effectiveness of this strategies.

Mc Caffery defines pain as “whatever the experiencing person says it is, existing whenever he or she says it does”.

A Peripheral intravenous cannula is a hollow catheter placed into a vein for the short-term administration of drug ,fluid , blood , electrolyte ,and nutrition .Although a relatively easy and uncomplicated procedure , it can act as a high risk for infection by allowing direct microbial entry to the bloodstream from the traumatized skin and vein wall . complication such as phlebitis ,infiltration ,and thrombus formation can increase morbidity and the length of hospital stay.

Intravenous cannulation therapy is followed annually to millions of the patient in home side , hospital sectors and other health care setups . this is the perfect and effective method of administering the fluid directly into the intravascular fluid compartment and replacing the electrolytes and minerals losses . the nurses are the responsible the initiating, monitoring. Disconnecting the therapy.

Intravenous cannulation is a painful and uncomfortable experience. Approximately 75% of adults and children feel fear ,stress ,depression , anger or anxiety prior to a needle prick procedure or vein puncture. One could therefore reasonably hypothesize that if a patient pain experience was decreased then they would feel less anxious about future cannulation. Many institutions have procedures for minimizing the predictable pain of intravenous cannulation. An effective method of reducing this discomfort is the use of a topical local anesthetic cream.

The word anesthesia is a compound word from the Greek word an (without)and aesthesis (sensation). anesthesia is broadly divided into general and local anesthetics. Local anesthesia refers to a loss of sensation caused by a reversible blockade of nerve conduction around the site of application .

Topical anesthetics are safe and effective for reducing the physical and emotional distress that may experience during painful procedure .topical anesthetics in one form or another have been used for the past 20 years to alleviate the skin pain associated with needle puncture and venous cannulation. Topical anesthetics reduce pain by inhibiting the transduction and transmission of nerve impulses .

this secondary to an alteration in transmission through voltage sensitive sodium channel , results in a rise of potential threshold. Traditional agents utilized as topical anesthetic for pediatric needle stick procedure are a mixture of local anesthesia ,various lidocaine formulation and vapocoolants.

Lidocaine cream3% is a tropical preparation of lidocaine ,local anesthetic that can absorbed through the skin .This drug works as blocking the signal sent by the nerves to tell the brain that the body is experiencing pain. lidocaine stabilize the neuronal membrane by inhibiting the ionic fluxes required for the initiation and conduction of impulses thereby effecting local anesthetic action. lidocaine ointment is recommended for situations like rashes burns, lesions that cause pain ,irritation or itching.

Cryotherapy also known as cold therapy involves the application of low temperature to the body to induce analgesia ,reduce inflammation and promote healing .in clinical practice ,local cryotherapy is commonly used to numb specific areas before minor invasive procedure.

Cryotherapy works through several physiological mechanisms:1.vasoconstriction -cold temperature cause narrowing of blood vessels ,which reduce blood flow to the site .this decreasing inflammation and swelling.2.reduce nerve conduction velocity :cold slow the transmission of nerve impulses, especially in A delta and C fibers ,which are responsible for pain perception .this result in temporary numb .3.gate control theory :cold stimulation activities larger , faster nerve fibers which “close the gate” to pain signals from slower fibers .this can block pain perception at the spinal cord level.

Cryotherapy -the application of cold to the skin surface has emerged as a non-pharmacological, cost effective and rapidly acting method for pain relief .By inducing local vasoconstriction and reducing nerve conduction velocity ,cryotherapy temporarily desensitize the area ,offering a quick and safe analgesic effect .unlike topical cream and cryotherapy applied immediately prior to cannulation ,making it a practical choice in fast based health care environments.

BACK GROUND OF THE STUDY

Disease and hospitalization expose the adult to unpleasant feeling, some have better expose to the hospitalization and needle prick procedure such as (injections, intravenous cannulation, sampling)many of them not having the experience of normal needle prick procedure such as (blood sampling, injection, intravenous therapy) many people having the severe pain and anxiety.

Illness and hospitalization expose adult to un pleasant feelings, some adults have better expose to the hospitalization and needle prick procedure such as(injections, intravenous cannulation and blood sampling)many of them not having the experience of normal needle prick procedures such as (injections, intravenous cannulation and blood sampling)many people are having the severe pain and anxiety (Bacceretat1994)Adult requiring needle prick procedure as frightening and significance source of pain (kharasch2003).

In Atens, Greecea study was conducted, which reveals that pain during intravenous cannulation, In general ward 200 subjects they conducting the study pain during intravenous cannulation,59% of subjects reported clinically significance level of severe pain and 41%of subjects reported clinically significance level of moderate pain.

In the year of 2007 Kathmandu, a prospective the effect of cold application was compared with local anesthetic ointment (EMLA) on pain reducing during intravenous cannulation among 60 patients selected by purposive sampling 30 in each group in the group experimental group-I applying the EMLA ointment was applied and cold application 3 minutes prior to the procedure. Pain was assessed immediately after the intervention using the Visual Analogue Scale. the study concluded the both interventions are safe and effective method of reduction of pain. Observational study conducted by 230 patients who were under first time peripheral infusion therapy study observed by two months period. Severe pain identified 136/230 patients(59.1)it was in very mild in most causes.

In a pre experimental two group post test study conducted at the national heart institute delhi,2022

The researcher realized that intravenous pain is a very severe . So the researcher suggested assessing the effect of topical anesthetic cream lidocaine 3%using before the intravenous cannulation.

Topical anesthetic cream are medications applied directly to the skin to numb the area ,reducing pain and discomfort associated with minor medical procedure including intravenous cannulation . the primary purpose of using topical anesthetic creams for intravenous cannulation is to minimize pain and anxiety, improving the overall patient experience.

Topical anesthetic cream work by penetrating the skin and blocking the nerve endings,preventing pain signals from reaching the brain. The creams typically contain a combination of local anesthetic,such as lidocaine and prilocaine which have a synergistic effect ,enhancing their anesthetic properties.

Numerous studies have demonstrated the efficacy and safety of topical anesthetic creams for intravenous cannulation .pain reduction: topical anesthetic creams have been shown to significantly reduce pain associated with intravenous cannulation. Anxiety reduction :The creams have also been found to reduce anxiety and stress related to the procedure.Safety:Topical anesthetic cream apply generally well tolerated with minimal side effect such as skin irritation or allergic reaction.

Cryotherapy, the application of cold to the skin surface, has been increasingly recognized an effective non-pharmacological intervention for pain relief in minor invasive procedures, including intravenous cannulation. It has been widely used in various healthcare settings because of its safety, rapid action, and ease of application. Unlike topical anesthetic cream, which require longer waiting times for absorption, cryotherapy produces an almost immediate analgesics effect, making it highly suitable in fast-paced clinical environment.

Several studies have shown that cryotherapy reduces both the intensity of pain and level of anxiety associated with venipuncture and cannulation. The physiological mechanisms behind cryotherapy include vasoconstriction, Which minimizes tissue metabolism and inflammation and reduction in nerve conduction velocity, which decreases the transmission of pain signals. By

stimulating the larger A-beta nerve fibers, cryotherapy also activates the gate control mechanism of pain, thereby “closing the gate” to nociceptive signals transmitted by smaller pain fibers.

International research has demonstrated the effectiveness of cryotherapy in pediatric and adult patients.

NEED OF THE STUDY

Intravenous cannulation and the care of vascular devices play a pivotal role in the delivery of modern health care treatment. Intravenous cannulation is the insertion of the cannula directly into the vein . it is the effective way to administering a dose quickly and in a well controlled manner throughout the body.

Intravenous cannulation also used for the replacing the electrolytes and fluid losses.it is also used for irritation solution ,which would cause pain and damage tissues if given by subcutaneous or intramuscular injections.

Intravenous cannulation estimated than 70-80% of all hospitalized patients receive some form of intravenous therapy through a variety vascular access devices. Initially nurses only allowed to add drugs to infusing through the cannula ensure maintenance of intravenous cannulation . monitoring and disconnecting the fluid only by the staff. This has altered dramatically with the advance in vascular access device technology and the expanding role of the nurse. now a days in many specialist area the nurses play a pivotal role in the selection ,insertion , and removal of intravenous cannulation devices.

Intravenous cannulation is the painful and distressing procedure for patient. More than 80% of patients in acute care and outpatient surgical settings receive some forms of intravenous therapy. The need of an intravenous line inducing the anxiety level of most patients whether the patients have had a previous intravenous line or not, they perceive an intravenous start as a painful procedure. Since the

placement of an intravenous catheter is a fairly common invasive procedure, nurses should know what method can be used to alleviate some of the pain and anxiety.

Although pharmacological methods like topical anesthetic cream are effective in reducing cannulation pain, they are associated with limitations such as cost, delayed onset of action and potential side effect like skin irritation. Cryotherapy, on the other hand is inexpensive, safe ,non-invasive and readily available in emergency or high volume clinical settings where time is a critical factor.

The incorporation of cryotherapy into routine nursing practice can enhance patient comfort without the need for medications. it empowers nurses to use a simple evidence-based technique to reduce procedural pain and anxiety, thereby improving patient satisfaction and compliance with treatment. In the context of intravenous cannulation – a universally performed, painful procedure – there is a clear need to evaluate and compare the effectiveness of cryotherapy with topical anesthetic creams.This will provide evidence for selecting the most effective, practical and patient friendly intervention in hospital settings.

STATEMENT OF THE PROBLEM:

A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experiencing among patient undergoing intravenous cannulation in selected hospital at Pudukkottai.

OPERATIONAL DEFINITION:

- **EVALUATE:**

It refers to determine the effect of topical anesthetic cream and cryotherapy in pain reduction during intravenous cannulation.

- **EFFECTIVENESS:**

Effectiveness means producing an intended result.

In this study it refers to the significance difference bring between topical anesthetic cream and cryotherapy and its measured in term of pain perception by using statistical measurements and its score.

- **TOPICAL ANAESTHETIC CREAM:**

It refers to the anesthetic cream lidocaine 4%, 0.5g that is commercially available which is used to apply on the surface of the skin 20 minutes before intravenous cannulation.

- **CRYOTHERAPY:**

Cryotherapy refers to the ice pack application 10ºc that is used to apply on the surface of the skin 5 minutes before the intravenous cannulation.

- **PAIN EXPERIENCE:**

It refer to the subjective feeling of discomfort experienced by the patient during intravenous cannulation which can be measured by using visual analogue scale.

- **PATIENT UNDERGOING INTRAVENOUS CANNULATION:**

They are the subjects who require an intravenous line admitted in the medical ward TEAM hospital and BEWELL Hospital at Pudukkottai district for inserting an intravenous cannula through peripheral vein for medication administration, infusion of fluid and electrolyte.

ASSUMPTIONS:

The study assumes that,

1.Patient in the experimental group-I have more pain than in the experimental group -II.

2.Cryotherapy reduce pain than topical anesthetic cream application during the intravenous cannulation.

OBJECTIVE OF THE STUDY:

- To assess the post-test pain experience among patient undergoing intravenous cannulation in experimental group-I and experimental group-II
- To evaluate the effectiveness of topical anesthetic cream and cryotherapy among patient undergoing intravenous cannulation in experimental group-I and experimental group-II
- To associate the post pain experience among patient undergoing intravenous cannulation and with their selected demographic variable among experimental group-I and experimental group-II.

HYPOTHESIS:

H1: There will be a significant difference in the post test pain experience among patient undergoing intravenous cannulation in experimental group-I and experimental group-II

H2: There will be a significant association between post-test pain experience among patients undergoing intravenous cannulation and with their selected demographic variables in experimental group-I and experimental group-II

DELIMITATIONS

1. The study is limited to adult patients admitted in the medical ward.

2. The study is limited to adult patients aged between 20-60 years.

3. The sample size is limited to 60 (30 experimental group-I and experimental group-II).

4. Data collection period is limited to 4-6 weeks.

CONCEPTUAL FRAMEWORK

Conceptual framework is the precursor of a theory. A conceptual framework or model is defined as a set of concepts and propositions that integrate them into a meaningful configuration.

A conceptual framework broadly explains phenomena of expresses assumption, interest and reflects a philosophical stance and it explains connection between the variable in the diagrammatic representation. Their overall purpose is to make scientific and meaningful findings and also to generalize the findings.

The study is based upon Roy's Adaptation model. Roy focuses on the individual as a Bio-psychosocial adaptive system that employs a feedback cycle of input (stimuli), throughput (control processes), and output (behaviors or adaptive responses). Both individual and environment are sources of stimuli that require modification to promote adaptation. Individuals respond needs in one of four modes.

1. Physiologic mode

It involves the body's basic physiologic needs and ways of adapting in regard to fluid and electrolytes, activity and rest, circulation and oxygen, nutrition and elimination, protection, the senses, and neurological and endocrine function.

2. The self-concept mode

It refers to beliefs and feeling about oneself. This mode includes two components: the physical self, which involves sensation and body image, and the personal self, which involves self-ideal, self-consistency, and the moral-ethical self.

3. Role function mode

This mode will be determine by the need for social integrity and refers to the performance of duties based on given positions within society.

4. Interdependence mode

It involves one's relations with significant others and support systems that provide help, affection, and attention.

The present study will focus on assessing the effectiveness of topical anesthetic cream and cryotherapy reducing pain during intravenous cannulation. According to Roy's Adaption model the Physiologic mode provide ways to adapt to the senses like pain stimuli. In this study by the application of tropical anesthetic cream and cryotherapy the patient is helped to adapt to pain sensation during intravenous cannulation.

This model is focusing on four following areas,

- **Input**
- **Throughput**
- **Output**
- **Feedback**

- **Input**

The investigator was included the subjects as the patients as the patients who require intravenous cannulation in the medical wards of TEAM Hospital and BEWELL Hospital, Pudukkottai. The input is the characteristic of the patients such as age, gender, religion, marital status, educational status, occupation, monthly income, body mass index, size of cannula, previous exposure to cannulation.

❖ **Throughput**

Throughput is the intervention develop to help the patient adapt to the situation. In this study the throughput is the application of topical anesthetic cream for experimental group-I and cryotherapy application for experimental group-II before intravenous cannulation.

Topical anesthetic cream is applied 20 minutes before intravenous cannulation for the experimental group-I and cryotherapy application for 5minutes in experimental group-II.

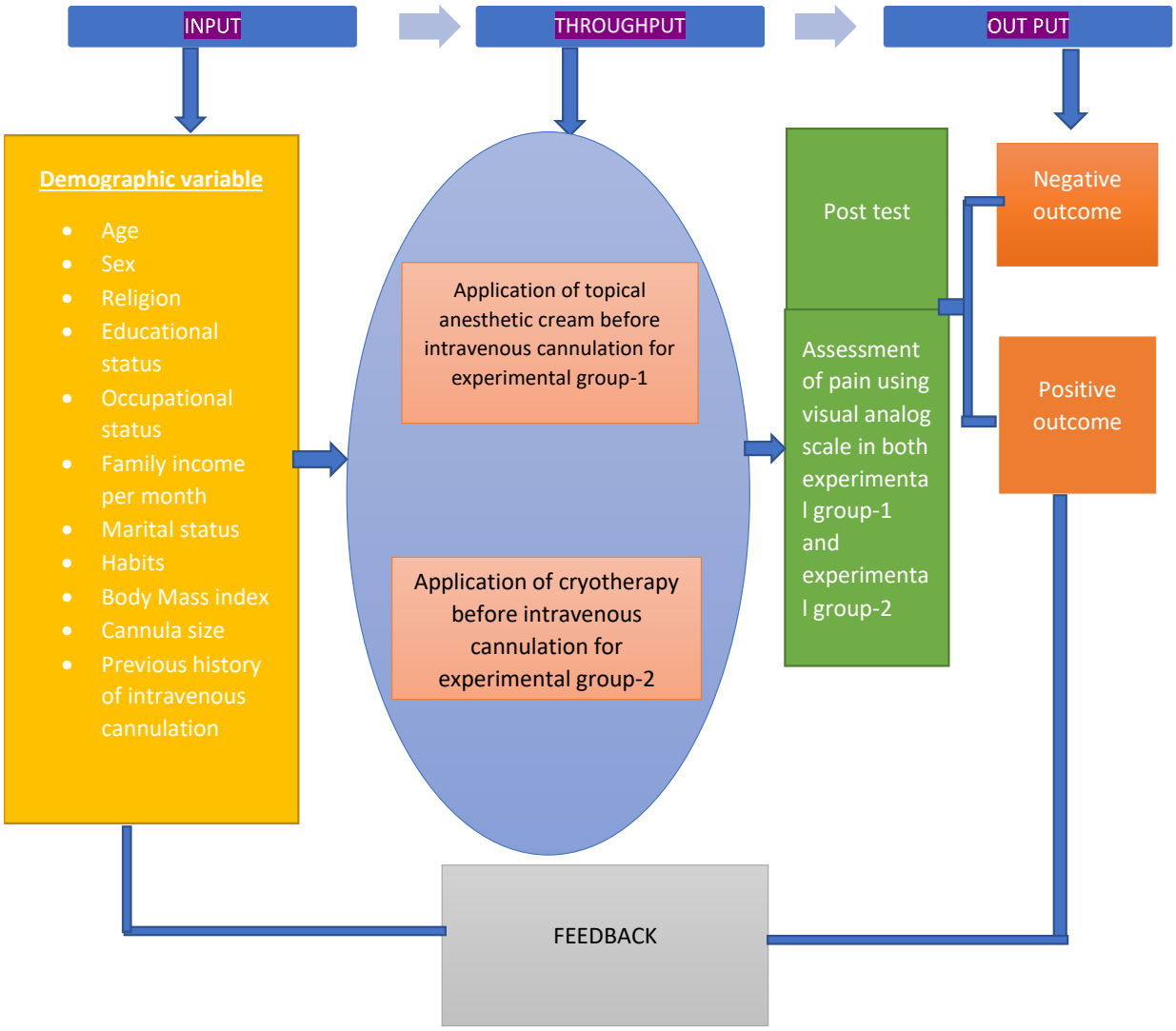
❖ **Output**

Output is the goal or expected outcome. The expected outcome was obtained by assessing the pain score using visual analog scale after intravenous cannulation. Differences in the post test level of pain scores were observed in both experimental-I and Experimental group-II. The positive outcome shows the topical anesthetic cream and cryotherapy application was effective in reducing the cannulation pain. But comparatively cryotherapy was more effective than the topical anesthetic cream application.

❖ **Feedback**

In this study the feedback was considered as the process of evaluating the effectiveness of cryotherapy was reducing the pain associated with intravenous cannulation.

CONCEPTUAL FRAMEWORK



CHAPTER-II

REVIEW OF LITERATURE

The review of literature is a key step in research process. It refers to an extensive, exhaustive and systematic examination of publications relevant to research project. A researcher analyses existing knowledge, before conducting a study, when interpreting the results of the study and when making judgment about application of a new knowledge in nursing practice.

Review of literature is essential for researcher to analysis the existing knowledge before going into new area of study. This will help to make a stepping in the progress of the study. An extensive review of literature was done by the investigator to gain insight into the selected problem. The reviews are organized and presented under the following headings.

- **Studies related to effect of topical anesthetic cream in reducing intravenous cannulation pain**
- **Studies related to effect of cryotherapy for reducing the intravenous cannulation pain**
- **Studies related to comparison of topical anesthetic cream and different type of cryotherpy for reducing Injection pain.**

1. STUDIES RELATED TO EFFECT OF TOPICAL ANESTHETIC CREAM IN REDUCING INTRAVENOUS CANNULATION PAIN.

Cicoline G,(2017) conducted study on 'liposomal lidocaine to improve procedural success rates and reduce procedural pain' to determine the success rate of cannulation, analgesic effectiveness, procedures duration and rate of adverse skin reactions when liposomal lidocaine is used before intravenous cannulation. In this double-blind randomized controlled trial, children received liposomal lidocaine or placebo before cannulation. The pain associated with intravenous cannulation, total duration of the procedure and adverse skin reaction were recorded. Lower pain scores during cannulation were reported by the children who received liposomal lidocaine for those received placebo. The incidence of transient dermal changes was 23% in both groups. The study concluded that use of liposomal lidocaine were associated with a higher intravenous cannulation success rate, less pain, shorter total procedure time and minor dermal change among children undergoing cannulation.

Nelson M (2019) ,Was study conducted to interpret the effectiveness of lidocaine 2.5% ointment in preventing pain when used before venous and arterial punctures in children undergoing a hemodialysis program for chronic renal failure. Eight children were included in this study. The pain level was identified by the patients using a linear analogue scale. When topical anesthetic and placebo were compared, there was no statistical difference in interpretation of pain during arterial ($P>0.4$), venous ($P>0.375$) or both ($P>0.4$) procedures. The study concluded that lidocaine 2.5% ointment is not effective in preventing pain in children undergoing long-term hemodialysis. In these patients some other factors like psychological factors, puncture technique and needle size must be taken into consideration for the prevention of pain.

Kheirkhah (2019),A study conducted to compare the pain of intravenous cannulation in patients after applying a topical lidocaine/tetracaine patch versus placebo. A randomized, double-blind, placebo-controlled trial in 45 patients aged 3 to 17 years who required elective intravenous cannulation in a

pediatric emergency department were eligible for enrollment. 22 samples were randomized to lidocaine/tetracaine patch and 23 to placebo patch, and IV cannulation was attempted in 40 of these patients. A commercially available topical lidocaine/tetracaine patch or an identical-looking placebo patch is placed over the antecubital or hand vein patients for whom an IV catheter was anticipated. The pain of cannulation was measured on a validated 100-mm visual analogue scale or Wong Baker scale. The median pain of IV cannulation in the active treatment group I was significantly lower than in the placebo group. The number of successful IV cannulations after the first attempt was similar in both the double-blind, placebo-controlled trial including 548 patients aged 5 to 17 years were enrolled. The samples received a 10-minute iontophoretic treatment with either lidocaine or a saline placebo before venipuncture. Intensity of pain associated with venipuncture was assessed using a 10-cm Visual Analog Scale and Facial Affective Scale. VAS pain scores were lower in adults who received iontophoresis with lidocaine rather than with placebo. Adverse events were similar between groups and included skin erythema and edema. The study concluded that the low dose lidocaine iontophoresis system provide effective topical anesthesia for venipuncture within 10 minutes.

Juan manuel navarro-rodriguez et al.in 2020were conducted study on pediatric emergency department to determine whether brief, focal pretreatment with low frequency ultrasound followed by a 5- minute application of a 4% lidocaine topical anesthetic decrease the pain of intravenous catheter placement. A randomized, double-blind, placebo-controlled trial enrolling children undergoing intravenous placement in a pediatric emergency department were selected. Thirty-eight children received pretreatment followed by 5-minute application ,,nof a topical anesthetic. Thirty nine children received prepayment followed by 5-minute application of a placebo cream. Children and parents rated the pain associated with intravenous placement using the visual analog scale. Children in the treatment group have significantly lower VAS scores than children in the control group. The study concluded that pain associated with intravenous cannulation is lower in those who were pretreated with a brief ultrasonic and 5 minutes of 4% lidocaine cream with those pretreated with ultrasound and placebo.

Kevin B Laupland(2021) A study conduct to investigate the efficacy of different doses of lidocaine in the prevention of pain due to propofol injection at the department of anesthesiology in this randomized open -label study ,120 patients aged 18-60 years undergoing varies types of surgery where entrolled. Patients where randomized to 1 to 4 treatment groups:I received propofol administration.group:II a combination of propofol plus lidocaine 10 mg ;group:3,lidocaine 10mg 30 sec before propofol administration;and group IV,lidocaine I mg / kg 30 sec before propofol administration . The patient were asked to rate their pain according to the following scale:0=none ,1= mild ,2=moderate ,3=severe .the incident of injection pain in groups 2 and 4 was significantly lower than that in groups 1 and 3 .the incidents of pain in group 2 was significantly lower than that in group 4.in the study population ,the addition of 10 mg of lidocaine to propofol 2mg /kg, are the administration of 1 mg /kg ,effectively decreased pain caused by propofol injection

2. STUDIES RELATED TO EFFECT OF CRYOTHERAPY IN REDUCING INTRAVENOUS CANNULATION PAIN

Farhadi.et.al.(2017) Conducted a quasi experimental study in iran to evaluate the effect of local cold therapy on reducing pain during intravenous cannulation in hospitalized patients. A total of 80 patients were divided into experimental and control groups. The experimental group received cold application using an ice pack for 3 minutes before cannulation while the control group underwent the routine procedure.pain intensity was measured using the visual analog scale (VAS) . the result showed a significant reduction in pain scores in the cryotherapy group ($p<0.001$), including that local cold application is effective in reducing pain during intravenous cannulation.

Alavi Rahimi et al(2018)conducted quasi experimental study to assess the effect if ice massage on venipuncture pain in children. A total of 60 children aged 6-12 years were randomly assigned to experimental and control groups. The experimental group received a two minutes ice massage at the venipuncture site before the procedure, and pain was measured using the Wong-Baker Faces in rating scale . Results indicated that children in the ice massage group reported significantly lower pain score

compared to the control group($p<0.001$), demonstrating that cryotherapy is an effective low cost intervention for pediatric management during invasive procedure.

Bahrami et al.(2018) assessed the impact of cryotherapy on the severity of pain during arteriovenous fistula puncture in hemodialysis patients. In this randomized clinical trail ,60 patients were divided into two groups.one group received ice massage for 5 minutes before needle insertion. Pain score were significantly lower in the cryotherapy group compared to control group ($P<0.001$). The study concluded that ice massage is a simple ,low cast ,and non- invasive method to reduce vascular access related pain in hemodialysis patients.

Abdullah et al. (2019) studied the effect of cryotherapy using an ice pack on intravenous cannulation pain among pediatric patient in a tertiary care hospital. the randomized controlled study included 100 children aged 6-12 years, divided into intervention and control groups. The intervention group received a 2- minutes ice pack application at the insertion site . pain was measured by using Wong-baker faces pain rating scale. The finding revealed a statistically significant reduction in pain scores in the cryotherapy group ($p<0.001$), suggesting that cryotherapy is effective in pediatric pain management.

Sulaiman et al.(2020) conducted a study to examine the effectiveness of cold application in reducing vein puncture pain in oncology patient .the study involved 90 patient undergoing chemotherapy .ice was applied over the cannulation site for 2 minutes prior to intravenous cannulation .Pain was assessed using the numerical rating scale (NRS). The mean pain score was significantly lower in the cryotherapy group (mean=5.7 +-0.9)with $p<0.001$.The authors concluded that cryotherapy is a practical method to manage pain during vein puncture.

Patidar et al.(2021) Evaluated the effect of ice pack application on intravenous cannulation pain among adult surgical patient .the quasi-experimental study was conducted on 120 Patients divided into two groups .the experimental group received a 3 minutes ice pack application at the insertion site .Pain scores were measured using visual analog scale .results indicated a significant reduction in pain

scores among the cryotherapy group($p<0.001$). The study recommended routine use of cryotherapy as a non-pharmacological pain relief method during intravenous cannulation.

3.STUDIES RELATED TO COMPARISON OF TOPICAL ANESTHETIC CREAM AND DIFFERENT TYPE OF CRYOTHERPY FOR REDUCING INJECTION PAIN.

George,A.,Thomas .R,& Mathew.J.(2018) conducted a comparative experimental study in kerala,India,to assess the effectiveness topical anesthetic cream (EMLA)and cryotherapy in reducing pain during intravenous cannulation among adult surgical patients. A total of 90 patients scheduled for elective surgery were selected through purposive sampling and randomly assigned in three equal groups:EMLA cream application, cryotherapy,(ice application)and control group.In the EMLA group-2.5% lidocaine and 2.5% prilocaine cream was applied over the venipuncture site 45 minutes before cannulation. In the cryotherapy group, an ice pack wrapped in sterile gauze was applied for three minutes immediately before cannulation .The control group received routine cannulation without intervention. Pain intensity was measured using the visual analogue scale (VAS) .The mean VAS score were lowest in the EMLA group(2.8+-1.1),followed by the cryotherapy group(3.6+-1.2),with the control group reporting the highest pain score (6.2+-1.3).Statistical analysis (ANOVA with post -hoc test) indicated that both EMLA and cryotherapy significantly reduced pain compared to the control ($p<0.001$),and EMLA was significantly more effective than cryotherapy ($p<0.05$).The authors concluded that both intervention are safe,cost effective and clinically feasible, recommending EMLA when preparation time is available and cryotherapy when rapid method is required in busy situation.

Ziba ghoreysh, monireh amerian (2018) the study aimed to investigate and comparative the effects of Xyla -P cream and cold compress on the pain caused by the insertion of a needle into the arteriovenous fistula (AVF) in hemodialysis (HD) patients. This clinical trial was conducted on HD patients who where selected using simple random sampling method . using a visual analog scale , pain intensity was measured during tow HD sessions in three stages including after the applications

of a placebo , after applications of Xyla-P cream, and after the application of cold compress. the collected data were analyzed using descriptive statistics and repeated measures analysis of variance. Our results showed that there was statistically significant difference between the pain scores of the control group an Xyla-P cream (P<0.001) and cold compress (p<0.001)compared to the placebo, with xyla-p cream being more effective overall .

Samaneh ,mostafa javadi (2018) investigated the effect of lidocaine spray, EMLA cream, and icepack on arteriovenous fistula cannulation pain in hemodialysis patient .the quasi-experimental study was conducted on 40 patient at shahid Rahnemoon hospital, Yazd .Pain intensity was measured in four stages using a numerical rating scale :before intervention ,and after intervention application of lidocaine spray EMLA cream ,and ice pack . result showed significant pain reduction with interventions (p<0.001) with EMLA cream demonstrating the greatest effect (mean pain score:2.80+_0.70) followed by lidocaine spray and ice pack. The study recommended all three method as effective strategies to reduce cannulation pain.

Disha bansal,Mrinalini Mahajan,shivam Mathur(2020) conducted a clinical trail comparing ice and topical anesthetic gel in reducing pain before local anesthetic injection in dental procedure .The study included 100 healthy patient aged 17-30 years undergoing endodontic treatment of the anterior maxillary teeth .patient were divided into two group :group-1 received ice pretreatment at the injection site , and group-2 received topical anesthetic gel .Pain perception was measured using the visual analogue scale (VAS). Result showed that group 1 (ice) had significantly lower mean VAS score compared to group 2 (anesthetic gel),indicating that ice pretreatment was more effective and efficient method for pain reduction before injections.

Sharma et al.(2020) conducted a randomized controlled trail in a tertiary care hospital in north india to compare the analgesic efficacy of topical anesthetic cream (EMLA)and vapocoolant spray (cold spray)during intravenous cannulation among 120 adult patients. Participants were randomly allotted into two groups :group-I EMLA cream ,a eutectic mixture of 2.5% lidocaine and 2.5% prilocaine

applied over the cannulation site under occlusion 45 minutes prior to the procedure ;Group-II cold spray consisting of ethyl chloride vapocoolant applied for 5 second at a distance of 10 cm from the skin immediately before cannulation .pain was assessed using the Visual Analogue Scale (VAS).The mean pain score in the EMLA group was 2.9+-1.0 while the cold spray group recorded a slightly higher mean score 3.4+- 1.2.both interventions demonstrated significant pain reduction compared to baseline and historical control values($p<0.001$).The difference between EMLA and cold spray was statistically significant ($p=0.02$)favoring EMLA. However ,cold spray offered the advantage of immediate onset and was rated as more convenient by nursing staff in time-restricted settings.

Lakshmi Lakshmanan, Vignesh Ravindran (2021) compared ,the efficacy of cryotherapy and 20% benzocaine gel in reducing pain during buccal infiltration in pediatric dental patients. In this split-mouth study ,30 children aged 7 to 11years who required bilateral maxillary buccal infiltration were applied for 2 minutes on one side (test group),while 20% benzocaine gel was applied on the contralateral side (control group).pain was assessed using Sound -Eye -Motor(SEM)scale(objective)and the visual analogue scale (VAS) (subjective).Statistically analysis using Wilcoxon and Mann-Whitney U test showed significantly lower pain scores in the cryotherapy group for both scales, concluding that cryotherapy was more effective than topical gel in reducing pain before local anesthesia in children.

Samans and Javadi (2018) carried out a quasi experimental, crossover study to compare the effectiveness of lidocaine spray,EMLA cream and cryotherapy (ice pack) in reducing pain during arteriovenous fistula cannulation among patients undergoing maintenance hemodialysis. A purposive sample of 40 patient was recruited from a dialysis unit across different dialysis section which allowed direct within subject comparision. For the ice pack group a cold pack was applied over the cannulation site for 3 minutes before cannulation. The lidocaine spray group received 10% lidocaine spray applied 5 minutes prior to needle puncture. Pain intensity was measured using the numerical rating scale immediately after the cannulation. The findings demonstrated that all three interventions were effective in reducing pain compared to standard care with significant difference observed between

intervention ($p<0.001$). the mean pain score were lowest in the EMLA group(2.8±0.7) followed by lidocaine spray (3.4±0.9) and cryotherapy (4.2±1.1) although cryotherapy was beneficial EMLA cream provided the greatest analgesics effect. The study concluded that both topical anesthetic cream and cryotherapy are effective non-pharmacological strategies for vascular access related pain relief ,however due to low cost ease of application and rapid onset cryotherapy EMLA is not feasible because of its longer application time and higher cost.

Pooya saeedi et al int j peadiatric (2024) systematic review and meta analysis the effectiveness of cryotherapy and cooled topical anesthesia compared with conventional in alleviating intra oral injection pain .inclusion criteria involved randomized clinical trails aligned with the PICO question .study selection ,data extraction and the risk of bias assessment using the ROB-2 tool were performed.The results were synthesized through a random effects inverse varions meta-analysis.the primary outcomes assessed were the visual analogue (VAS) and sound eye motor(SEM) .sub group analysis was conducted for childrens and adults.In the meta -analysis 31 RCTs involving 2470 subjects were included.27 studied demonstrated cryotherapy's significant superiority over topical anesthesia in reducing injection pain via VAS in adult($P=0.01$) Children($P=0.01$) and combined age group ($P<0.001$) Additionally,cryotherapy significantly out performed topical anesthesia in reducing pain via SEM in children($P=0.04$) and combined age groups($P=0.03$) across 13 studies ,with no significant difference in adults($P=0.51$) further more,cooled topical anesthesia also out performed room temperature topical anesthesia ($P<0.001$) .the certainity of the results ,however is of very low quality ,our results indicate that significantly reduce injection pain compared with topical anesthesia ,especially in childrens and combined age groups but less effective in adults. additionaly cooled topical anesthesia is more effective than room temperature topical anesthesia. thus cryotherapy is a potentially superior alternative to topical anesthesia ,particularly for children.

CHAPTER-III

MATERIALS AND METHODS

Research methodology is the conceptual format within which is conducted .it is a blueprint for collection, measurement and analysis of data. in research methodology researcher specify which specific design to be taken and how the samples were chosen.

Research methodology is a systematic way to solve the research problem and also to carry out the curriculum study and research in a perfect manner.

The current study was conducted to compare the effectiveness of topical anesthetic cream application and cryotherapy on pain experiencing among patient undergoing intra venous cannulation in selected hospitals.

This describes aspect like research approach, research design, research variable, setting, population, sample, sampling technique, criteria for sampling selection, development and description of instruments, description of intervention tool, ethical consideration, pilot study, data collection procedure and procedure and plan for data analysis.

3.1 RESEARCH APPROACH

The research approach is the most essential part of any research . The entire study based on it. The research approach used in the study is an applied form of research to find out how well the intervention is effective. In this study, the effectiveness of topical anesthetic cream application and cryotherapy on pain experiencing among patient undergoing intravenous cannulation was evaluated. Therefore, a quantitative evaluation research approach was essential to test the effectiveness of the intervention for this study.

3.2 RESEARCH DESIGN

It is the whole plan of addressing a research question, including specifications for enhancing the integrity of the study.

The design used for the present study was quasi experimental research design with non-equivalent control groups was selected to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experiencing among patient undergoing intravenous cannulation .

The design used here is non-equivalent control group design for experimental group-I and experimental group-II

Diagrammatic presentation of the design is depicted in

Table-3.1

Group	Intervention	Post- test
Experimental group-I	X1	O1
Experimental group-II	X2	O1

X 1 - Application of topical anesthetic cream

X2 - Application of cryotherapy

01 - Post assessment pain score in experimental group-I and experimental group-II

3.3 SETTINGS OF THE STUDY

Research settings are specific place in are search where data collection is to be done. The selection of settings was done on the basis of feasibility of conducting the study availability of subject and permission authorities.

The settings of the study was conducted in medical ward at TEAM Hospital, Pudukkottai and BEWELL hospital, Pudukkottai

3.4 VARIABLE FOR THE STUDY

Variables are determining the character that have more than one value. The categories of variable discussed in the present study was,

3.4.1 Independent variable

1) topical anesthetic cream

2) cryotherapy

3.4.2 Dependent variable

Pain experience in undergoing for intravenous cannulation patients

3.4.3 Demographic variables:

It consist of demographic characteristics of adult patient, Age, Sex, Education, occupation , marital status, religion, monthly income, BMI, Previous history of intravenous cannulation, size of the cannula.

3.5 POPULATION

Population is the entire universe of the individuals, object and events potentially available for the research study. The study population consist of patient receiving intravenous cannulation in medical ward at TEAM Specialty hospital, Pudukkottai & BEWELL hospital at Pudukkottai

3.5.1 Target population

The target population ,the investigator had chosen for the present study to make generalization . the target population for the study was the patient undergoing for intravenous cannulation.

3.5.2 Accessible population

Refers to the aggregate of subject with whom the designated criteria are conformed and accessible population was patient undergoing intravenous cannulation who were admitted in TEAM and BEWELL specialty hospital, Pudukkottai.

3.6 SAMPLE AND SAMPLE SIZE

A sample is the basic element of the population about whom the information was collected, to represent the concept of interest. Patient undergoing intravenous cannulation were selected from these 2 hospitals, which fulfill the inclusion criteria were selected as the sample of the study.

3.6.1 SAMPLE SIZE

Each group from Experimental group-I and experimental group -II contain 30 samples. Totally 60 samples needed for this study.

3.7 SAMPLING TECHNIQUE

Non-probability purposive sampling technique was adopted for the study.

3.8 CRITERIA FOR THE SELECTION OF SAMPLE

3.8.1 Inclusive criteria

Adult subject who are,

- Between the age group of 20 to 60 years , both male and female receiving intravenous cannulations.
- Capable of adequate response to pain.
- Available during the study period
- Willing to participate the study
- Patient with known case of allergy to topical anesthetic cream or cryotherapy

3.8.2 Exclusive criteria

Subject who are,

- Unconscious patient
- critically ill patient
- Getting any other type of oral analgesics
- Burns patients above 30%
- Patient with history of chronic pain or pain disorder
- Pregnant and feeding women

3.9 DATA COLLECTION INSTRUMENTS

A. DEVELOPEMENT OF THE TOOL

The investigator used the following steps for preparation of the tools for study

- Extensive review of literature
- Preparation of the blueprint for the study
- Preparation of the final draft of the tools
- Editing of the tools
- **Review of literature**

  The investigator did an extensive review of literature from books, journals, manuals and internet to develop study instrument.

- **Preparation of blueprint**

  The blueprint included questionnaire to collect demographic data and clinical data.

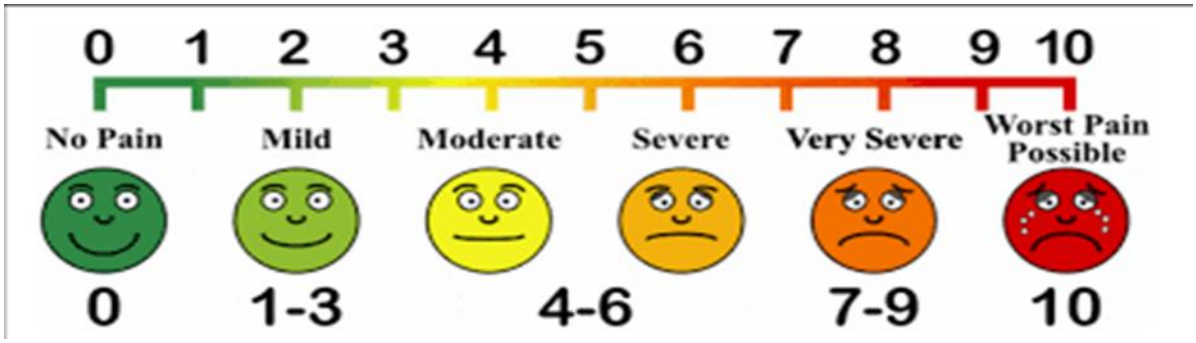
- **Consultation with experts from the field of study**

The tool were sent to panel experts comprising from the field of Medical surgical nursing, Anesthetist, General medicine consultant

B. DESCRIPTION OF THE TOOL

Section-A: Demographic variable (Age, sex, education, occupation, monthly income, religion, marital status, habits, BMI, cannula size, previous history of intravenous cannulation.

Section-B: Visual Analogue Scale (VAS)



The obtained score is categorized as follow:

KEY SCORING

No pain: 0–4 mm

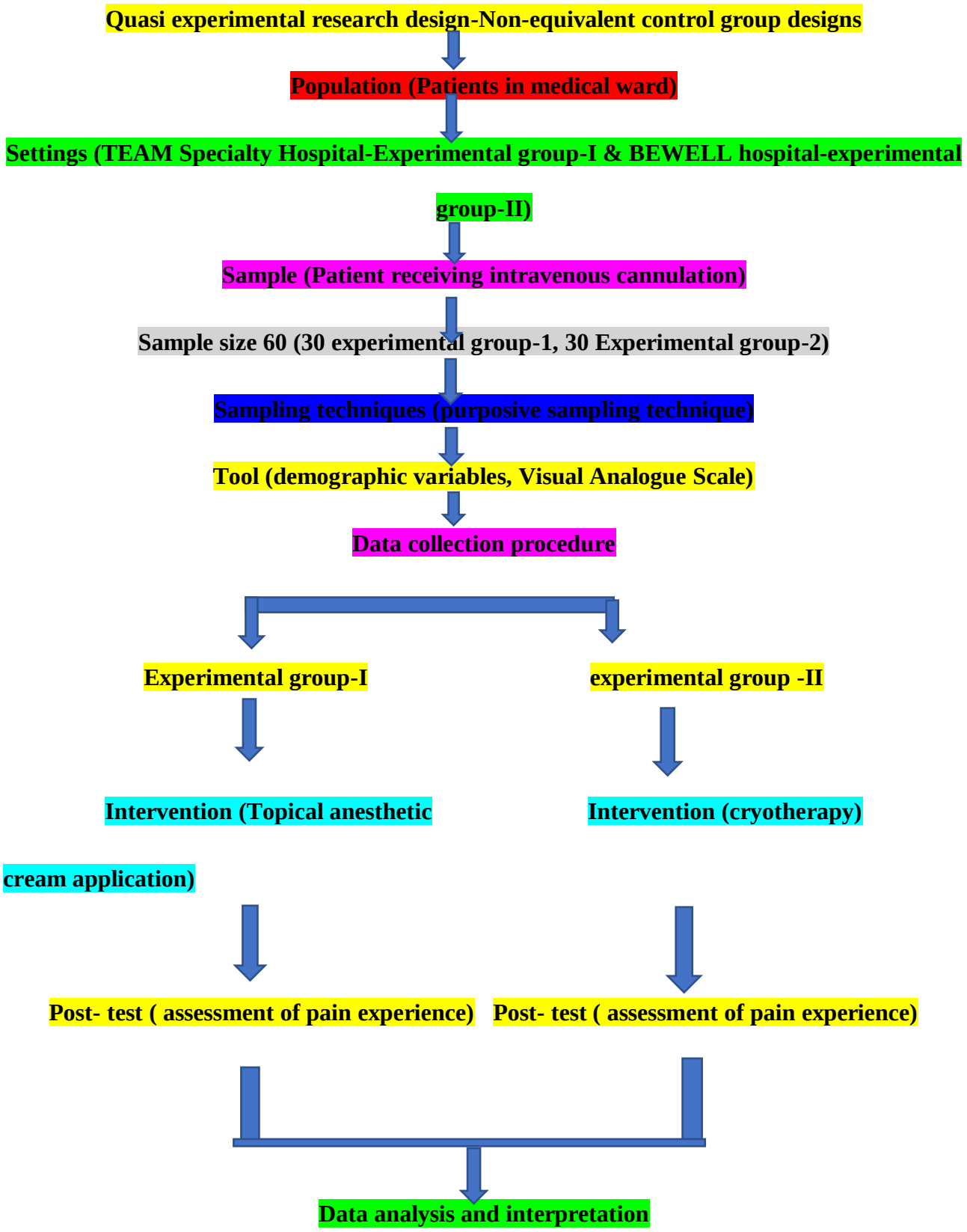
Mild pain: 5–44 mm

Moderate pain: 45–74 mm

Severe pain: 75–100 mm

The Visual Analogue Scale (VAS) is a psychometric instrument widely used for measuring the intensity of pain as perceived by the patient. It is a simple, valid and reliable tool for assessing subjective pain experience in both clinical practice and research. The VAS consists of a 10 cm horizontal line marked from 0-10 (or 0-100 mm) with the left end representing “no pain” and the right end representing worst pain possible. The patient is asked to indicate their pain intensity by marking a point on the line the best corresponds to the pain experienced during intravenous cannulation. The score measured in centimetres or millimetres from the “no pain” anchor to the point marked by the patient.

DIAGRAMATIC PRESENTATION OF RESEARCH DESIGN



3.11 ETHICAL CONSIDERATION

The study was conducted after the approval of the institutional ethics committee and Head of department , institute of internal medicine, TEAM Specialty Hospital and BEWELL hospital, Pudukkottai . Informed consent will be obtain from each study participant after giving full information about the study . Anonymity was assured to each participant and maintain by the researcher.

3.12. CONTENT VALIDITY

Content validity is the degree to which the items in the instrument adequately represent the content for the concept being measured. The content validity of the demographic variables ,visual analog scale was validated by the panel experts comprising from the field of medical surgical nursing ,anesthetist. the tool was established on the basis of opinion from the experts, medical experts, anesthetist, nursing experts and statistician the tool was finalize.

3.13 RELIABILITY

Reliability is the degree of consistency and stability with a research instrument measures the intended variable. A reliable tool ensures that repeated measurement under similar conditions yield comparable results, minimizing errors caused by chance factors. In this study reliability was established by conducting a pilot test and applying the inter-rater method karl pearson correltion and coefficient r value-0.89 confirmed the tool's accuracy in consistently measuring pain experience during intravenous cannulation.

3.13. PILOT STUDY

With formal permission from the Head of the department and content validity from the experts, The study was conducted in medical ward for 5Days at Meenakshi hospital, Illupur.by using purposive sampling technique 3 samples with intravenous cannulation were selected, for the experimental group-I, topical anesthetic cream application for giving intravenous cannulation and Mahizan hospital

Viralimalai for experimental group-II cryotherapy was given. Post assessment was done using Visual Analogue Scale. The study was showed the feasibility to conduct the proposed study as planned.

3.15. DATA COLLECTION PROCEDURE

The study was conducted with the permission of head of the department and the institutional ethical committee and hospital authorities of TEAM hospital and Be well hospital Pudukkottai. The investigator prepared the necessary materials including informed consent forms, Visual Analogue Scale (VAS), data collection proforma for demographic details and intervention kits. Fulfilling the inclusion and exclusion were identified through purposive sampling technique. Patient Inclusion criteria was followed for sample selection. information about the study each selected sample with understandable language was given to the subjects and informed consent was obtained in the prescribed form. The investigator was assured confidentiality 30 subjects was selected form the TEAM hospital by purposive sampling technique was using to select the subject from the sample frame experimental group-I and 30 subjects was selected form the Be Well hospital by purposive sampling technique was using to select the subject from the sample frame experimental group-II. Data was collected from the subjects. Lidocaine 4% topical anesthetic cream 0.5gm application was applied for before 20 minutes giving intravenous cannulation site for experimental group-I, and an icepack wrapped in sterile gauze application over the cannulation site for before 5minutes in intravenous cannulation in experimental group-II, The size of the cannula was selected based on the physician order and patient vein condition. The cannulation was carried out by qualified staff nurse under aseptic technique. Immediately after cannulation post assessment was carried out for the both experimental group-I and experimental group-II using Visual Analogue Scale to evaluate the effectiveness of intervention. Scores were recorded in the data collection sheet for both groups. Participants were observed for any adverse reaction (skin irritation, discomfort) after the intervention. Data collection was completed over a period of 4-6 weeks until the required sample size was achived.

3.16.PLAN FOR DATA ANALYSIS

The data was plan to be analysis in the terms of objectives of the study using descriptive and inferential statistics.

Descriptive statistics

- Frequency and percentage distribution to analysis the demographic data.
- Mean and standard deviation to assess the scores

Inferential statistics

- Unpaired ‘t’ test for comparison of experimental group-I and experimental group-II
- Chi square to find the association between experimental group-I and experimental group-II with their selected demographic variable.
- The data analysis and interpretation of the results are given in the following chapter.

3.17. PROJECT OUTCOME

The study findings will helpful for the health professional to elicit,

- The level of pain experience was less while giving intravenous cannulation
- The level of comfort was more while giving intravenous cannulation
- Provide evidenced based comparison between topical anesthetic cream and cryotherapy for reducing intravenous cannulation pain.
- It enhance the knowledge and skills of nurses in applying non-pharmacological and pharmacological pain relief methods.
- The study highlights the importance of patient centered care by reducing fear, anxiety and stress during invasive procedures.

- ❖ The findings will help the nurse to adopt cost effective, safe and practical intervention to improve patient comfort during intravenous cannulation.
- ❖ The results can contribute to develop hospital protocols and guidelines for pain management in routine intravenous cannulations.
- ❖ By demonstrating effectiveness of cryotherapy, the study supports the use of low cost, easily available interventions in resources limited settings.

The practice was make the painful intravenous cannulation procedure to least possible extent.

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of data collected from the patient undergoing intravenous cannulation, to evaluate and effectiveness of topical anesthetic cream application and cryotherapy to pain experiencing among intravenous cannulation at hospitals, Pudukkottai\.The collected data was tabulated organized and analysed by using descriptive and inferential statistical analysis are presented under the following section.

SECTION-I

Frequency and percentage distribution of patient according to their demographical variable in experimental group-I and experimental group-II

SECTION-II

Frequency and percentage distribution of pain experience regarding patient among Experimental group-I with topical anesthetic cream application

SECTION-III

Frequency and percentage distribution of pain experience regarding patient among experimental group-II with cryotherapy

SECTION-IV

Comparison of post test level of pain experiencing regarding patient among experimental group-I and experimental group-II

SECTION-V

Association between post test level of pain experiencing on patient with their selected demographic variable in Experimental group-I and Experimental group-II

SECTION-I

Frequency and percentage distribution of patient according to their demographical variable in experimental group-I and experimental group-II

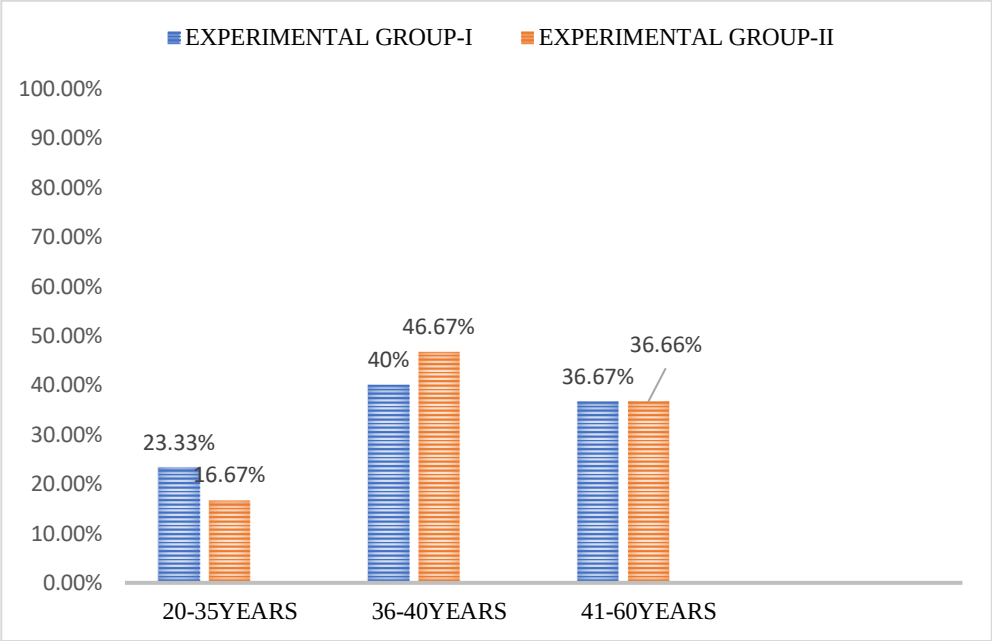
Demographic variables		Group			
		Experimental group-I		Experimental Group-II	
		No. of adults	%	No. of adults	%
Age	20-35years	07	23.33%	05	16.67%
	36-40 years	12	40.00%	14	46.67%
	41-60 years	11	36.67%	11	36.67%
Sex	male	13	43.33%	12	40%
	female	17	56.67%	18	60%
	transgender	-	-	-	-
Religion	Hindu	20	66.67%	12	40%
	Christian	03	10.00%	12	40%
	Muslim	07	23.33%	6	20%
	Others	00	-	-	-
Education	Illiterate	05	16.67%	10	33.33%
	Primary	08	26.66%	08	26.67%
	Higher secondary education	06	20%	07	23.33%
	Graduate	11	36.67%	05	16.67%

Occupation	unemployed	08	26.67%	5	16.67%
	Private	07	23.33%	7	23.33%
	government	08	26.67%	8	26.67%
	Daily wages	07	23.33%	10	33.33%
Marital status	Married	22	73.33%	21	70%
	unmarried	04	13.33%	6	20%
	widows	03	10%	3	10%
	divorced	01	3.33%	-	-
Monthly income	Below 10000	10	33.33%	4	13.33%
	10001-30000	12	40%	12	40%
	30001-50000	05	16.66%	9	30%
	Above 50000	03	10%	5	16.67%
Habits	smoking	03	10%	6	20%
	alcohol	04	13.33%	2	6.67%
	Both	03	10%	2	6.67%
	none	20	66.67%	20	66.66%
BMI	Under weight	04	13.33%	12	40%
	Normal weight	12	40%	8	26.67%
	Over weight	08	26.67%	6	20%
	obesity	06	20%	4	13.33%

Demographic variables		Group			
		Experimental group-I		Experimental Group-II	
		No.of adults	%	No.of adults	%
Cannula size	16	-	-	6	20%
	18	27	90%	20	66.67%
	20	03	10%	4	13.33%
	22	-	-	-	-
Previous history of intravenous cannulation	Yes	26	86.67%	27	90%
	No	04	13.33%	3	10%

FIGURE:4.1- DISTRIBUTION OF PATIENT ACCORDING TO AGE IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II

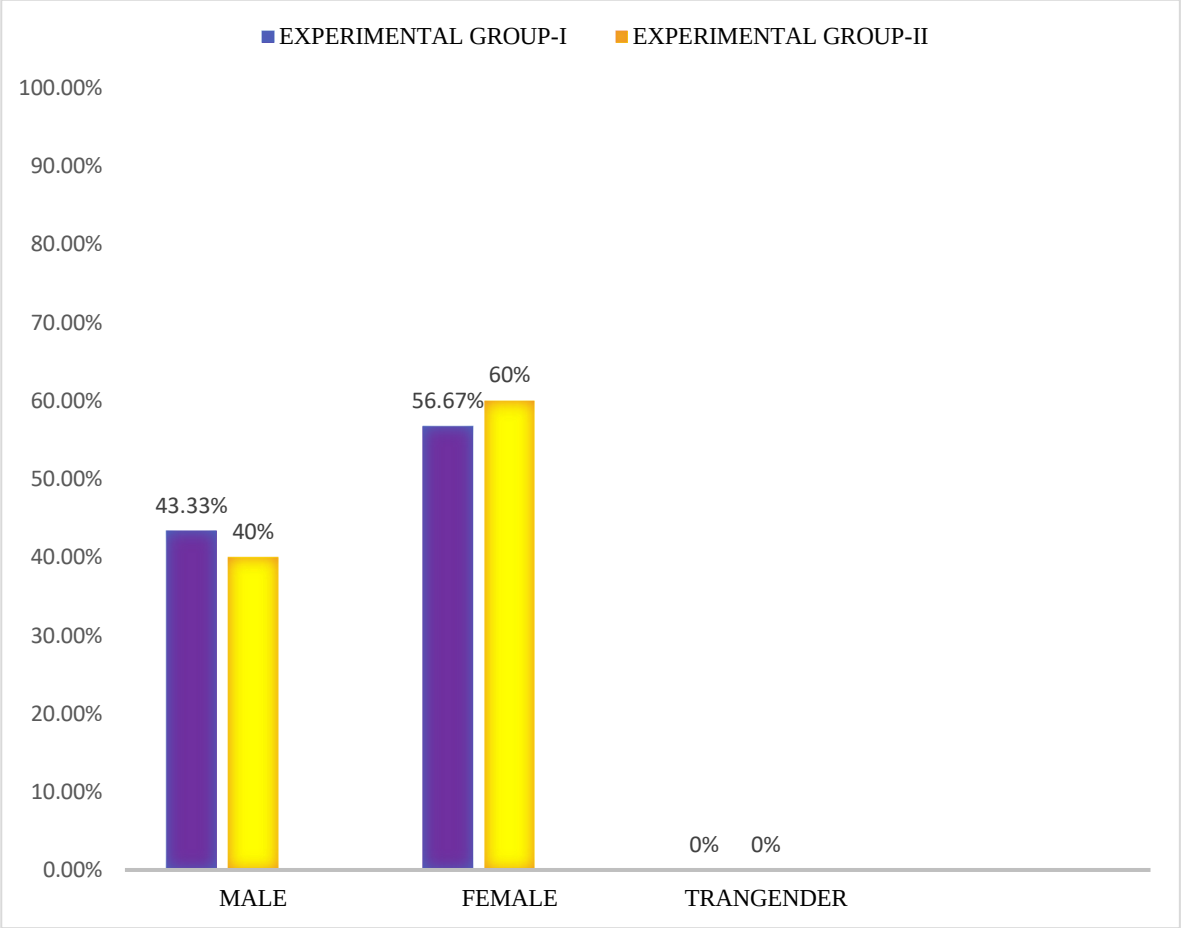
Age distribution



The above figure shoes the majority 12 (40%) of patient were in age group 36-40 years in experimental group-I and in experimental group-II majority is 14 (46.67%) of patient were between the age group 36-40 years.

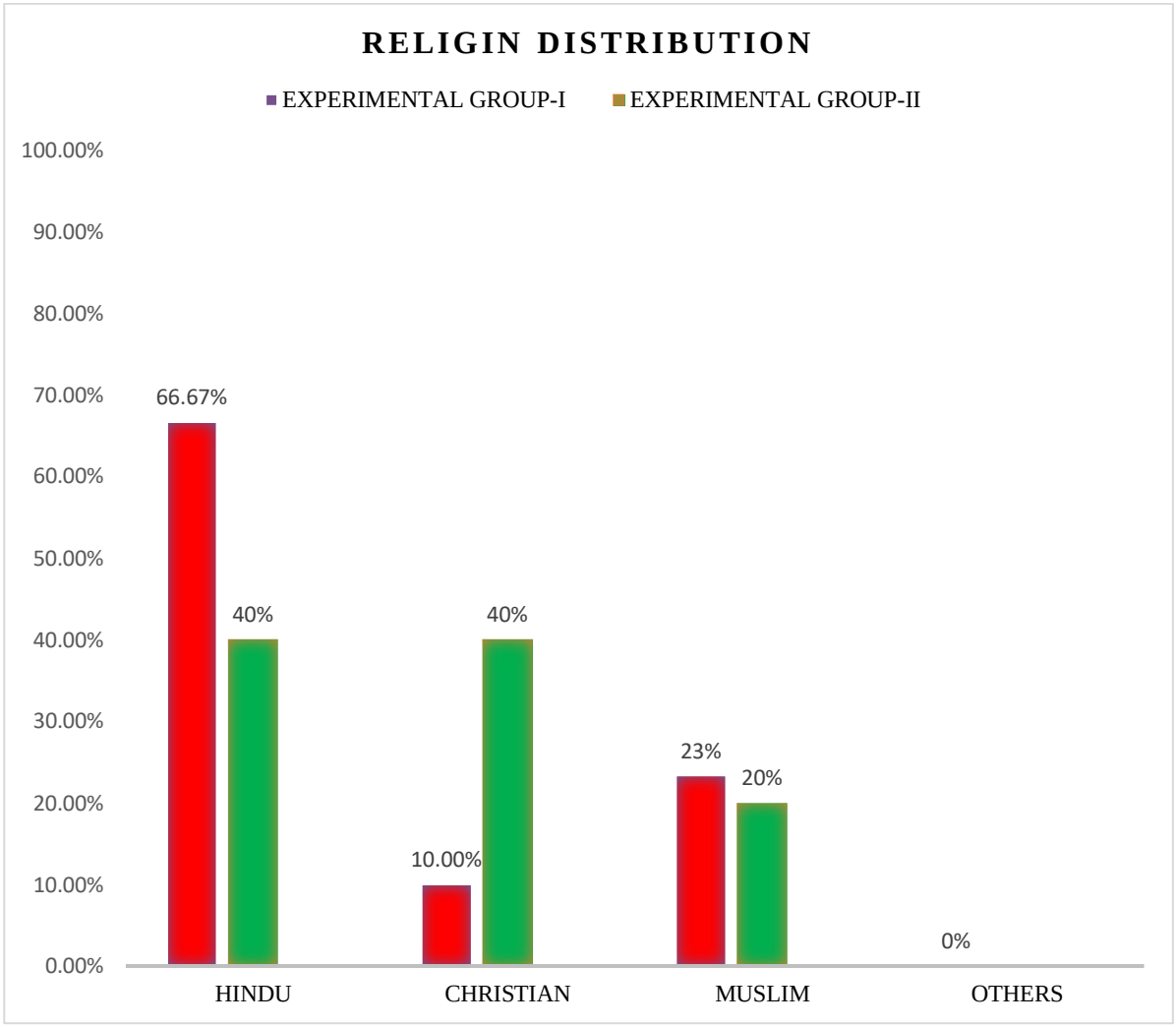
FIGURE:4.2-DISTRIBUTION OF PATIENT ACCORDING TO SEX IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II

Sex distribution



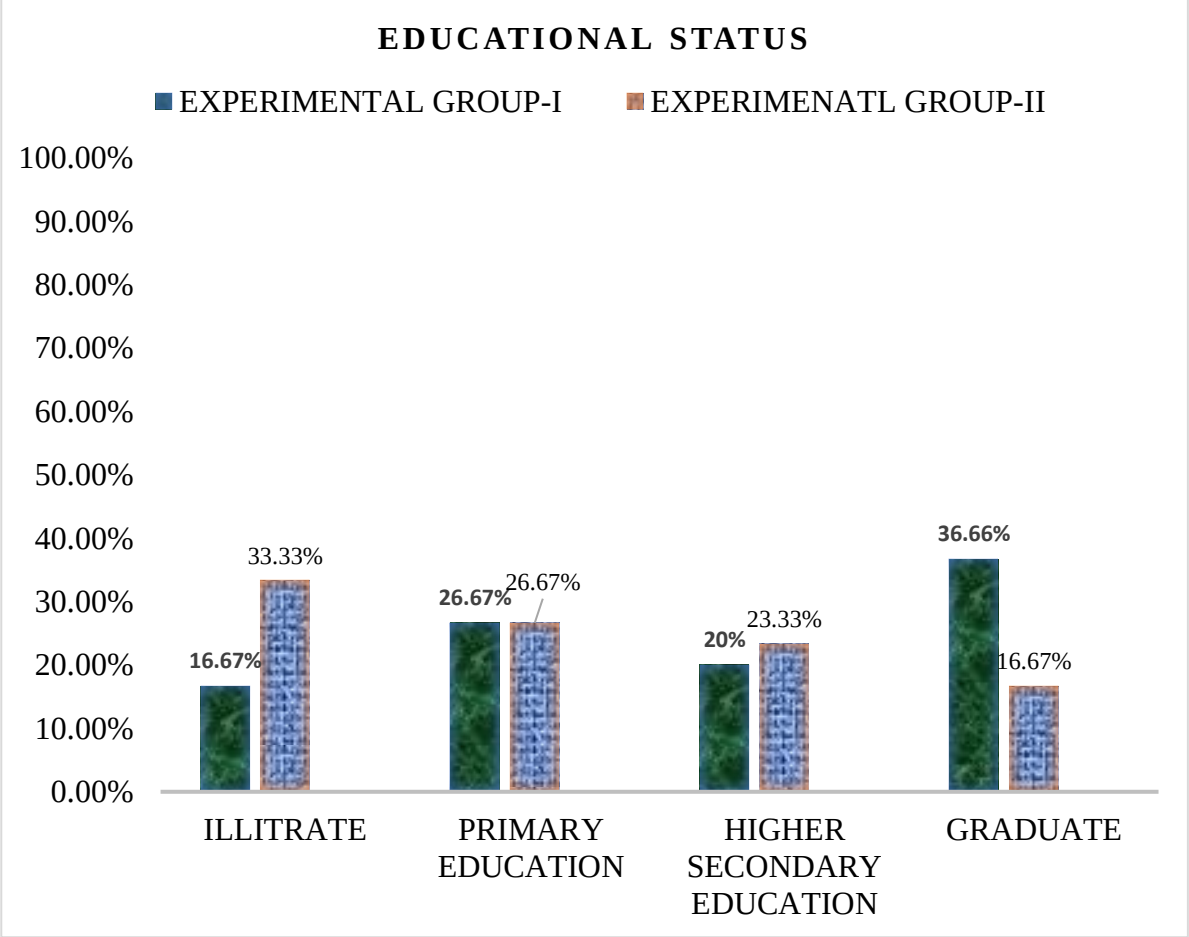
The above figure shows, that in experimental group-I majority 17(56.67%) of patient of female gender, and in experimental group-II majority 18 (60%) of patient of female gender.

FIGURE:4.3-DISTRIBUTION OF PATIENT ACCORDING TO RELIGION IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II



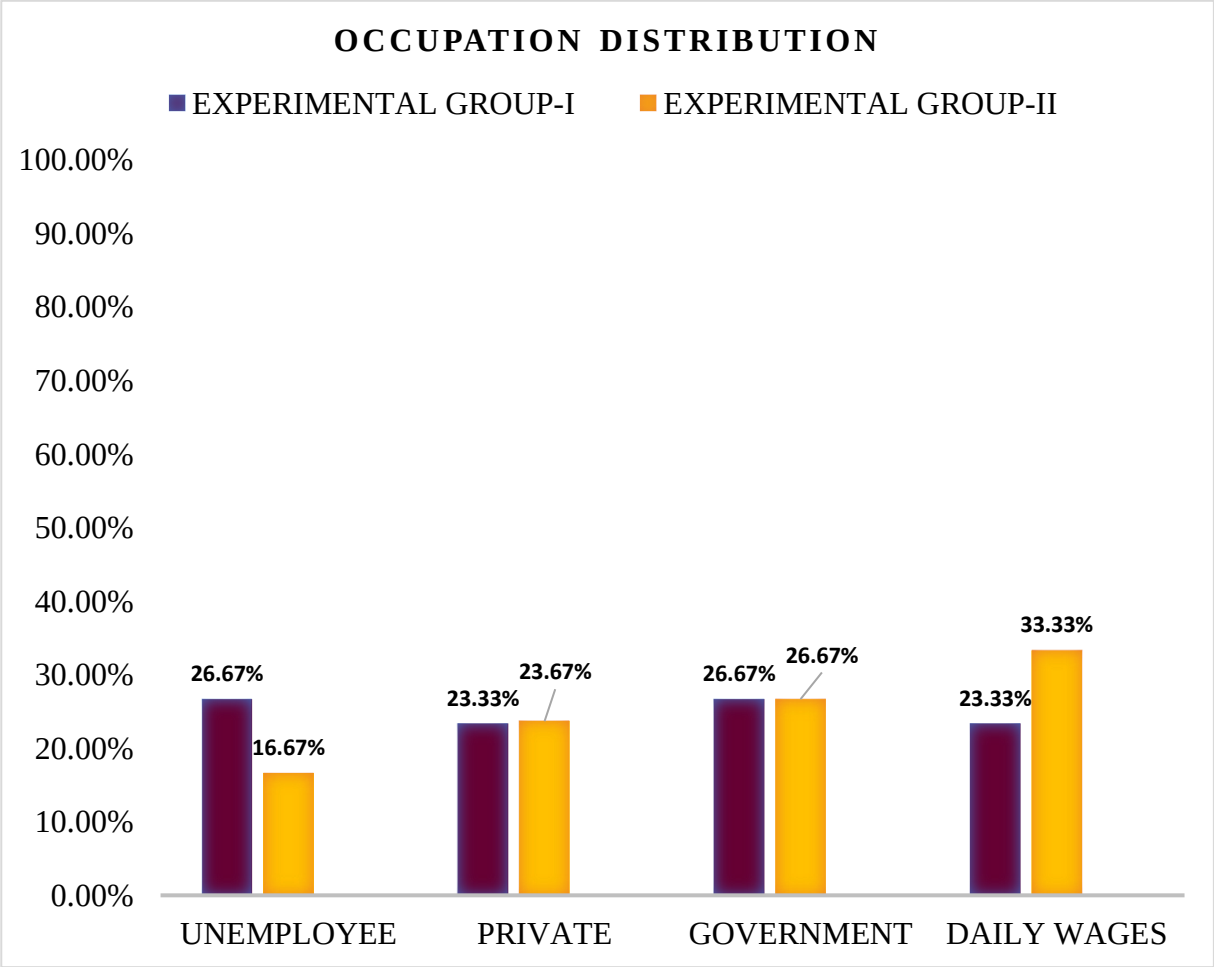
The above figure shows, that in experimental group-I majority 20(66.67%) of patient of Hindu, and in experimental group-II majority 12 (40%) from Hindu and 12(40%)of patient of Christian religion.

FIGURE:4.4-DISTRIBUTION OF PATIENT ACCORDING TO EDUCATIONAL STATUS IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II



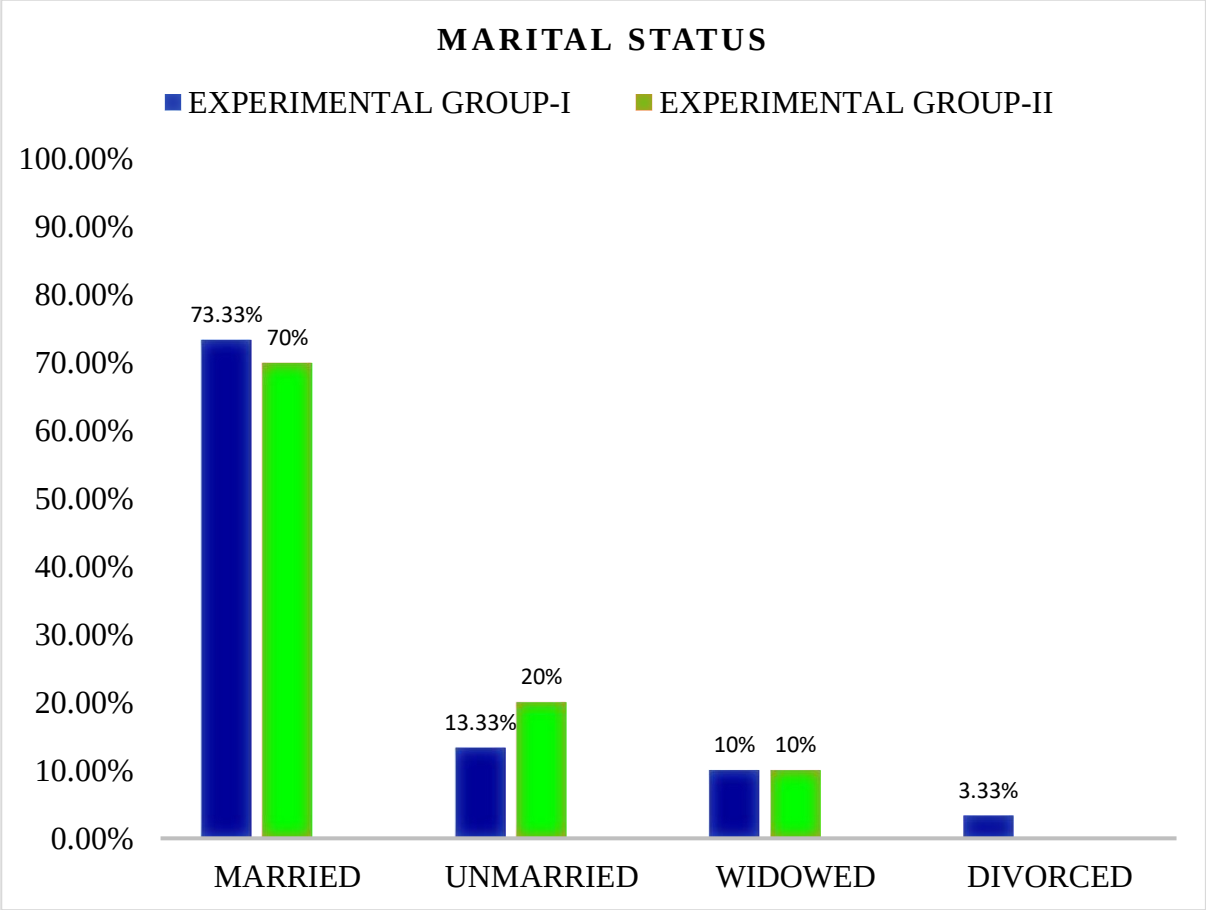
The above figure shows that in experimental group -I the majority 11(36.67%) were in the graduate and in the experimental group-II the majority 10(33.33%) were in the illiterate category

FIGURE:4.5-DISTRIBUTION OF PATIENT ACCORDING TO OCCUPATION IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II



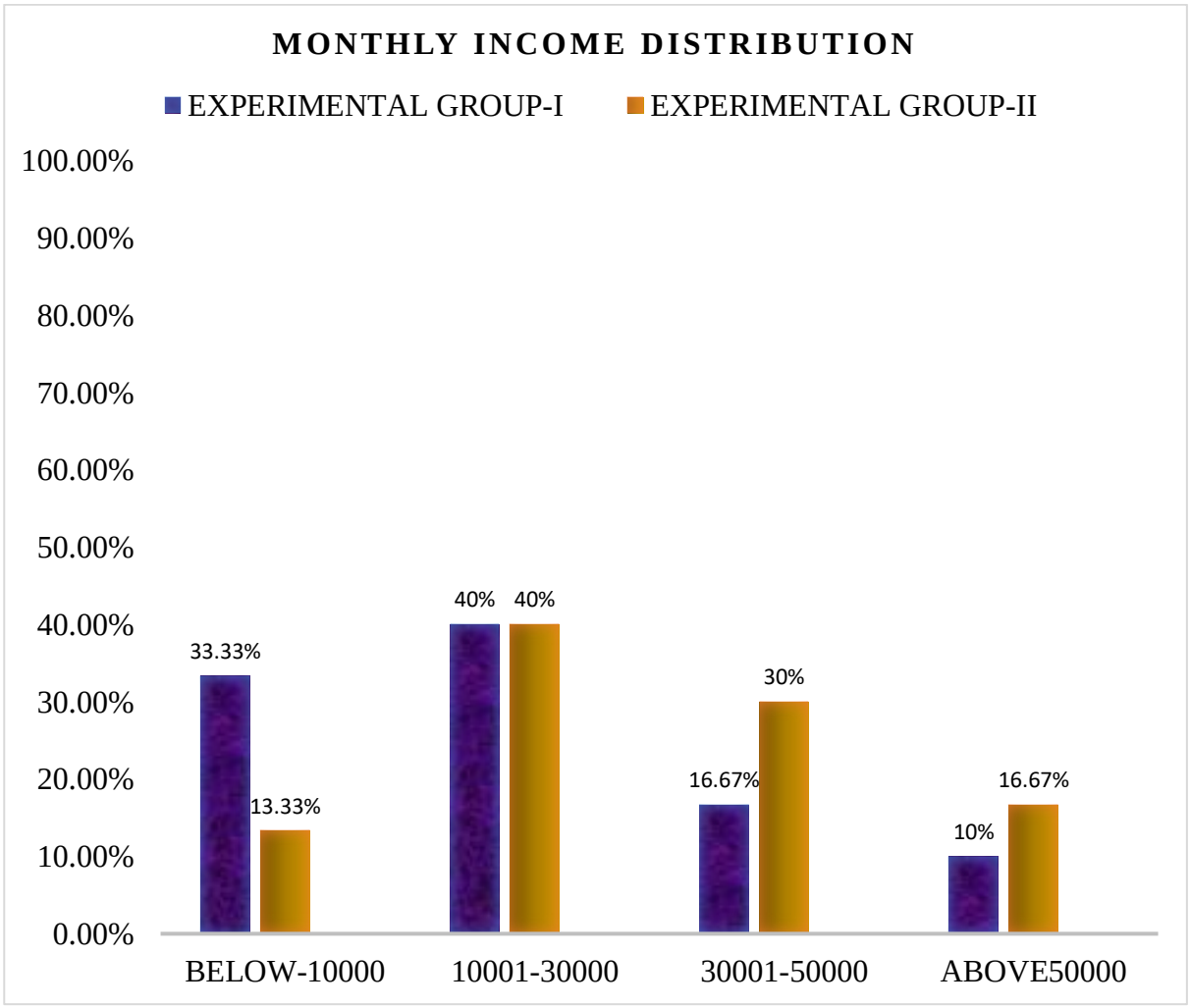
The above figure shows that in experimental group-I the majority of patient in unemployed and government 8 (26.67%) and in experimental group-II the majority 10 (33.33%) were in daily wages

FIGURE:4.6- DISTRIBUTION OF PATIENT ACCORDING TO MARITAL STATUS IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II



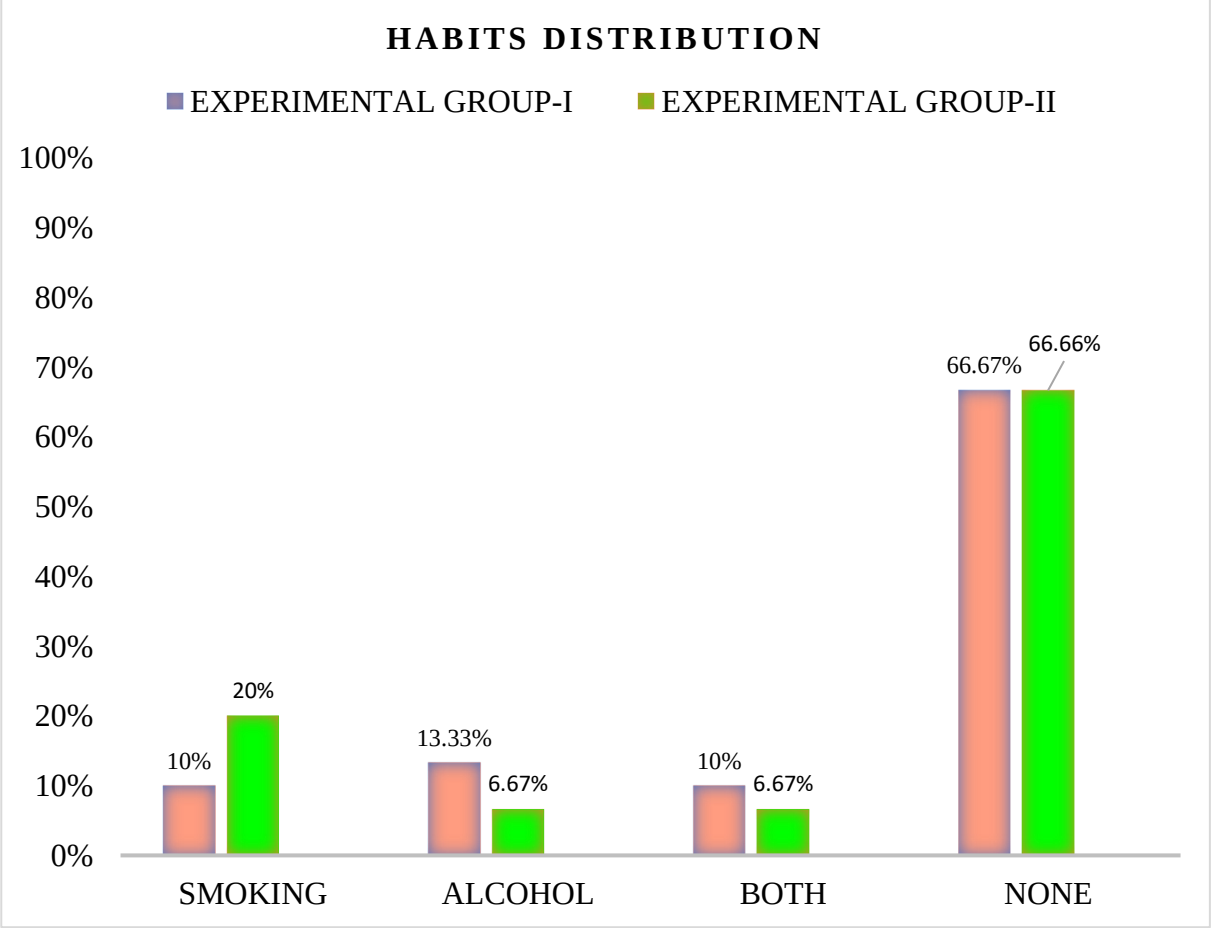
The above figure shows that in experimental group-I the majority 22(73.33%) were in the married and experimental group-II the majority 21 (70%) were in the married category

FIGURE:4.7-DISTRIBUTION OF PATIENT ACCORDING TO MONTHLY INCOME IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II



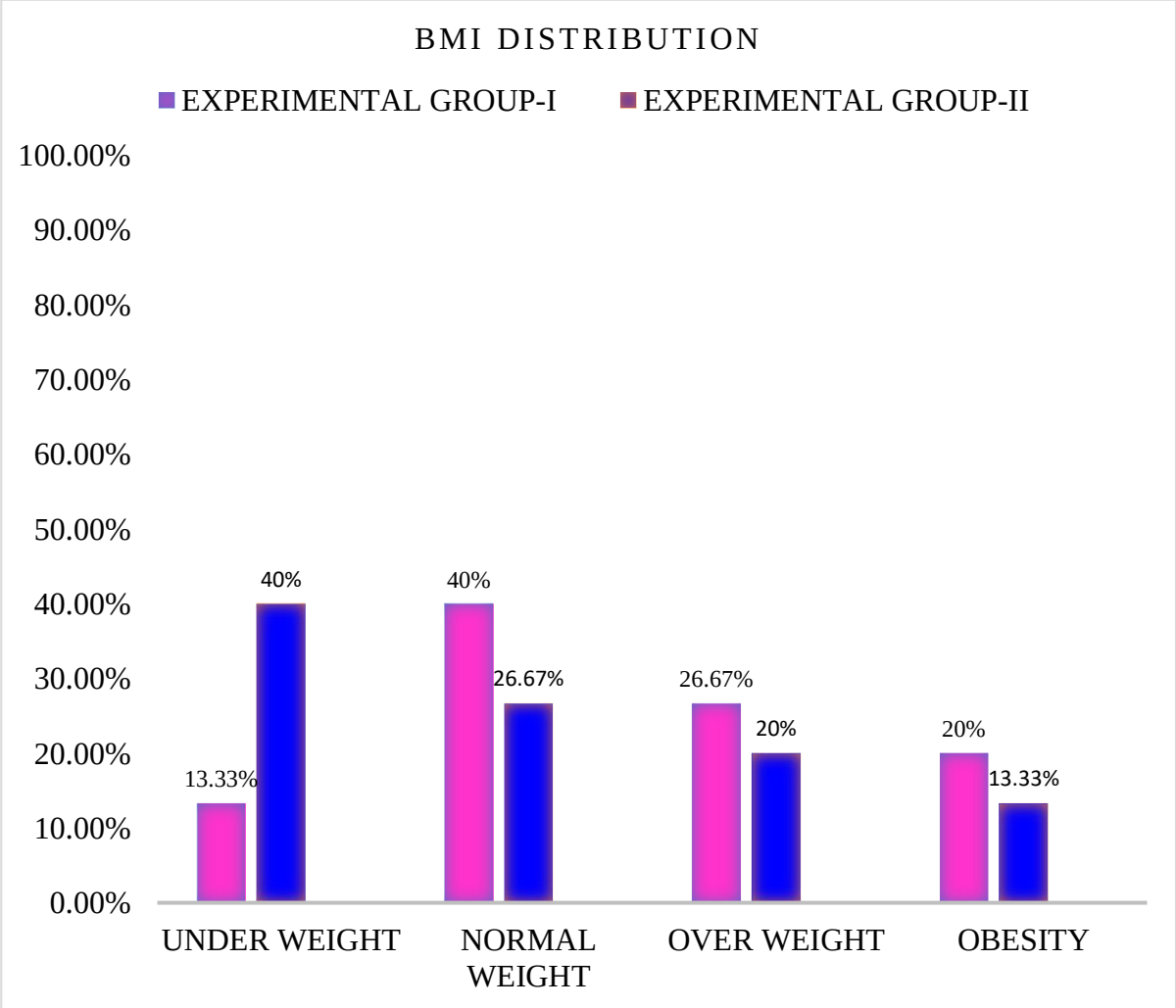
Above the figure shows that , in experimental group-I the majority 12 (40%) were in the 10001-30000 category and in the experimental group-II the majority 12 (40%) were in 10001-30000 category.

FIGURE:4.8-DISTRIBUTION OF PATIENT ACCORDING TO HABITS IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II



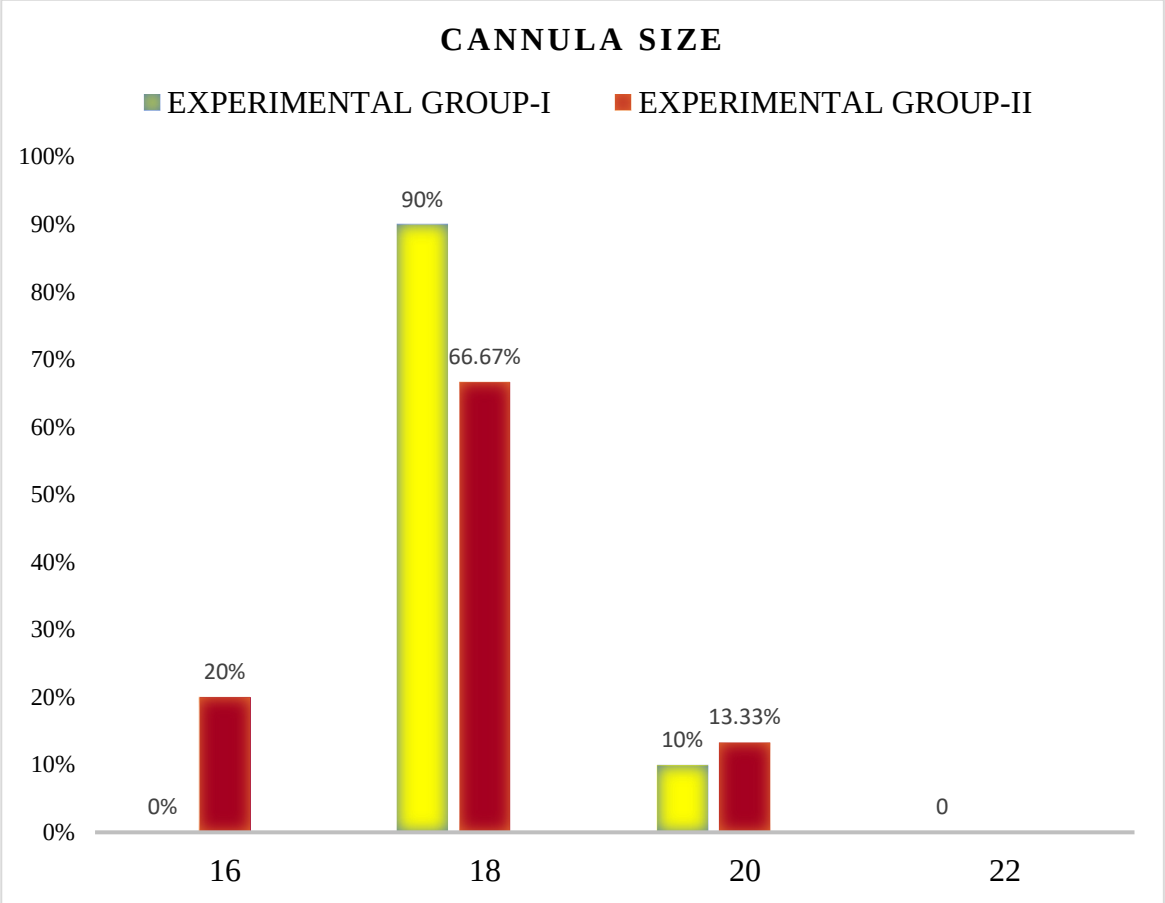
The above figure shows that the patient in experimental group-I majority 20 (66.67%) were in none category and experimental group-II the majority 20 (66.67%) were in the none category.

FIGURE:4.9-DISTRIBUTION OF PATIENT ACCORDING TO BODY MASS INDEX IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II



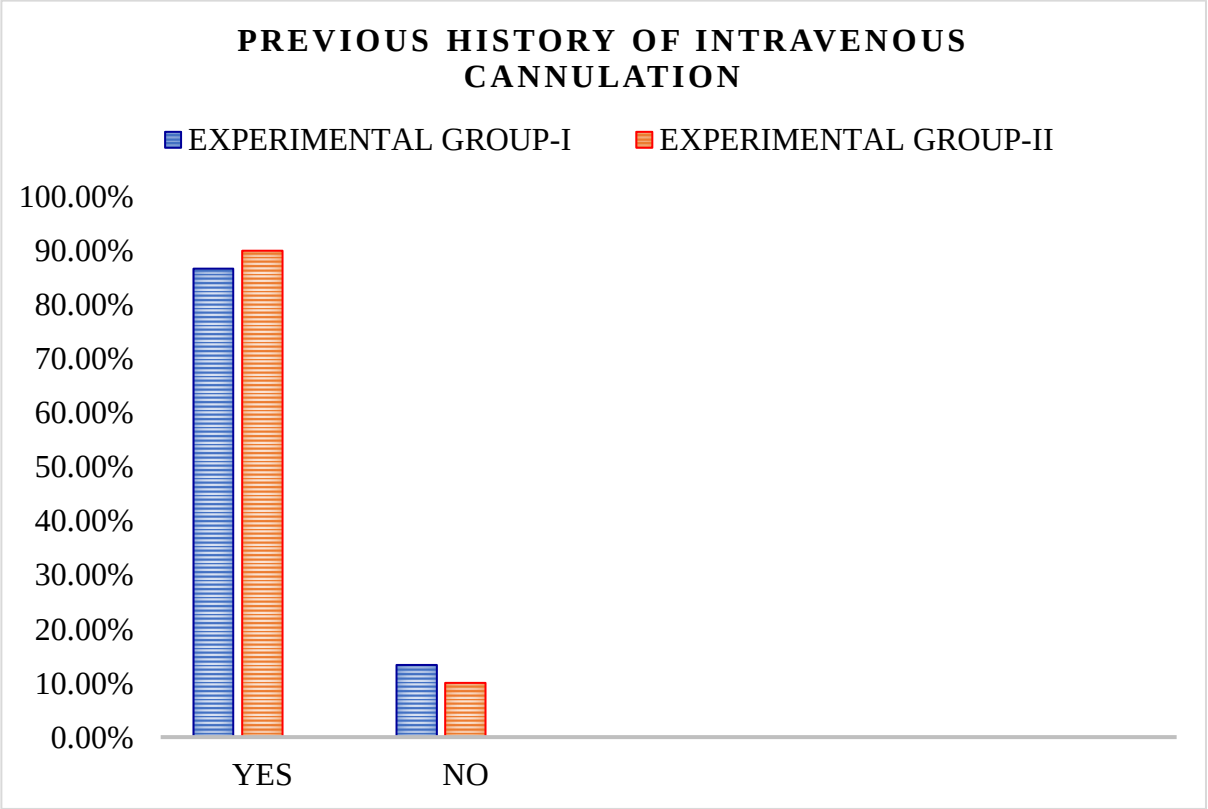
The above figure shows the majority 12(40%) of patient were in normal weight in experimental group-I and 12(40%) of patient were in underweight in experimental group-II

FIGURE-4.10 DISTRIBUTION OF PATIENT ACCORDING TO CANNULA SIZE IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II



The above figure shows that majority 27(90%) of patient were in 18 gauze size in experimental group-I and in experimental group-II Majority is 20(66.67%) were in 18 gauze size

FIGURE:4.11-DISTRIBUTION OF PATIENT ACCORDING TO PREVIOUS EXPERIENCE OF INTRAVENOUS CANNULATION IN EXPERIMENTAL GROUP-I AND EXPERIMENTAL GROUP-II



The above figure:4.11 shows ,that in experimental group-I majority 26(86.67%) of patients were in yes category and in experimental group-II majority 27(90%) were in yes category.

SECTION-II

Frequency and percentage distribution of pain experience regarding patient among experimental group-I with topical anesthetic cream application

Table:4.2

Level of pain	**Experimental group-I**	
	No. of adults	%
no pain(0-4mm)	2	6.67%
Mild pain(5-44mm)	6	20%
moderate pain(45-74mm)	18	60%
Severe pain(75-100mm)	4	13.33%
Total	30	100

Table :4.2 shows post test level of pain among Experimental group-I .In experimental group 6.67% of patient having no pain,20% of patient having mild pain ,60% of patient having moderate pain,13.33% of patient having severe pain.

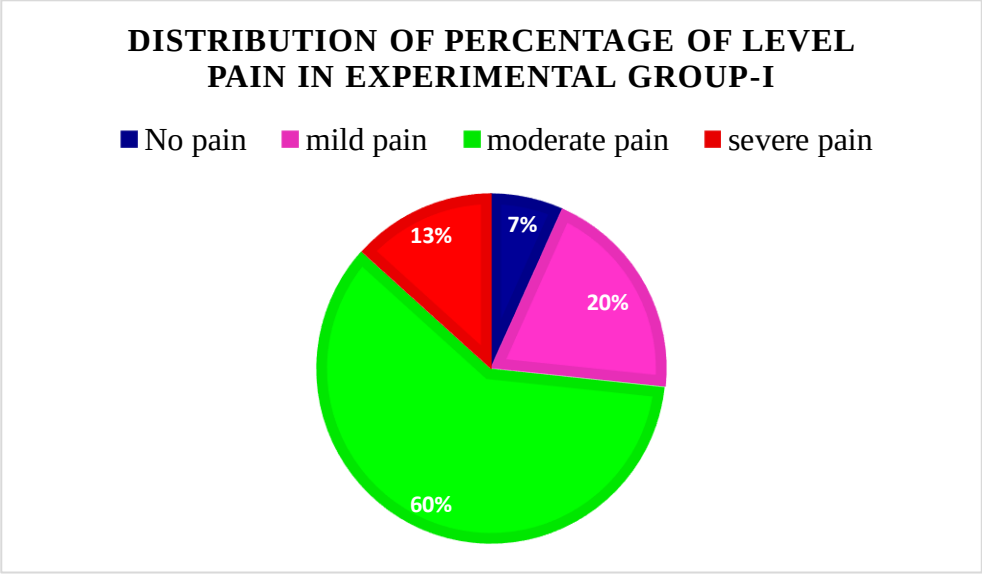


Figure:4.12 shows the pain score and percentage in experimental group-I

SECTION-III

Frequency and percentage distribution of pain experience regarding patient among experimental group-II with cryotherapy

Table:4.3

Level of pain	Experimental group-II	
	No.of adults	%
No pain(0-4mm)	08	26.67%
Mild pain(5-44mm)	14	46.67%
Moderate pain(45_74mm)	06	20%
Severe pain75-100mm	02	6.66%
Total	30	100%

Table:4.3 shows post test level of pain among experimental group-II.In experimental group-II 26.67% of patient having no pain,46.67% of patient having mild pain,20% of patient having moderate pain,6.67% of patients having severe pain.

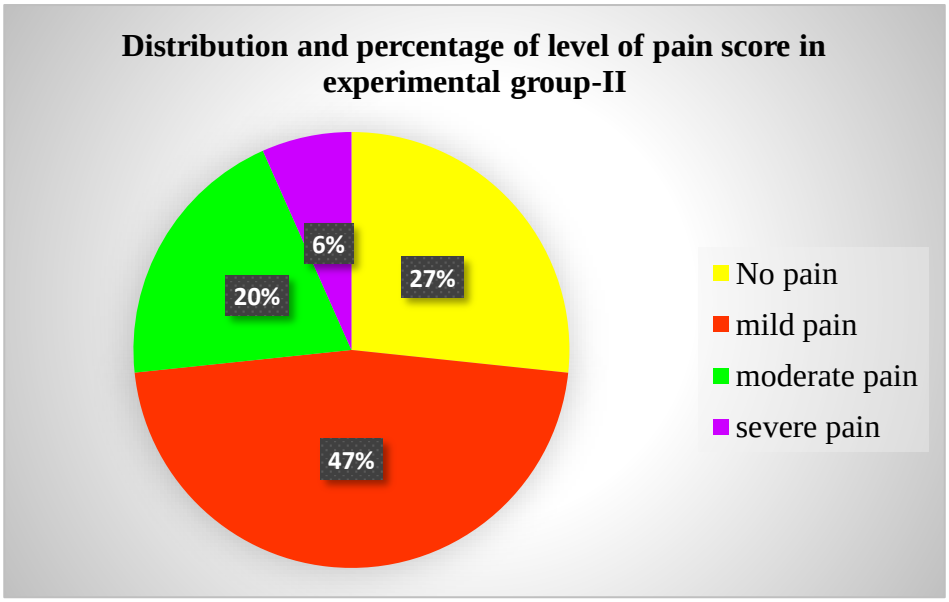


Figure:4.13 shows the pain score and percentage in experimental group-II

SECTION-IV

Comparison of post test level of pain experiencing regarding patient among experimental group-I and experimental group-II

Table:4.4

	Level of pain	Experimental group-I		Experimental group-II		Chi square test
		No.of adult	%	No.of adult	%	X^2=13.46 DF=3 CV=7.185 (S)
Post assessment	No pain(0-4mm)	02	6.67%	08	26.67%	
	Mild pain(5-44mm)	06	20%	14	46.67%	
	Moderate pain(45-74mm)	18	60%	06	20%	
	Severe pain(75-100mm)	04	13.33%	02	6.66%	
	total	30	100%	30	100%	

Table: 4.4 shows that comparison of level of pain between Experimental group-I and experimental group-II .In experimental group-I 60% patient having moderate pain and 20% of patient having mild pain .In experimental group-II 46.67% of patients having mild pain and 26.67% of patient having no pain

This difference is large and it is statistically significant difference. Statistical difference was calculated by using **chi square test.**

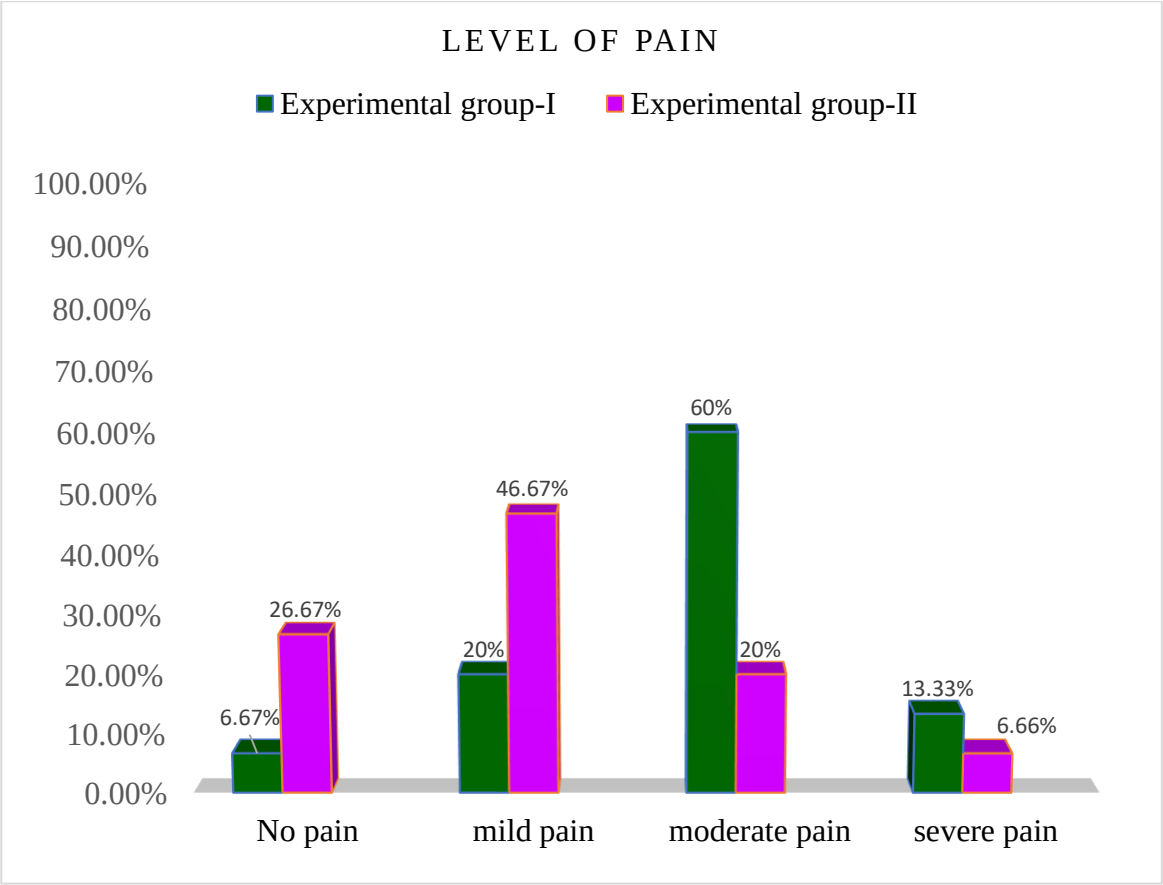


Figure:4.14-Since 13.46>7.815 the result is statistically significant ($p<0.05$)meaning pain level differs significantly between the experimental group-I and experimental group-II

Table:4.5 Effectiveness of using Topical anesthetic cream application and cryotherapy on pain experiencing among experimental group-I and experimental group-II Mean ,Standard deviation

GROUP	Maximum score	Post test			Different in mean	Un paired t-test
		mean	SD	Mean %		
Experimental group-I	10cm	5.37cm	2.19cm	53.7%	25.5%	4.21
Experimental group-II	10cm	2.85cm	2.46cm	28.2%		

Table :4.5 shows effectiveness of topical anesthetic cream application and cryotherapy of pain experiencing among Experimental group-I and experimental group- II .On an average experimental group-I are having 5.67cm pain score whereas experimental group-II are having 2.87 cm pain score .Experimental group-I Standard deviation-2.91cm and experimental group-II Standard deviation - 2.46 cm. Mean percentage difference in experimental group-I and experimental group-II 25.5%.

SECTION-V

Association between post test level of pain experiencing on patient with their selected demographic variable among **Experimental group-I** and experimental group-II

Table:4.6 Chi square test on pain level of pain among patient undergoing intravenous cannulation with their demographic variable in experimental group-I

Demographic variable		**Level of pain score**								**total**	**Chi square test**
		No pain		**Mild pain**		**Moderate pain**		**Severe** pain			
		N	**%**	**N**	**%**	**N**	**%**	**N**	**%**		
Age	20-35 years	0	-	3	10%	2	6.67%	2	6.67 %	7	X^2=12.84 df=6 cv=12.59 (S)
	36-40 years	2	6.67 %	0	-	10	33.33 %	0	-	12	
	41-60 years	0	-	3	3.33%	6	20%	2	6.67 %	11	
Sex	male	1	3.33 %	5	16.67 %	6	20%	1	3.33 %	13	X^2=5.23 DF=3(NS) CV=7.81
	female	1	3.33 %	1	3.33%	12	40%	3	10%	17	
Religion	Hindu	1	3.33 %	4	13.33 %	12	40%	3	10%	20	X^2=1.752 DF=6 CV=12.59
	Christian	0	-	1	3.33%	2	6.67%	0	-	03	

	Muslim	1	3.33 %	1	3.33%	4	13.33 %	1	3.33 %	7	(NS)
Education	Illiterate	1	3.33 %	2	6.67%	2	6.67%	0	-	5	X^2=15.14 DF=9 CV=16.92 (NS)
	primary	0	-	1	3.33%	5	16.67 %	2	6.67 %	8	
	higher secondary	0	-	0	-	6	20%	0	-	6	
	graduate	1	3.33 %	3	10%	5	16.67 %	2	6.67 %	11	
occupation	Un-employ	0	-	2	6.67%	6	20%	0	-	8	X^2=11.71 DF=9 CV=16.92 (NS)
	private	1	3.33 %	1	3.33%	4	13.33 %	1	3.33 %	7	
	government	1	3.33 %	0	-	4	13.33 %	3	10%	8	
	Daily wages	0	-	3	10%	4	13.33 %	0	-	7	
Marital status	married	1	3.33 %	4	13.33 %	15	50%	2	6.67 %	22	X^2=16.06 DF=9 CV=16.92 (NS)
	unmarried	0	-	2	6.67%	2	6.67%	0	-	4	
	widower	1	3.33 %	0	-	0	-	2	6.67 %	3	
	divorced	0	-	0	-	1	3.33%	0	-	1	

Demographic variable		**Level of pain score**								**total**	**Chi square test**
		No pain		**Mild pain**		**Moderate pain**		**Severe pain**			
		N	**%**	**N**	**%**	**N**	**%**	**N**	**%**		
Monthly income	below-10000	1	3.33 %	2	6.67%	6	20%	1	3.33%	10	X^2=15.21 DF=9 CV=16.92 (NS)
	10001-30000	0	-	3	10%	9	30%	0	-	12	
	30001-50000	0	-	0	-	3	10%	2	6.67%	5	
	above 50000	1	3.33 %	1	3.33%	0	-	1	3.33%	3	
Habits	smoking	1	3.33 %	0	-	2	6.67%	0	-	3	X^2=18.6 DF=9 CV=16.92 (S)
	alcohol	0	-	2	6.67%	1	3.33%	1	3.33%	4	
	both	0	-	1	3.33%	0	-	2	6.67%	3	
	none	1	3.33 %	3	10%	15	50%	1	3.33%	20	
BMI	Underweight	0	-	1	3.33%	1	3.33%	2	6.67%	4	X^2=14.47 DF=9 CV=16.92
	Normal	1	3.33 %	4	13.33 %	7	23.33 %	0	-	12	

	Over weight	0	-	1	3.33%	7	23.33 %	0	-	8	(NS)
	obesity	1	3.33 %	0	-	3	10%	2	6.67%	6	
Cannula size	18gauze	2	6.67 %	4	13.33 %	17	56.67 %	4	13.33 %	27	X^2=4.69 DF=3 CV=7.81 (NS)
	20 gauze	0	-	2	6.67%	1	3.33%	0	-	03	
Previous experience of IV cannulation	yes	2	6.67 %	6	20%	15	50%	3	10%	26	X^2=1.89 CV=7.81 DF=3 (NS)
	no	0	-	0	-	3	10%	1	3.33%	4	

Table :4.6 shows among patients in experimental group-I, there was no significant association between pain level and most demographic variable such as age, religion, education, occupation, marital status, income, BMI, cannula size, and previous IV cannulation history. however a significant association was observed with the variable Age(χ^2=12.84,df=6,p<0.05) habits (χ^2=18.6, DF=9, p<0.05).

Experimental group-II

Table:4.7 Chi square test on pain level of pain among patient undergoing intravenous cannulation with their demographic variable in experimental group-II

Demographic variable		**Level of pain score**								**total**	**Chi square**
		No pain		**Mild pain**		**moderate**		**Severe Pain**			
		N	**%**	**N**	**%**	**N**	**%**	**N**	**%**		
Age	20-35years	3	10%	1	3.33%	-	-	1	3.33%	5	X^2=8.81 df=6 cv=12.59 (NS)
	36-40 years	4	13.33%	6	20%	4	13.33%	-	-	14	
	41-60 years	1	3.33%	7	23.33%	2	6.67%	1	3.33%	11	
Sex	male	8	26.67%	4	13.33%	0	-	0	-	12	X^2=18.09 Df=3 Cv=7.87 (S)
	female	0	-	10	33.33%	6	20%	2	6.67%	18	
Religion	Hindu	3	10%	7	23.33%	2	6.67%	0	-	12	X=4.65 DF=6 (NS)
	Christian	3	10%	4	13.33%	3	10%	2	6.67%	12	

	Muslim	2	6.67%	3	10%	1	3.33 %	0	-	06	
Education	Illiterate	3	10%	6	20%	1	3.33 %	-	-	10	X^2=7.17 CV=16.92 DF=9 (NS)
	Primary	1	3.33%	3	10%	3	10%	1	3.33 %	08	
	Higher seconda ry	2	6.67%	4	13.3 3%	1	3.33 %	-	-	07	
	Graduat e	2	6.67%	1	3.33 %	1	3.33 %	1	3.33 %	05	
Occupatio n	Un-employ	2	6.67%	0	-	3	10%	0	-	5	X=13.95 DF=9 cv=16.92 (NS)
	Private	1	3.33%	2	6.67 %	3	10%	1	3.33 %	7	
	govern ment	3	10%	5	16.6 7%	0	-	0	-	8	
	Daily wages	2	6.67%	7	23.3 3%	0	-	1	3.33 %	10	
Marital status	married	6	20%	12	40%	2	6.67 %	1	3.33 %	21	X=10.26 Df=6 (NS)
	unmarri ed	1	3.33%	2	6.67 %	3	10%	0	-	06	
	widows	1	3.33%	0	-	1	3.33 %	1	3.33 %	03	

Monthly income	Below 10000	2	6.67%	0	-	1	3.33 %	1	3.33 %	4	X=12.45 Df=9 (NS)
	10001-30000	1	3.33%	7	23.3 %	4	13.3 3%	0	-	12	
	30001-50000	3	10%	5	16.6 6%3. 33%	1	3.33 %	0	-	09	
	Above 50000	2	6.67%	2	6.67 %	0	-	1	3.33 %	05	
Habits	smoking	3	10%	2	6.67 %	0	-	1	3.33 %	6	X=13.87 DF=9 cv=16.92 (NS)
	alcohol	0	-	1	3.33 %	1	3.33 %	0	-	2	
	both	0	-	1	3.33 %	0	-	1	3.33 %	2	
	none	5	16.67%	10	33.3 3%	5	16.6 7%	0	-	20	
BMI	Under weight	5	16.67%	6	20%	1	3.33 %	0	-	8	X^2=27.96 DF=9 CV=16.92 (S)
	Normal weight	3	10%	5	16.6 7%	0	-	0	-	14	
	Over weight	0	-	3	10%	3	10%	0	-	6	
	obesity	0	-	0	-	2	6.67 %	2	6.67 %	4	

Cannula size	16 gauze	0	-	0	-	4	13.33%	2	6.67%	6	X^2=27.96 DF-6 CV=12.59 (S)
	18 gauze	8		12		0	-	0	-	20	
	20 gauze	0	-	2	6.67%	2	6.67%	0	-	4	
Previous experience	yes	7		14		6		0		27	X^2=20.28 CV=7.81 DF=3 (S)
	no	1		0		0		2		3	

Table :4.7 shows the in experimental group-I the chi square analysis significant association of pain level with sex(χ^2=18.09 ,df=3),BMI(χ^2=27.96,DF=9),cannula size(χ^2=27.96,df=6),previous IV cannula experience(χ^2=20.28,df=3) at $p<0.05$ level of significance. Other demographic variable such as age, sex, religion, education, occupation, marital status, monthly income, and habits did not show significant association.

CHAPTER -V

DISCUSSION

"New opinion often appears first as jokes and fancies, than as blasphemies and treason, then as question open to discussion and finally established truths".

-George Bernard shaw

The study was conducted the evaluate the effectiveness of using topical anesthetic cream application for Experimental group-I and cryotherapy for Experimental group-II patient undergoing intravenous cannulation to pain experiencing among adult subject at TEAM hospital and BEWELL hospital, Pudukkottai. After the analysis and interpretation of the data obtained from the samples, the researcher found, there was a significant reduction in the pain experience with topical anesthetic cream application and cryotherapy.

This study objectives are,

The study aimed to evaluate and compare the effectiveness of topical anesthetic cream application and cryotherapy on pain during intravenous cannulation. The discussion is structured to address each of the major finding based on the study objectives and support by relevant literature.

- To assess the post-test pain experience among patient undergoing intravenous cannulation in experimental group-I and experimental group-II
- To evaluate the effectiveness of topical anesthetic cream and cryotherapy among patient undergoing intravenous cannulation in experimental group-I and experimental group-II
- To associate the post pain experience among patient undergoing intravenous cannulation and with their selected demographic variable among experimental group-I and experimental group-II.

The following research hypothesis were formulated for the study

All the hypothesis are test at 0.05 level of significance

H1: There will be a significant difference in the post test pain experience among patient undergoing intravenous cannulation in experimental group-I and experimental group-II

H2: There will be a significant association between post-test pain experience among patients undergoing intravenous cannulation and with their selected demographic variables in experimental group-I and experimental group-II

Discussion based on the demographical variable in experimental group-I and experimental group-II

According to age in experimental group-I majority of the subjects,12(40%) in 36-40 years, were in the Experimental group-II majority of the subject 14(46.67%) in 36-40years.the majority of the subject were aged between 36-40 years in both group.

According to sex female patients were the majority in both groups. In experimental group-I 17(56.67%) ,in experimental group-II 18(60%)

,while both Hindu and Christian patient were equally represented in experimental group-II 12(40%)

According to education most participant in experimental group-I were graduates 11(36.67%), while experimental group-II had more illiterate patients 10(33.33%)

According to occupation un employ and government job patient are equally represented in experimental group-I 8(26.67%) were in experimental group-II more patients represented from the daily wages 10(33.33%)

According to marital status most were married in both groups, in experimental group-I 22(73.33%) and experimental group-II 21(70%)

According to monthly income more patient in having salary between (10001-30000)in both experimental group-I and experimental group-II 12(40%)

According to habits majority of the patients had no harmful habits represented in both groups.20(66.67%)

According to BMI large proportion of patient had normal BMI in experimental group I 12(40%)and underweight 12(40%) experimental group-II.

According to cannula size most of the patient had 18 gauze in experimental group-I 27(90%) and experimental group-II 20(66.67%) in 18 gauze intravenous cannula

According to previous history of intravenous cannulation most of the patient in both groups had previous experience with IV cannulation , in experimental group-I 26(86.67%) ,were in experimental group-II 27 (90%)

- **The first objectives was focused to assess the post-test pain experience among patient undergoing intravenous cannulation in experimental group-I and experimental group-II**

  Table 4.2 shows pain experience in experimental group-I with topical anesthetic cream in 30 sample 6.67% patient experienced no pain ,20% patient had mild pain,60% of patient experienced moderate pain ,13.33% of patients had severe pain this suggest that while topical anesthetic cream provided moderate relief ,it did not eliminate pain completely for most patients

  Table 4.3 shows pain experience in experimental group-II with cryotherapy 26.67% of patient experienced no pain,46.67% of patient had mild pain,20% of patients experienced moderate pain ,6.67% of patient had severe pain cryotherapy was more effective in reducing pain ,with a significantly higher proportion of patient reporting no or mild pain. Hypothesis H1 was

accepted as there was a significant difference in post test pain experience between experimental group-I and experimental group-II (χ^2=13.46,p<0.05)

- **The second objective was focused to evaluate the effectiveness of topical anesthetic cream and cryotherapy among patient undergoing intravenous cannulation in experimental group-I and experimental group-II**

Table:4.4 shows that the mean pain score in the mean pain score in the topical anesthetic cream experimental group-I was 5.37cm compared to 2.85 cm in the cryotherapy experimental group-II .The chi square test indicated a statistically significant difference (χ^2=13.46,P<0.05) confirming greater pain reduction with cryotherapy.

Table :4.5 shows effectiveness of topical anesthetic cream application and cryotherapy of pain experiencing among Experimental group-I and experimental group- II .On an average experimental group-I are having 5.67cm pain score whereas experimental group-II are having 2.87 cm pain score .Experimental group-I Standard deviation-2.91cm and experimental group-II Standard deviation -2.46 cm. Mean percentage difference in experimental group-I and experimental group-II 25.5%. un paired t -test value is 4.21

.**Third objective focused to associate the post pain experience among patient undergoing intravenous cannulation and with their selected demographic variable among experimental group-I and experimental group-II.**

In experimental group-I with topical anesthetic cream application, significant association were found between pain level and age [χ^2=12.84], habits[χ^2=18.6] (p<0.05).in experimental group-II with cryotherapy, significant association were found between pain level and sex [χ^2=18.09], BMI[χ^2=27.96], cannula size [χ^2=27.96] and previous experience of intravenous cannulation[χ^2=20.28](p<0.05)

In experimental group-I there was no significant association with most demographic variable except age and habits.in experimental group-II significant associations were found with sex, BMI, cannula size, and previous experience of IV cannulation. Hypothesis H2 was accepted, as significant associations were observed between post test pain scores and selected demographic variables.

Supportive literature McCarthy et al.(2017)reported that variation in pain perception are influenced by age and BMI due to physiological difference in nerve fiber distribution and tissue density.

The result of the study thus concluded that association exists between the sample demographic variable like age and habits in experimental group-I and association exists between the sample demographic variable like sex, BMI, cannula size and previous experience of intravenous cannulation with their level of pain.

CHAPTER-VI

SUMMARY, CONCLUSION, IMPLICATION AND RECOMMENDATIONS

This chapter outlines the present study approaches, major findings with inferences drawn from it, implication for nursing profession, limitation, conclusion and recommendations.

SUMMARY

The crucial of the study was to evaluate the effectiveness of using topical anesthetic cream application and cryotherapy on intravenous cannulation to pain experiencing among patients at TEAM hospital and BEWELL hospital at Pudukkottai.

The design adopted for the study was quasi experimental non-equivalent post test only control group design in nature and conceptual framework was based on Roy adaptation model. The study tool contain the demographic variables and scales of standardized visual analogue scale which had the maximum score 100mm

The main study was conducted at TEAM hospital and BE WELL hospital Pudukkottai, a sample of 60 subjects were selected based on the inclusion criteria ,in which 30 subjects were allotted to the Experimental group-I with topical anesthetic cream application, and 30 subjects were allotted to the Experimental group-II with cryotherapy. The sampling technique used was non probability sampling technique and the data were collected after getting consent from the subjects. Analysis was done using descriptive and inferential statistics, the obtained results were presented using tables and figures.

❖ OBJECTIVES OF THE STUDY

- ❖ To assess the post-test pain experience among patient undergoing intravenous cannulation in experimental group-I and experimental group-II
- ❖ To evaluate the effectiveness of topical anesthetic cream and cryotherapy among patient undergoing intravenous cannulation in experimental group-I and experimental group-II

- To associate the post pain experience among patient undergoing intravenous cannulation and with their selected demographic variable among experimental group-I and experimental group-II.

HYPOTHESIS

H1: There will be a significant difference in the post test pain experience among patient undergoing intravenous cannulation in experimental group-I and experimental group-II

H2: There will be a significant association between post test pain experience among patients undergoing intravenous cannulation and with their selected demographic variables in experimental group-I and experimental group-II

ASSUMPTIONS:

The study assumes that,

1. Patient in the experimental group-I have more pain than in the experimental group-II.
2. Cryotherapy reduce pain than topical anesthetic cream application during the intravenous cannulation.

REVIEW OF LITERATURE

The review of literature collected for the study provided a strong basis for the study .It provided the basis for creating conceptual framework and formation of tool.it was categorized under three headings.

Section-I : Studies related to effect of topical anesthetic cream in reducing intravenous cannulation pain

Section-II: Studies related to effect of cryotherapy for reducing the intravenous cannulation pain

Section-III: Studies related to comparison of topical anesthetic cream and different type of cryotherapy for reducing Injection pain.

Methodology of the study was

Quantitative approach, quasi experimental design was selected with 60 subjects,30 subjects for each experimental group-I and experimental group-II, by non-probability purposive sampling technique within the inclusive criteria. The study was carried out at TEAM hospital and BEWELL hospital Pudukkottai with the permission of Head of the department and ethics committee approval. Informed consent obtained from the subjects and information about the study was given to them. Subjects selected for pilot study were excluded. Demographic data was collected from the subjects. Using application of topical anesthetic cream was given for Experimental group-I and cryotherapy was given for experimental group-II. Post assessment done after the interventions for both groups by using Visual Analogue Scale.

MAJOR FINDINGS

The major findings are summarized as follows

The majority 12 (40%) of patient were in age group 36-40 years in experimental group-I and in experimental group-II majority is 14 (46.67%) of patient were between the age group 36-40 years.

Based on gender in experimental group-I majority 17(56.67%) of patient of female gender, and in experimental group-II majority 18 (60%) of patient of female gender. ,

Based on religion In experimental group-I majority 20(66.67%) of patient of Hindu, and in experimental group-II majority 12 (40%) from Hindu and 12(40%)of patient of Christian religion.

In experimental group -I the majority 11(36.67%) were in the graduate and in the experimental group-II the majority 10(33.33%) were in the illiterate category

Considering monthly income in experimental group-I the majority of patient in unemployed and government 8 (26.67%) and in experimental group-II the majority 10 (33.33%) were in daily wages

The patient in experimental group-I majority 20 (66.67%) were in none category and experimental group-II the majority 20 (66.67%) were in the none category.

The majority 12(40%) of patient were in normal weight in experimental group-I and 12(40%) of patient were in underweight in experimental group-II

Considering previous experience in experimental group-I majority 26(86.67%) of patients were in yes category and in experimental group-II majority 27(90%) were in yes category.

Comparison of level of pain between Experimental group-I and experimental group-II .In experimental group-I 60% patient having moderate pain and 20% of patient having mild pain .In experimental group-II 46.67% of patients having mild pain and 26.67% of patient having no pain .This difference is large and it is statistically significant difference. Statistical difference was calculated by using **chi square test.**

Mean score and standard deviation effectiveness of topical anesthetic cream application and cryotherapy of pain experiencing among Experimental group-I and experimental group- II .On an average experimental group-I are having 5.67cm pain score whereas experimental group-II are having 2.87 cm pain score .Experimental group-I Standard deviation-2.91cm and experimental group-II Standard deviation -2.46 cm. Mean percentage difference in experimental group-I and experimental group-II 25.5%.In experimental group-I

The association between demographic variable and pain score with topical anesthetic cream application, significant association were found between pain level and age [χ^2=12.84], habits [χ^2=18.6] ($p<0.05$).in experimental group-II with cryotherapy, significant association were found between pain level and sex [χ^2=18.09], BMI[χ^2=27.96], cannula size [χ^2=27.96] and previous experience of intravenous cannulation[χ^2=20.28]($p<0.05$)

CONCLUSION

Intravenous cannulation may be unpleasant experience for the patients which are commonly carried out by the nurses. The present study aimed to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on intravenous cannulation pain experience among adult subjects. Significant association were also identified between pain level and selected demographical / clinical variables. In the cryotherapy group, pain level was significantly associated with sex (χ^2=18.9,p<0,05),BMI(χ^2=27.96,p<0.05),Cannula size(χ^2=27.96,P<0.05) and previous experience of intravenous cannulation(χ^2=20.28,P<0.05) from these results concluded that cryotherapy is superior to topical anesthetic cream in minimizing pain during intravenous cannulation, Particularly because it is cost effective, easy to apply, and suitable across different patient groups. The association further suggest that patient characteristic such as sex, BMI, Cannula size must be considered while planning interventions for pain relief. Thus, the study strongly recommended routine use of cryotherapy as a non-pharmacological nursing intervention to improve patient comfort, satisfaction, and cooperation during intravenous cannulation.

NURSING IMPLICATION

The investigator had drawn the following implication, for the study, which are necessary in the field of nursing practice, nursing education, nursing administration and nursing research.

NURSING PRACTICE

1.Nurses can apply either topical anesthetic cream or cryotherapy before intravenous cannulation to minimize pain and enhance patient comfort

2.both methods are non-invasive, safe, cost effective and easy to implement at the bedside.

3.Reducing procedural pain increases patient cooperation and decrease anxiety during cannulation.

4.Nurses should be trained to select the appropriate intervention based on patient age, health status, availability of resources and urgency of cannulations.

5.Incorporting these techniques improve the quality of nursing care and strengthens the nurse-patient relationship by showing concern for patient comfort.

NURSING EDUCATION

1.Nursing curriculum can include modules on non-pharmacological pain management techniques such as cryotherapy and the use of topical anesthetic creams

2.Students should receive the clinical demonstration and hands -on practice on applying both interventions

3.Encourages evidence -based practice among student nurses and develops their skill in holistic pain management.

NURSING ADMINISTRATION

1.Hospital administrator can formulate protocols and guidelines for routine use of topical anesthetic cream or cryotherapy before intravenous cannulation.

2.Cost benefit analysis may support cryotherapy as a low-cost intervention where resources are limited, while anesthetic cream may be preferable for longer procedures.

3.Ensure standardization of nursing care and enhance patient satisfaction scores.

4.Training programs and workshops can be conducted for staff nurses to update skill on pain-reducing techniques.

NURSING RESEARCH

1.The study provide a foundation for further comparative studies in different populations

2.Future research can be explore combination methods for maximum pain relief.

3.Longitudinal studies can assess the impact of reduced cannulation pain overall patient outcomes, including reduced procedural anxiety and improved treatment compliance.

4.Opens scope for cost effectiveness research to guide hospital policy on which intervention is more feasible in various health care settings.

RECOMMENDATIONS

1.Conduct studies on larger and more diverse population to enhance generalizability.

2.Compare these interventions in special populations such as pediatrics, geriatrics, oncology and critical care.

3.Carryout longitudinal studies to evaluate the long terms impact of pain reduction during repeated cannulations.

4.Investigate the psychological and anxiety reducing effect of these interventions along with pain relief.

5.Compare the outcomes in different healthcare settings

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MOTHER TERASA COLLEGE OF NURSING

(Run by Dr. APJ. Abdul Kalam Educational Charitable Trust)
Approved by Govt. of Tamilnadu
Affiliated by Tamilnadu Dr. M.G.R. Medical University, Chennai
Recognized by the Tamil Nadu Nurses and Midwives Council, Chennai &
Indian Nursing Council, New Delhi.

e-mail : mtcon2016@gmail.com **Mettusalai, Illuppur, Pudukkottai Dt. - 622 102.**

Ph : 04339-272151 Mobile : 99429 55773 | 94433 72151

LETTER SEEKING PERMISSION TO CONDUCT THE RESEARCH STUDY

FROM

Mrs.Megala.S,

M.Sc Nursing II year,

Mother Terasa College of Nursing,

Mettusalai- Pudukkottai.

Through:

The principal,Mother Terasa College of Nursing, Pudukkottai.

TO

The Medical Officer,

Team Speciality Hospital,

Pudukkottai.

Respected Sir/Madam,

SUB: Seeking permission for conducting Research study

I am Mrs.Megala.S,M.Sc Nursing II year student of Mother Terasa College of Nursing, Pudukkottai.As a part of my requirements in M.Sc nursing program as per the Tamilnadu Dr.M.G.R.Medical university specification.The topic I have selected "**a comparative study to evaluate the effectiveness of topical anesthetic cream and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital ,at pudukkottai**

I request you to kindly give me the permission to conduct my study in this Hospital I hope to you consider my requisition and kindly do the needful.

Thanking you

Yours Sincerely

(Megala.S)

Signature of the Principal

PRINCIPAL
MOTHER TERASA COLLEGE OF NURSING
METTUSALAI, ILLUPPUR (Ta...
PUDUKKOTTAI DISTRICT - 6...

Dr.K.H.SALIM, M.B.B.S., D.Diab.
MANAGING DIRECTOR
TEAM SPECIALITY HOSPITAL,
PUDUKKOTTAI - 622 001.

MOTHER TERASA COLLEGE OF NURSING

(Run by Dr. APJ. Abdul Kalam Educational Charitable Trust)
Approved by Govt. of Tamilnadu
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Mother Terasa College of Nursing,

Mettusalai- Pudukkottai.

Through:

The principal,Mother Terasa College of Nursing, Pudukkottai.

TO

The Medical Officer,

Be Well Multi speciality Hospital,

Pudukkottai.

Respected Sir/Madam,

SUB: Seeking permission for conducting Research study

I am Mrs.Megala.S,M.Sc Nursing II year student of Mother Terasa College of Nursing, Pudukkottai.As a part of my requirements in M.Sc nursing program as per the Tamilnadu Dr.M.G.R.Medical university specification.The topic I have selected "**a comparative study to evaluate the effectiveness of topical anesthetic cream and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital ,at pudukkottai**

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Yours Sincerely

(Megala.S)

Signature of the Principal

PRINCIPAL
MOTHER TERASA COLLEGE OF NURSING
METTUSALAI, ILLUPPUR (Taluk)
PUDUKKOTTAI DISTRICT - 622 102

Be Well Hospitals Pvt. Ltd. Pudukkottai

Permission Granted

LIST OF EXPERTS

1.DR.KARTHIKEYAN.R

Reg No.:134227

Consultant-CTVS& Anesthesiology

Srikamatchi Medical Centre.

Thanjavur

2.DR.ANBARASAN.R

Reg No.:146884

Junior consultant

Anesthesiology and Critical Care

Thanjavur

3.DR.G.KARTHEKEYAN

Senior Consultant -Medical Service

Reg No.:31223

Srikamatchi Medical centre

4.PROF.MR.S.ELANGOVAN MSc(N),(Ph.D)

Professor

Sri Aurobindo college of nursing

Karur

5.PROF.MRS.B.RUSHA MSc(N),(Ph.D)

Vice Principal

Krishna College of Paramedical and Alied Health Science

Trichy

6.MRS.PRABAVATHY MSc(N)

Associate Professor

Indra Ganessan College of Nursing

Manikandam

LETTER REQUESTING OPINION AND SUGGESTIONS OF EXPERTS FOR CONTENT VALIDITY OF THE RESEARCH TOOL

FROM

Mrs.Megala.S,

M.Sc Nursing-II year,

Mother Terasa College of Nursing,

Mettusalai,Pudukkottai

Contact No:9791634060, Mail id: megala5991@gmail.com

TO

Dr.Karthikeyan.R

Consultant-CTVS & Anesthesiology

Srikamatchi Medical Centre

Thanjavur.

Respected sir,

Sub: Requesting opinion and suggestions of experts

for establishing content validity of the tool

I am Mrs.Megala.S, II year M.Sc Nursing student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai,have selected the below mentioned statement of the problem for the research study to be submitted to the Tamil Nadu Dr.M.G.R.Medical university,Chennai as partial fulfilment for the award of Master of Science in nursing.

TOPIC:A comparative study to evaluate the effectiveness of topical anesthetic cream and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital at Pudukkottai.

I request you to validate the tool developed for the study and give your experts opinion and suggestion for necessary modification .

Thanking you Yours sincerely

Megala.S

Enclosed

1) Certificate for validation

2) Tool for collection of data Intervention Topical anesthetic cream application and cryotherapy

LETTER REQUESTING OPINION AND SUGGESTIONS OF EXPERTS FOR CONTENT VALIDITY OF THE RESEARCH TOOL

FROM

Mrs.Megala.S,

M.Sc Nursing-II year,

Mother Terasa College of Nursing,

Mettusalai,Pudukkottai

Contact No:9791634060, Mail id: megala5991@gmail.com

TO

Dr.G.Karthekeyan

Senior consultant-Medical service

Srikamatchi Medical Centre

Thanjavur

Respected sir,

Sub: Requesting opinion and suggestions of experts

for establishing content validity of the tool

I am Mrs.Megala.S, II year M.Sc Nursing student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai,have selected the below mentioned statement of the problem for the research study to be submitted to the Tamil Nadu Dr.M.G.R.Medical university,Chennai as partial fulfilment for the award of Master of Science in nursing.

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Mother Terasa College of Nursing,

Mettusalai,Pudukkottai

Contact No:9791634060, Mail id: megala5991@gmail.com

TO

Mr.S.Elangovan,MSc(Nursing)

Professor

Sri Aurobindo college of nursing,

Karur.

Respected sir,

Sub: Requesting opinion and suggestions of experts

for establishing content validity of the tool

I am Mrs.Megala.S, II year M.Sc Nursing student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai,have selected the below mentioned statement of the problem for the research study to be submitted to the Tamil Nadu Dr.M.G.R.Medical university,Chennai as partial fulfilment for the award of Master of Science in nursing.

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Mrs.Megala.S,

M.Sc Nursing-II year,

Mother Terasa College of Nursing,

Mettusalai,Pudukkottai

Contact No:9791634060, Mail id: megala5991@gmail.com

TO

Mrs.T.B.Rusha,M.Sc(N),(Ph.D)

Vice principal

Krishna College of Paramedical and Allied Health Science,

Trichy

Respected madam,

Sub: Requesting opinion and suggestions of experts

for establishing content validity of the tool

I am Mrs.Megala.S, II year M.Sc Nursing student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai,have selected the below mentioned statement of the problem for the research study to be submitted to the Tamil Nadu Dr.M.G.R.Medical university,Chennai as partial fulfilment for the award of Master of Science in nursing.

TOPIC:A comparative study to evaluate the effectiveness of topical anesthetic cream and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital at Pudukkottai.

I request you to validate the tool developed for the study and give your experts opinion and suggestion for necessary modification .

Thanking you

Yours sincerely

Megala.S

Enclosed

1) Certificate for validation
2) Tool for collection of data
3) Intervention Topical anesthetic cream application and cryotherapy

LETTER REQUESTING OPINION AND SUGGESTIONS OF EXPERTS FOR CONTENT VALIDITY OF THE RESEARCH TOOL

FROM

Mrs.Megala.S,

M.Sc Nursing-II year,

Mother Terasa College of Nursing,

Mettusalai,Pudukkottai

Contact No:9791634060, Mail id: megala5991@gmail.com

TO

Mrs.T.Prabavathy

Assosciate professor

Indra Ganesan College of Nursing,

Manikandam,Trichy-2

Respected madam,

Sub: Requesting opinion and suggestions of experts

for establishing content validity of the tool

I am Mrs.Megala.S, II year M.Sc Nursing student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai,have selected the below mentioned statement of the problem for the research study to be submitted to the Tamil Nadu Dr.M.G.R.Medical university,Chennai as partial fulfilment for the award of Master of Science in nursing.

TOPIC:A true experimental study to evaluate the effectiveness of topical anesthetic cream on pain experience among patient undergoing intravenous cannulation in selected hospital at Pudukkottai.

I request you to validate the tool developed for the study and give your experts opinion and suggestion for necessary modification .

Thanking you

Yours sincerely

Megala.S

Enclosed

1) Certificate for validation
2) Tool for collection of data
3) Intervention Topical anesthetic cream application

CERTIFICATE FOR VALIDATION

This is to certify that the tool developed by Mrs.Megala.S, II Year M.Sc nursing, student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai (Affiliated to Dr.M.G.R.Medical university)is validated by the undersigned can proceed with this tool and conduct the main study for dissertation entitled

TOPIC :" A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital at pudukkottai".

Signature:

Name: DR. R. ANBARASAN.

Designation: CONSULTANT ANAESTHETIST.

Dr ANBARASAN R
Reg.No:140884
Junior Consultant
Anaesthesiology & Critical Care
Srikamatchi Medical Centre
Thanjavur - 613 005

Seal:

CERTIFICATE FOR VALIDATION

This is to certify that the tool developed by Mrs.Megala.S, II Year M.Sc nursing, student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai (Affiliated to Dr.M.G.R.Medical university)is validated by the undersigned can proceed with this tool and conduct the main study for dissertation entitled

TOPIC :" A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital at pudukkottai".

Signature: 27/6/20

Name: Dr. G.KARTHEKEYAN
Senior Consultant-Medical Services
Reg. No: 31223
Srikamatchi Medical Centre,
TANJORE -613 004.

Reg. No. 31223

Designation:

Seal:

CERTIFICATE FOR VALIDATION

This is to certify that the tool developed by Mrs.Megala.S, II Year M.Sc nursing, student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai (Affiliated to Dr.M.G.R.Medical university)is validated by the undersigned can proceed with this tool and conduct the main study for dissertation entitled

TOPIC :" A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital at pudukkottai".

Signature:

Name: Karthikeyan R.

Designation: Consultant Cardiac Anesthesiologist.

Seal:

Dr KARTHIKEYAN R
Reg.No:136327
Consultant - CTVS & Anaesthesiology
Sivakamiachi Medical Centre,
Thanjavur -613006.

CERTIFICATE FOR VALIDATION

This is to certify that the tool developed by Mrs.Megala.S, II Year M.Sc nursing, student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai (Affiliated to Dr.M.G.R.Medical university)is validated by the undersigned can proceed with this tool and conduct the main study for dissertation entitled

TOPIC :" A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital at pudukkottai".

Signature: S.

Name: S. ELANGOVAN, MSc(N), PhD

Designation: PROFESSOR

Seal: MR. S. ELANGOVAN, MSc(N), (Ph.D)
PROFESSOR
SRI AUROBINDO COLLEGE OF NURSING
KARUR

CERTIFICATE FOR VALIDATION

This is to certify that the tool developed by Mrs.Megala.S, II Year M.Sc nursing, student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai (Affiliated to Dr.M.G.R.Medical university)is validated by the undersigned can proceed with this tool and conduct the main study for dissertation entitled

TOPIC :" A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital at pudukkottai".

Signature: 09/04/2025

Name: PROF. MRS. B. RUSHA, M.Sc(N) (Ph.D)

Designation: VICE PRINCIPAL

Seal:

COLLEGE OF PARAMEDICAL AND ALLIED HEALTH SCIENCE
TRICHY
621 105.

CERTIFICATE FOR VALIDATION

This is to certify that the tool developed by Mrs.Megala.S, II Year M.Sc nursing, student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai (Affiliated to Dr.M.G.R.Medical university)is validated by the undersigned can proceed with this tool and conduct the main study for dissertation entitled

TOPIC :" A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital at pudukkottai".

Signature:

Name: T. Prabavathy, M.Sc(N)

Designation: Asso. Professor

Seal:

Indra Ganesan College of Nursing
TRICHY
620 012
Manikandam

கருவி

மாதிரி எண் :

முகவரி :

மக்கள் தொகை மாறிகள் (Demographic Variable)

1. வயது

a) 20-35 ஆண்டுகள்

b) 36-40 ஆண்டுகள்

c) 41-60 ஆண்டுகள்

2. பாலினம்

a) ஆண்

b) பெண்

c) திருநங்கை

3. மதம்

a) இந்து

b) முஸ்லீம்

c) கிறிஸ்துவர்

d) மற்றவை

4. கல்வி நிலை

a) கல்வியறியாதவர்

b) தொடக்கக் கல்வி

c) மேல்நிலைப் பள்ளி

d) பட்டம் பெற்றவர்

5. வேலை நிலை

a) வேலை இல்லாதவர்

b) தனியார்

c) அரசு

d) தினக்கூலி

6. திருமண நிலை

a) திருமணமானவர்

b) திருமணம் ஆகாதவர்

c) விதவை/விதவனார்

d) விவாகரத்து பெற்றவர்

7. குடும்ப வருமானம் (மாதம்)

a) ரூ.10,000 க்கும் குறைவானது

b) ரூ.10,001 - 30,000

c) ரூ.30,001 - 50,000

d) ரூ.50,000 க்கும் மேல்

8. பழக்கங்கள்

a) புகைப்பிடித்தல்

b) மதுபானம்

c) இரண்டும்

d) எதுவும் இல்லை

9. உடல் நிறை குறியீடு (BMI)

a) எடை குறைவானவர்

b) சாதாரண எடை

c) அதிக எடை

d) பெருந்தொப்பை (Obesity)

10. கன்யூலா அளவு (Cannula size)

a) 16 கியூஜ் (gauze)(குடைவு விட்டம்)

b) 18 கியூஜ்

c) 20 கியூஜ்

d) 22 கியூஜ்

11. முந்தைய நரம்பு வழி மருந்து உட்செலுத்துதல் வரலாறு

a) ஆம்

b) இல்லை

TOOL

SAMPLE NUMBER:

ADDRESS:

DEMOGRAPHIC VARIABLE

1.Age

a)20-35 years

b)36-40years

c)41-60years

2.Sex

a)Male

b)Female

c)Trangender

3.Religion

a)Hindu

b)Muslim

c)Christian

d)Others

4.Educational status

a)Illiterate

b)Primary education

c)Higher secondary

d)Graduate

5.Occupational status

a)Un-employ

b)private

c)government

d)daily wages

6.Marital status

a)Married

b)Unmarried

c)Widower

d)Divorced

7.Family income per month

a)below 10000

b)Rs.10001-30000

c)Rs.30001-Rs.50000

d)Above Rs.50000

8.Habits

a)Smoking

b)Alcohol

c)Both

d)None

9. Body Mass Index

a)Underweight

b)Normal weight

c)Over weight

d)Obesity

10.Cannula size

a)16 gauze

b)18gauze

c)20gauze

d)22gauze

11.Previous history of intravenous cannulation

a)Yes

b)No

CERTIFICATE FOR VALIDATION

This is to certify that the tool developed by Mrs.Megala.S, II Year M.Sc nursing, student in Mother Terasa College of Nursing, Mettusalai, Pudukkottai (Affiliated to Dr.M.G.R.Medical university)is validated by the undersigned can proceed with this tool and conduct the main study for dissertation entitled

TOPIC :" A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experience among patient undergoing intravenous cannulation in selected hospital at pudukkottai".

Signature:

Name: SENTHIL KUMAR.S

Designation:

Seal:

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CERTIFICATE FOR EDITING

Certificate that the dissertation paper titled, **"A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experiencing among patient undergoing intravenous cannulation in selected hospital at Pudukkottai"** by Mrs.Megala.S. It has been checked for accuracy and correctness of English language used in presenting the paper is lucid, unambiguous free of grammatical and spelling errors and is apt for the purpose.

Signature

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HOD OF ENGLISH DEPARTMENT
Mother Terasa College of Arts and Science
Mettusalai,Illuppur.

CERTIFICATE FOR EDITING

Certificate that the dissertation paper titled, **"A comparative study to evaluate the effectiveness of topical anesthetic cream application and cryotherapy on pain experiencing among patient undergoing intravenous cannulation in selected hospital at Pudukkottai"** by Mrs.Megala.S. It has been checked for accuracy and correctness of Tamil language used in presenting the paper is lucid, unambiguous free of grammatical and spelling errors and is apt for the purpose.

Signature

சி. சிட்டு M.A.,M.Phil.,B.Ed.,
துறைத்தலைவர்
தமிழ்த்துறை
மதர்தெரசா கலை அறிவியல் கல்லூரி
மேட்டுச்சாலை, இலுப்பூர், புதுக்கோட்டை - 622 102.

ஒப்புதல் படிவம் (Consent Form)

ஆராய்ச்சி தலைப்பு:

"நரம்பு ஊசி செலுத்தும் போது வலி குறைப்பதில் மேற்பரப்பில் பயன்படுத்தும் அனஸ்தெட்டிக் கிரீம் மற்றும் க்ரையோதெரபி (பனிக்கட்டியை பயன்படுத்துதல்) ஆகியவற்றின் தாக்கம் குறித்த ஒப்பீட்டு ஆய்வு"

ஆராய்ச்சியாளர்: _____

நான், _____ (நோயாளியின் பெயர்),

இந்த ஆய்வில் கலந்து கொள்வதற்காக எனக்கு போதுமான விளக்கம் அளிக்கப்பட்டது என்பதை உறுதிப்படுத்துகிறேன்.

எனக்கு புரிந்த விஷயங்கள்:

1. இந்த ஆய்வில் கலந்து கொள்வது என் விருப்பத்தின் பேரில் மட்டுமே.
2. எனக்கு எப்போதும் ஆய்விலிருந்து விலகும் உரிமை உண்டு.
3. இந்த ஆய்வின் போது எனக்கு எவ்வித பாதிப்பு / தீங்கு ஏற்படாது.
4. எனது தனிப்பட்ட தகவல்கள் அனைத்தும் ரகசியமாக வைக்கப்படும்.
5. இந்த ஆய்வின் மூலம் நான் பெறும் சிகிச்சையில் எவ்வித குறையும் இருக்காது.
6. வலி குறைப்பதற்காக லிடோகெயின் கிரீம் (Topical Anesthetic Cream) அல்லது பனிக்கட்டி (Cryotherapy) பயன்படுத்தப்படும்.
7. இந்த ஆராய்ச்சியில் கலந்து கொள்வது எனக்கு எந்த நிதி சுமையையும் ஏற்படுத்தாது.

நான் மேற்கண்ட விஷயங்களைப் புரிந்து கொண்டு, எனது விருப்பப்படி இந்த ஆய்வில் கலந்து கொள்வதற்கு ஒப்புக்கொள்கிறேன்.

ஒப்புதல்:

நோயாளியின் கையொப்பம் / விரல் அச்சு : _____

ஆராய்ச்சியாளர் கையொப்பம்: _____

தேதி: _____

CONSENT FORM

RESEARCH TITLE: "A COMPARATIVE STUDY TO EVALUATE THE EFFECTIVENESS OF TOPICAL ANESTHETIC CREAM APPLICATION AND CRYOTHERAPY ON PAIN EXPERIENCING AMONG PATIENT UNDERGOING INTRAVENOUS CANNULATION".

Researcher:----------

I,----------(Patient name) hereby confirm that I have been given sufficient explanation regarding participation in this study.

I understand the following points:

1.my participation in this study is purely voluntary

2.i have the rights to withdraw from the study at any time

3. I will not suffer any harm or adverse effects during this study

4.All my personal information will be kept confidential

5.my treatment will not be affected in any way by my participation in this study

6.Either lidocaine cream or ice pack will be used for pain reduction

7.participation in this research will not cause me any financial burden

I have understood the above information and voluntary agree to participate in this study

Consent:

Patient signature/thumb impression:---------- **Researcher's signature--------**

Date:----------

INTERVENTION PROCEDURE

1. TOPICAL ANESTHETIC CREAM APPLICATION (LIDOCAINE -4%)

Equipment Required

- ✓ Topical anesthetic cream (Lidocaine –4%, 0.5 g per site)
- ✓ Sterile gauze pieces
- ✓ Antiseptic solution (spirit/chlorhexidine)
- ✓ Waste disposal container

Step-by-Step Procedure

1. Preparation

- ✓ Wash hands thoroughly.
- ✓ Wear disposable gloves.
- ✓ Explain the procedure to the patient and obtain consent.
- ✓ Identify the vein for IV cannulation (dorsum of hand or forearm).

2. Application

- ✓ Squeeze about 0.5 g of topical anesthetic cream.
- ✓ Apply a thick, even layer over the selected cannulation site.
- ✓ Do not rub into the skin.
- ✓ Cover the area with a transparent occlusive dressing to promote absorption.

3. Duration

- ✓ Leave in place for 20–30 minutes before IV cannulation.
- ✓ Observe the site periodically for allergic reactions (redness, itching, rash).

4. Before Cannulation

- ✓ Remove the occlusive dressing gently.
- ✓ Wipe off excess cream using sterile gauze.
- ✓ Clean the site with antiseptic solution as per protocol.
- ✓ Proceed with IV cannulation.

2. CRYOTHERAPY (ICE PACK APPLICATION)

Equipment Required

- ✓ commercial ice pack
- ✓ Sterile gauze or thin towel (to wrap ice)
- ✓ Disposable gloves
- ✓ Antiseptic solution (spirit/chlorhexidine)
- ✓ Waste disposal container

Step-by-Step Procedure

1. Preparation

- ✓ Wash hands thoroughly.
- ✓ Wear gloves.
- ✓ Explain the procedure and gain patient cooperation.
- ✓ Select appropriate vein for IV cannulation.

2. Application

- ✓ Wrap the ice pack in sterile gauze/towel to avoid direct contact with skin.
- ✓ Place the wrapped ice pack gently over the selected site.

3. Duration

- ✓ Keep in place for 3–5 minutes until the skin becomes numb.
- ✓ Observe for patient tolerance (avoid excessive cold injury or discomfort).

4. Before Cannulation

- ✓ Remove the ice pack.
- ✓ Allow the skin to return to normal colour and dryness.
- ✓ Clean the site with antiseptic solution.
- ✓ Proceed with IV cannulation.