“A TRUE EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF TOPICAL ANESTHETIC CREAM ON PAIN EXPERIENCE AMONG PATIENTS UNDERGOING INTERVENOUS CANNULATION IN SELECTED HOSPITAL, KRISHNAGIRI DISTRICT”

DISSERTATION SUBMITTED TO

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

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

By

Reg. No. 301210601

MEDICAL SURGICAL NURSING

PADMAVATHI COLLEGE OF NURSING

DHARMAPURI – 635 205

OCTOBER- 2014

CERTIFICATE

Certified that this is a bonafide work of **Mr.AJIN.R.S.,** final year M.Sc. (Nursing) student of Padmavathi College of Nursing, Dharmapuri, submitted in partial fulfillment of the requirement for the Degree of Master of Science in Nursing to The Tamil Nadu Dr. M. G. R. Medical University, Chennai under the Registration No.**301210601**

College Seal:

Signature of the Principal: _____

Prof.S.Ann Suganthi M. Sc., (N), Ph. D., (N),
Principal,
Padmavathi College of Nursing,
Periyanahalli, Dharmapuri District,
Pincode: 635 205.

“A TRUE EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF TOPICAL ANESTHETIC CREAM ON PAIN EXPERIENCE AMONG PATIENTS UNDERGOING INTERVENOUS CANNULATION IN SELECTED HOSPITAL,KRISHNAGIRI DISTRICT”

Approved by the Dissertation committee

Professor in Nursing Research: _____

Prof.S.Ann Suganthi, M. Sc., (N), ~~Ph. D~~., (N),
Principal,
Padmavathi College of Nursing,
Periyanahalli, Dharmapuri District,
Pincode: 635 205.

Clinical Speciality Guide **:** _____

Mrs.Saraswathi M.Sc., (N),
Head of Department, Medical Surgical Nursing,
Padmavathi College of Nursing,
Periyanahalli, Dharmapuri District,
Pincode: 635 205.

Medical Expert **:** _____

Dr.C.SoundranRaj.M.D,
Medical Consultant,
TCR Hospital,
Krishnagiri.

_____ _____

Signature of the Internal Examiner Signature of the External Examiner

ACKNOWLEDGEMENT

First and foremost, I praise and thank Almighty God where blessings have bestowed in me the will power and confidence to carry out my research and complete the dissertation.

I the researcher of the study grateful to **Mr.Sekher.M.G,**Chairman of Padmavathi College of Nursing for giving me the precious opportunity to be a part of this esteemed institution.

I the researcher of the study extend my thanks and profound gratitude to **Prof.S.Ann Suganthi,M.Sc.,(N), Ph.D.,(N),**Principal and Head of the Department of Child Health Nursing for the encouragement and expert guidance throughout my research.

I feel it a pleasure to be indebted to **Mrs.Gunavathi.S, M.Sc., (N),** Vice principal, Head of the Department of Obstratical and GynacologyNursing,Padmavathi College of Nursing, Dharmapuri for his valuable suggestions and continuous support which made my study smooth and successful. I feel it a pleasure to be indebted to my class co-ordinator and Research guide **Mrs.Saraswathi, M.Sc.,(N),**Head of the Department of Medical Surgical Nursing Padmavathi College of Nursing for her valuable suggestion and support, which helped me to do my study in a wonderful and fruitful manner.

I express my humble and sincere gratitude to All Faculty Members of Padmavathi College of Nursing, Dharmapuri, for the guidance and suggestions for the completion of the study.

I extend my humble gratitude and honor to **Mr. G. Immanuvel,M.Phil,** Bio-Statistician for his guidance in analysis and presentation of the data.

I express my sincere gratitude to **Dr.C. Soundara Raj,M.B.B.S., M.D.,** Medical Consultant, TCR Hospital, Kishnagiri, for validating the tool, constant guidance and valuable suggestions.

I extend my sincere and honest gratitude to the authorities of TCR Hospital,Krishnagiri, for permitting me to collect the data from their esteemed institutions.

I extend my deep sense of gratitude and thanks to the Patients for their cooperation in completion of the study.

I extend my thanks to **Mr.Vijayakumar,** Librarian, for extending library facilities throughout the study.

I express my special thanks to the Staffs of Malar Computer Centre for the technical assistant and the willingness to meet the demand of schedule deadline in shaping the manuscript.

I would also like to thank my beloved parents **Mr.Ragavan.C,** and **Mrs.Selvi.S,** my brothers **Mr.Arun.R.S, Mr.Anand.R.S,**my sister-in-law **Mrs.Jasmine.A,** and my best friend **Mrs.Pritty George,** for their fruitful prayer, endless patience, inspiration and support throughout this endeavor.

ABSTRACT

Pain is the unpleasant sensory and emotional experience associated with actual or potential tissue damage, or decrease in terms of such damage. Early pain experiences may play a particularly important role in shaping an individual's pain responses. In adequate relief of pain and distress painful medical procedures may have long-term negative effects on future pain tolerance and pain responses.

Intravenous therapy is delivered annually to millions of patients in homes, hospitals and other health care facilities. Cannulation causes moderate or severe pain in a substantial number of children and adults. Some institutions have procedures for minimizing the predictable pain of cannulation. Tropical anesthetics are analgesic drugs that may be associated with higher magnitude of benefit for managing pain during common needle stick procedures.

The investigator has come across many incidence during his clinical practice in which the patients requesting anesthesia during intravenous cannula. Hence the study was conducted on the following topic "A true experimental study to assess the effectiveness of topical anesthetic cream on pain experience among patients undergoing intravenous cannulation, selected hospital in krishnagiri."

OBJECTIVES OF THE STUDY

1. Assess the level of pain during intravenous cannulation among experimental group.
2. Assess the level of pain during intravenous cannulation among control group.
3. Compare the level of pain among experimental group and control group.
4. Associate the level of pain with the selected demographic variables among experimental group and control group.

HYPOTHESIS

H_1: There is a significant difference in the pain score between experimental group and control group of patients undergoing intravenous cannulation.

H_2: There is significant association between the level of pain among patients undergoing intravenous cannulation and the selected socio-demographic variables.

CONCEPTUAL FRAMEWORK

The conceptual framework adopted on the study is Roy's Adaptation model. Roy focuses on the individual as a biopsychosocial adaptive system that employs a feedback cycle of input (stimuli), throughput (control processes), and output (behaviors or adaptive responses).

METHODOLOGY

The research approach adopted for the study was experimental approach i.e. post test only control design. The present study attempts to evaluate the effectiveness of topical anesthetic cream in reducing the pain associated with intravenous cannulation. This study includes manipulation,

control and randomization.

60 subjects who require an intravenous line were included in the study and 30 subjects each are allocated randomly to experimental and control group through lottery method. Topical anesthetic cream is applied 5 minutes before cannulation for experimental group. The pain of puncture is assessed after intravenous cannulation. The effectiveness of topical anesthetic cream was assessed by comparing the pain scores between experimental and control group through suitable statical methods.

TOOL

The tool used for data collection was organized into two sections

Section A: Socio-demographic data including clinical variables

Section B: Standardized pain assessment tool-Numeric Rating Scale

RESULTS

- Majority of patients (30%) were in the age group of 21-30 years in the experimental group, where as in control group majority of patients (26.7%) were in the age group of 51-60 years.
- Majority of patients were females: 53.3% and 60% in experimental group and control group respectively.
- Majority of patients were Hindus: 60% and 66.7% in experimental group and control group respectively.
- Majority of patients were married: 80% and 86.7% in experimental group and control group respectively.
- Majority of patients were having only primary education: 33.3% and 50% in experimental and control group respectively.
- Majority of patients were moderately built: 70% and 83.3% in experimental and control group respectively.
- Majority of patients were inserted 20 gauge cannula: 73.3% and 90% in experimental and control group respectively.
- Majority of patients have undergone cannulation in cephalic vein (50%) in the experimental group and majority of patients were undergo cannulation in the dorsal metacarpal vein (46.7%) in the control group.
- Majority of patients had 1-5 times previous exposure to intravenous cannulation: 66.7% and 50% in experimental and control group respectively.
- Majority of patients have no pain related to any chronic disease: 96.7% and 100% in experimental and control group respectively.
- In the experimental group the mean pain score percentage was only 23.3% compared to the control group mean pain score percentage 35%. The difference in the mean pain score percentage was 11.7%. It reveals that the patients in the experimental group experienced lesser pain compared to the patients in the control group.
- The independent “t” test computed between experimental and control group pain

scores were statistically significant at 0.05 level of significance. The calculated "t" value (4.906) is greater than the table value, 1.96. this shows that the topical anesthetic is effective in reducing pain during intravenous cannulation.

- There is a significant association between pain score and gender (P=0.01) among patients in the control group. Other socio-demographic variables did not have any statistical relation with the pain score of experimental and control group.

TABLE OF CONTENT

Chapter. No	Contents	Page. No
I	**INTRODUCTION**	
	Back Ground of the study	3
	Significance need for the study	3
	Statement of the problem	6
	Operational definitions	6
	Objectives of the study	**7**
	Assumptions	**7**
	Hypothesis	7
	Delimitations	8
	Conceptual frame work	8-11
II	**REVIEW OF LITERATURE**	
	Studies related to effect of topical anesthetic cream in reducing intravenous cannulation pain.	12-19
	Studies related to different types of anesthetics for reducing intravenous cannulation pain.	19-21
	Studies related to compression of topical anesthetic cream and different types of anesthesia for reducing intravenous cannulation pain.	21-24
III	**RESEARCH METHODOLOGY**	
	Research approach	25
	Research design	25
	Variables	28
	Setting of the study	28
	Sample	29
	Sampling technique	29

	Criteria for selection of sample	29
	Development and description of tool	30
	Validity and reliability	30
	Pilot study	31
	Data collection procedure	32
	Protection of human rights	33
IV	**ANALYSIS AND INTERPRETATION OF DATA**	34-57
V	**DISCUSSION, SUMMARY, CONCLUSSION, IMPLICATION AND RECOMMENDATIONS.**	58-66
VI	**REFERENCES**	67-71
VII	**ANNEXURE**	72-90

LIST OF FIGURES

FIGURE. NO	TITLE	PAGE.NO
1	Conceptual frame work based on simple system theory RRoy'sadoptation model	11
2	Schematic representation of Research design.	26
3	Schematic representation of Research study.	27
4	Percentage distribution of subjects according to age of patient.	37
5	Percentage distribution of subjects according to gender.	38
6	Percentage distribution of subjects according to gender.	39
7	P Percentage distribution of subjects according to religion.	40
8	Percentage distribution of subject according to marital status.	41
9	Percentage distribution of subjects according to educational status.	42
10	Percentage distribution of subjects according to body builds.	43
11	Percentage distribution of subjects according to size of cannula.	44
12	Percentage distribution of subjects according to site of cannula.	45
13	Percentage distribution of subjects according to previous exposure of cannulation.	46
14	Percentage distribution of subjects according to presence of pain due to any chronic disease.	49
15	Percentage distribution of subjects among experimental and control group according to their level of pain	52
16	Diagram showing associations between the level of pain and gender among patients in control group.	57

LIST OF TABLES

S.NO	TITLE	PAGE.NO
1	Frequency and percentage distribution of subject among experimental group and control group according to their socio demographic variables.	35
2	Distribution of subjects among experimental and control group according to their level of pain.	47
3	Over all mean percentage and standard deviation of pain score among experimental and control group.	48
4	Comparisons of pain score among experimental group and control group.	50
5	Comparison of average pain score percentage among experimental and control groups.	51
6	Association between the level of pain and demographic variables among experimental group.	53
7	Association between the level of pain and demographic variables among control group.	55

CHAPTER-I

INTRODUCTION

"**Pain is such an uncomfortable feeling that even a tiny of it is enough to ruin every enjoyment".** -

Will Rogers.

Pain is a highly unpleasant and very personal sensation that cannot be shared with others. It can occupy all a person's thinking, direct all activities, and change a person's life. Yet pain is a difficult concept for a client to communicate. The differences in individual pain perception and reaction, as well as many causes of pain, present the nurse with a complex situation when developing a plan to relieve pain and provide comfort. Effective pain management is an important aspect of care.

Pain is considered as the fifth vital sign. It occurs with many disorders, diagnostic tests, and treatments. 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 relief 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". This definition emphasizes the highly subjective nature of pain and pain management. Basic to this definition is the care provider's willingness to believe that the client is experiencing pain and that the client is the real authority on that pain.

Intravenous therapy is delivered annually to millions of patients in homes, hospitals and other health care facilities. It is an effective method of supplying fluids directly into the intravascular fluid compartment and replacing electrolyte losses. The nurse is responsible for initiating, monitoring and discontinuing the therapy.

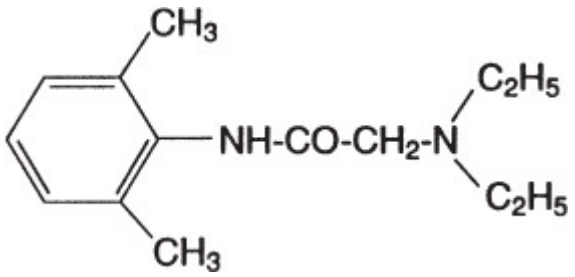
It has been found to be true that intravenous cannulation is a painful and uncomfortable experience. Approximately 70% of adults and children feel fear, stress, depression, anger or anxiety prior to a needle prick procedure or venipuncture. One could therefore reasonably hypothesize that if a patient's 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 decreasing this discomfort is the use of a topical local anesthetic cream.

Topical anesthetics are safe and effective for reducing the physical and emotional distress that may experience during painful procedures. 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

channels, results in a rise of potential threshold. Traditional agents utilized as topical anesthetics for pediatric needle stick procedures are a mixture of local anesthetics, various lidocaine formulations, and vapocoolants.

Lidocaine Ointment 5% is a tropical preparation of lidocaine, local anesthetic that can be absorbed through the skin. This drug works by blocking the signals sent by nerves to tell the brain that the body is experiencing pain. Lidocaine stabilizes 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 sunburns, rashes, and other lesions that cause pain, irritation or itching. While pain signals can be very valuable for the brain to receive when an injury is initially sustained, prolonged pain and irritation are not enjoyable and topical lidocaine can be used to make people more comfortable.

Lidocaine Ointment 5% contains lidocaine, which is chemically designated as acetamide, 2-(diethylamino)-*N*-(2,6-dimethylphenyl)-, and has the following structural formula



Intravenous catheter placement is extremely painful common procedure performed in all ages and health care settings, more often than without anesthetic, despite clear research and guidelines demonstrating their effectiveness.

Back Ground of the Study

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's 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 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

. The researcher realized that intravenous pain is a very severe . So the researcher suggested assessing the effect of topical anesthetic cream lidocane 5%using before the intravenous cannulation.

SIGNIFICANCE NEED FOR THE STUDY

After completion of researcher diploma in general nursing , Researcher was worked in a multispecialty hospital. There researcher was posted in scheme ward with various complains of patients like pre-operative and post- operative cases and medical conditions. There researcher follow the physician order to start intra venous infusion for many patients. Unfortunately once researcher was sick and admitted in the hospital. That time researcher had a bad experience about intravenous (IV) canulation due to pain. So researcher took my inspiration to do the study.

Intravenous therapy and the care of vascular devices play a pivotal role in the delivery of modern health care treatments. Intravenous cannulation is the insertion of the cannula directly into the vein. It is the best way to deliver a precise dose quickly and in a well controlled manner throughout the body. It is also used for irritation solutions, which would cause pain and damage tissues if given by subcutaneous or intramuscular injections.

It has been estimated than 70-80 % of all hospitalized parents receive many form of intravenous therapy via a variety of vascular access devices. Initially nurses were only allowed to add drugs to infusing bag, ensure maintenance of device, changing infusion fluid on time and reporting any abnormalities to medical staff. This has altered dramatically with the advances in vascular access device technology and the expanding role of the nurse. Now-a-days in many specialist areas the nurses play a crucial role in the selection, insertion and removal of both peripheral and central venous devices.

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

For many patients the mere mention of the need for insertion of an intravenous catheter invokes anxiety and dread. These emotions may became at times, triggering a vasovagal reaction. This reaction can result in syncope, unresponsiveness, hypotension, and diaphoresis. These symptoms may lead to cardiovascular and neurological complications. Patient's anxieties and fears concerning needles are real and may even prevent them from seeking health care. The management of pain associated with intravenous cannulation must be a nursing priority.

In a study conducted on “Using Lidocaine for peripheral intravenous insertions; Patients preferences and pain experiences”, 79 participants have received intradermal lidocaine with the previous intravenous placement. Women rated the pain of the intradermal lidocaine as a mean of 2.28 (0-10 range) and the pain of intravenous insertion as a 2.4 (0-10 range), while men rated the

pain of intradermal lidocaine as a mean of 1.1 (0-4 range) and the pain of intravenous insertion as a 1.6 (0-5 range). Out of 180 participants, 134 (74%) will request intradermal lidocaine for future intravenous insertions.

This study showed that many patients would like a local anesthetic for peripheral intravenous placement. Nurses should be made aware of all options so that they can inform patients. By making patients aware of all options, nurses increase the quality of care as well as improve patient's satisfaction.

Some adults and young children have a fear of needles. In these situations, it may be advisable to use a product that eases the discomfort of venipuncture. Lidocaine cream numbs the skin to some extend and thereby it can reduce the fear of needle prick. Subcutaneous injection of local anesthetic may effectively ease insertion pain but is likely to be rejected by a patient with a fear of needles.

A study was conducted to compare the pain and anxiety with peripheral intravenous cannula insertion after pretreatment with no local anesthesia, 4 % lidocaine cream, or subcutaneously injected, buffered 1 % lidocaine. In this randomized, cross over design, 3 peripheral intravenous lines are inserted in each of 70 medical students or nurses. In random order, insertion sites were pretreated with nothing, lidocaine cream, or injected, buffered lidocaine. After each intravenous insertion, subjects recorded pain, anxiety and preferences for each technique on a 10-point numeric rating scale. The pain and anxiety associated with peripherals intravenous insertion is significantly reduced by using tropical lidocaine cream or injected, buffered lidocaine. Injected buffered lidocanine reduced intravenous insertion pain more than lidocaine cream but it requires an additional needle prick.

Injected buffered lidocaine or lidocaine cream can reduce the pain and anxiety associated with intravenous cannulation insertion, according to study findings reported in the Annals of Emergency medicine. Many patients who present to the emergency department require placement of intravenous line which frequently causes pain and anxiety. But most intravenous placements are done without local anesthesia due to time constraints, difficulty with there application, perceived ineffectiveness or a belief of health care providers that the pain of intravenous insertion is insignificant. Research has shown that both the pain and anxiety of intravenous insertion can be reduced by pretreatment with local anesthetics. Even though the injected anesthetics have a more rapid onset, it requires an additional needle stick. So anesthetic creams can be used effectively to reduce the pain and anxiety during intravenous cannulation.

This has also an application in the management of anxious patients undergoing intravenous sedation, suggesting the tropical analgesia prior to venous cannulation may significantly aid anxiolysis.

Health care is facing dramatic changes. Nursing personnel are often first in direct patient contact when an individual enters the health care setting. Many times going the extra mile by implementing treatments that provide patient comfort and allay anxiety will make the difference in patient satisfaction.

As one of the most common invasive nursing procedures, insertion of an intravenous catheter has a long tract record of being painful, stressful and a patient dissatisfied. Patient who are extremely apprehensive about intravenous cannulation need reassurance, pain reduction and relief. Patient satisfaction with nursing care is the strongest predictor of overall satisfaction. Reducing discomfort of routine procedures, such as venipuncture for an intravenous insertion, can contribute to perceived satisfaction.

STATEMENT OF THE PROBLEM

"A true experimental study to assess the effectiveness of topical anesthetic cream on pain experience among patients undergoing intravenous cannulation in selected hospital, Krishnagiri."

OPERATIONAL DEFINITIONS

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

Effectiveness: It refers to the extent to which the topical anesthetic cream has achieved the desired anesthetic effect in reducing the pain during intravenous cannulation.

Topical anesthetic cream: It refers to the anesthetic cream, LIDOCAINE 5% 0.5 gm that is commercially available which is used to apply on the surface of the skin 5 minutes before intravenous cannulation.

Pain: It refers to the subjective feeling of discomfort experienced by the patient during intravenous cannulation which can be measured by using Numerical rating scale.

Intravenous cannulation: It is a process of inserting an intravenous cannula through a peripheral vein for the infusion of fluids and electrolytes.

Patients: They are the subjects who require an intravenous line admitted in the medical ward TCR hospital Krisnagiri district.

OBJECTIVES OF THE STUDY

1. Assess the level of pain during intravenous cannulation among experimental group.
2. Assess the level of pain during intravenous cannulation among control group.
3. Compare the level of pain among experimental group and control group.
4. Associate the level of pain with the selected demographic variables among experimental group and control group.

ASSUMPTIONS

The study assumes that,

1. Patients in the experimental group have less pain that in the control group.
2. Topical anesthetic cream reduces the pain during the intravenous cannulation.

HYPOTHESIS

H_1: There is a significant difference in the pain score between experimental group and control group of patients undergoing intravenous cannulation.

H_2: There is significant association between the level of pain among patients undergoing intravenous cannulation and the selected socio-demographic variables.

DELIMITATIONS

1. The study is limited to adult patients admitted in the medical ward.
2. The study is limited to adult patients aged between 21-70 years.
3. The sample size is limited to 60 (30 experimental +30 control).
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 interest, expresses assumption and reflects a philosophical stance and it explains relationship 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 biopsychosocial 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 neurologic 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 is determined 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 is focused on assessing the effectiveness of topical anesthetic cream in 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 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 included the subjects as the patients as the patients who require intravenous cannulation in the medical wards of TCR Hospital, Krishnagiri. The input is the characteristic of the patients such as age, gender, religion, marital status, educational status, body built size of cannula, site of cannula, previous exposure to cannulation and presence of pain due to any chronic disease.

Throughput

Throughput is the intravention developed to help the patient adapt to thee situation. In this study the throughput is the application of tropical anesthetic cream before intravenous cannulation. Tropical anesthetic cream is applied 5 minutes before intravenous cannulation for the experimental group. No intravention is done for the control group.

Output

Output is the goal or expected outcome. The expected outcome was obtained by assessing the pain score using numerical rating scale after intravenous cannulation. Differences in the post test level of pain scores were observed in both experimental and control group. The positive outcome shows the topical anesthetic cream was effective in reducing the cannulation pain.

Feedback

In this study the feedback is considered as the process of evaluating the effectiveness of topical anesthetic cream in reducing the pain associated with intravenous cnnulation.

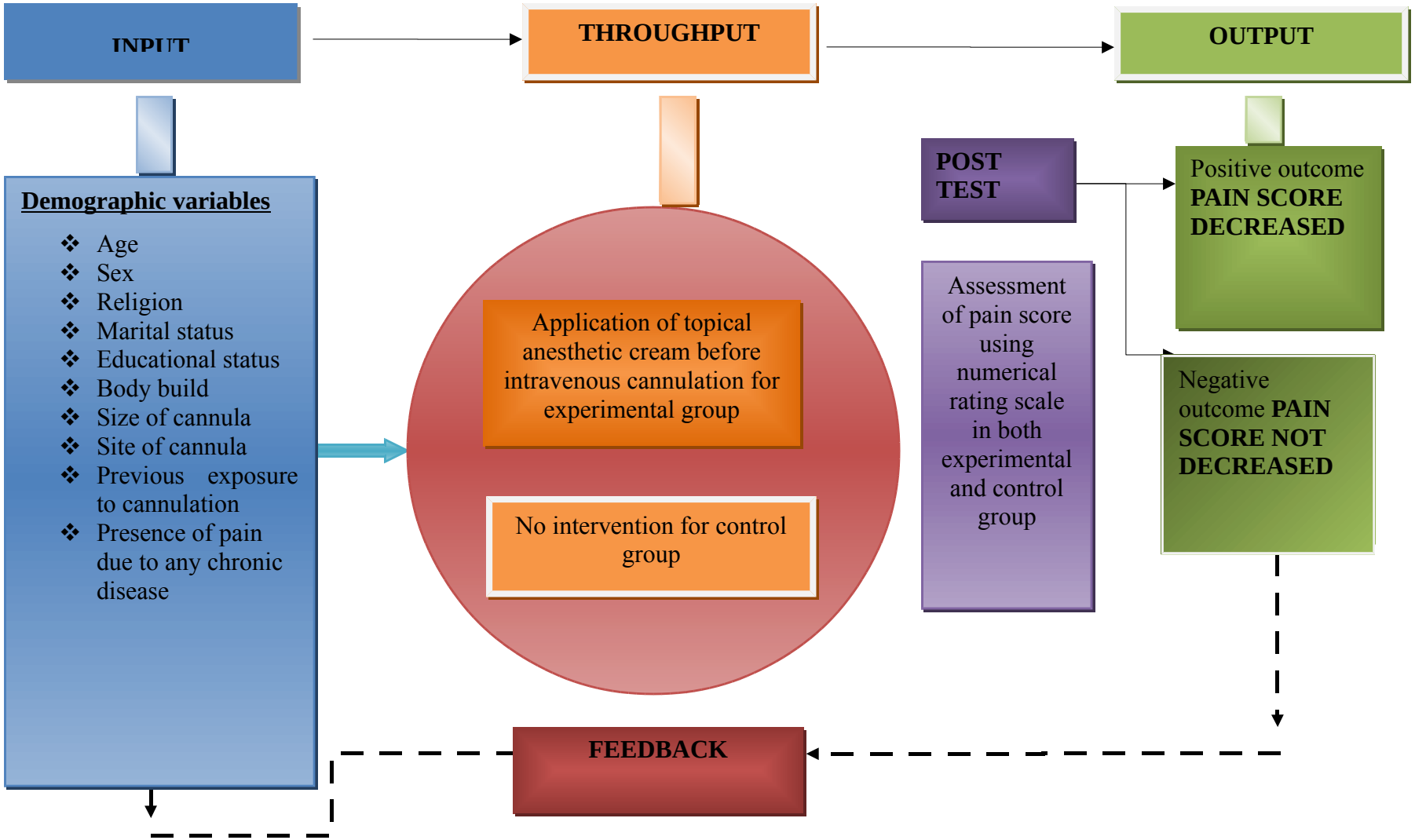


Fig 1: CONCEPTUAL FRAMEWORK BASED ON SIMPLE SYSTEM THEORY – ROY'S ADAPTATION MODEL

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.

1. Studies related to effect of topical anesthetic cream in reducing intravenous cannulation pain.
2. Studies related to different types of anesthesia for reducing the intravenous cannulation pain.
3. Studies related to comparison of topical anesthetic cream and different types of anesthetic for reducing intravenous cannulation pain.

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

Fabian B. (2000) Were conducted study on 'Evaluation of lignocaine gel versus EMLA cream for pain free cannulation' conducted in New Delhi to compare the effect of lignocaine gel with EMLA cream for pain relif during intravenous cannulation. 60 patients were included in the study. Lignocaine gel, EMLA cream and Vaseline jelly were applied to the dorsum of the hand of the group I, group II and group III respectively and covered with an occlusive dressing for 40-60 minutes. The formulation was removed and venepuncture performed. The pain score is assessed by visual along scale. There was significant difference between the pain scores in the

C. Mason,H. J.Thomasetal (1987) were condected 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 of 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.

Cicoline G,(2007) 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 wae associated with a higher intravenous cannulation success rate, less pain, shorter total procedure time and minor dermal change among children undergoing cannulation.

Bonghi AP (2007) conducted study on 'Lidocaine-based topical anesthetic with disinfectant, Lido Din versus EMLA for venepuncture' to examine the efficacy and safety of a new topical anesthetic containing a disinfection ingredient, Lido Din cream in reducing the pain associated

EMLA seem to be equally safe and effective topical anesthetics for venipuncture.

Nelson M (2007) ,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 programme 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.

Grace M,Gantz.N(2008) Were conducted study to investigate the placebo effect and age-related factors in the report of needle pain from venipuncture in children. A convenience sample of 117 children scheduled for venipuncture were randomly assigned to one of three treatments: (a) placebo cream with the suggestion that it might help reduce needle pain, (b) placebo cream with no identification as to the cream's purpose, and (c) no cream. Children rated their needle pain severity using the Faces Pain Scale, and rated their anxiety about the procedure using the children's Anxiety and Pain Scale. For the two groups receiving cream, 83% of those children told it might help stated that they believed it did, as compared with only 33% of children who received the cream but were told nothing of its purpose. There was, however, a treatment effect on the observer's ratings: children receiving cream plus suggestion were assigned significantly lower ratings of pain-related behavior than those children who received the cream alone. While venipuncture was associated with only mild levels of pain, younger children, irrespective of treatment group, did report more pain than older children. The study concluded that the efficacy of placebo treatments for needle pain in children may depend on the suggestion of a possible benefit rather than upon treatment application per se.

Rogers .R.(1997) Were conducted study in an emergency department to demonstrate whether

analog scale. The ultrasound group reported significantly less pain with 80% of treated participants. The study concluded that the SonoPrep ultrasound device applied to skin for 15 seconds followed by 5 minutes of 4% liposomal lidocaine cream significantly reduced patient's perception of the pain of an intravenous start when compared with standard care.

Juneja R,(1997)A study conducted to determine the efficacy of a 5 min application of lidocaine prilocaine cream for the management of pain associated with intravenous cannulation. This study compared pain perception between an experimental group who received lidocaine prilocaine cream and a control group who received a placebo. Subjects consisted of 40 males and females who underwent ophthalmic surgical procedures. When pain was investigated, all patients reported some level of pain following cannulation. There was a significant difference between the two groups (p=.002). This study suggests that a 5 min application of EMLA cream is adequate to decrease pain associated with intravenous cannulation.

Dennis G(1997) A randomized, double-blind study conducted to assess the efficacy of ELA-Max (4% liposomal lidocaine) with eutectic mixture of local anesthetics (EMLA) for pain relief during pediatric venipuncture procedures. A total of 120 children who were scheduled for repeat venipuncture at 2 sites participated in the study. Patients were doubly randomized to treatment regimen i.e, study medication application time of either 30 or 60 minutes. The primary outcome measures were the child's rating of pain immediately after the venipuncture procedures using a 100-mm VAS tool and the parent's and blinded research observer's Observed Behavioral Distress scores. Both ELA-Max and EMLA seemed to alleviate venipuncture pain. There was no clinically or statistically significant difference in the patient VAS scores within the 30-minute or 60-minute treatment groups, and there was no clinical or statistical difference in VAS scores between the 30-minute ELA-Max treatment without occlusion and the 60-minute EMLA treatment with occlusion. This study demonstrates that a 30-minute application of ELA-Max without occlusion is as safe and as effective for ameliorating pain associated with venipuncture as a 60-minute application of the prescription product EMLA requiring occlusion.

authors concluded that a topical preparation of lidocaine-prilocaine ointment significantly reduces children's pain during intravenous cannula insertion when applied to an intact dermal layer of the skin and this effect occurs within 45 minutes.

Marilyn M S(1999)A study conducted to compare the effect of topical skin anesthetic agents on the discomfort and anxiety associated with venous cannulation. 20 healthy volunteers aged 22-53 years underwent venous cannulation on three separate occasions having received topical skin application of either 4% amenthocaine gel (Ametop), 5% eutectic mixture of lidocaine and prilocaine or E45 cream (placebo). Visual analogue and verbal rating scales were used to assess pain and anxiety associated with the venous cannulation. The mean visual analogue scores for discomfort were found to be significantly lower ($p< 0.001$) with Ametop (VAS = 18mm) and EMLA (VAS = 29mm) compared with the control (VAS = 38mm). There was a positive correlation between discomfort and the predicted anxiety if cannulation was to be repeated with the same cream. Ametop and lidocaine prilocaine ointment produce effective skin analgesia for venous cannulation. The study concluded that the use of topical analgesia can reduce perceived anxiety about future cannulation procedures.

Xenakis(2001)A study conducted in Chandigarh to evaluate and compare the analgesic efficacy and anti inflammatory effects of topical piroxicam gel versus eutectic mixture of local anesthetic cream applied to the peripheral venous cannulation site in adult volunteers. Piroxicam gel and lidocaine prilocaine cream were randomly applied on the dorsum of the right and left hand of 10 volunteers. A venous cannula was inserted and removed after one hour. Pain scores and signs of inflammation were noted at the cannulation site up to 48 hour. Pain scores with piroxicam gel were higher on cannulation and on advancement of cannula and were significantly higher with lidocaine prilocaine cream. The study concluded that lidocaine prilocaine cream is associated with less pain on cannulation and cannula advancement compared to piroxicam gel.

Dennis G(1999)A study conducted to evaluate the benefit of the Eutectic mixture of local anesthetics for preoperative autologous blood donation in adults. Twenty-six adult patients

than for both the placebo and reference punctures (p= 0.05).

Di Msacio R.(2000) A study conducted to compare lidocaine prilocaine cream and amenthocaine for relieving the pain while getting injections. Six trials consisting of 534 children, three months to fifteen years of age, were included in this review. A meta-analysis was performed comparing amenthocaine with lidocaine prilocaine cream on anesthetic efficacy, ease of needle procedure and resultant skin changes. Compared to lidocaine prilocaine, amenthocaine significantly reducd the risk of pain when all pain data were combined into a common pain metric; when pain was self reported by children or when pain was observed by researchers. The study concluded that although lidocaine prilocaine cream is an effective topical anesthetic for children, amenthocaine is superior in preventing pain associated with needle procedures.

Dr.Thomas Rittenhouse(2001)A randomized, double blind study conducted to evaluate the efficacy of topical Myolaxin ointment over lidocaine prilocaine cream for attenuating venous cannulation pain. Sixty adult patients undergoing elective laparoscopic cholecystectomy were randomly assigned into two equal groups. Group I received lidocaine prilocaine cream, whereas Group II received Myloxin ointment. For both groups the cream was applied at the venous cannulation site one hour prior to venous cannulation and was covered with an occlusive dressing. Following venous cannulation patients were asked to rate the severity of venous cannulation pain using a Visual Analogue Scale of 0-10. The incidence of venous cannulation pain was similar between groups: in the lidocaine prilocaine group 65% compared to 67% in the Myolaxin group (P=0.0.19). The severity of pain was aso similar between the groups: in the lidocaine prilocaine group 1.5 (3) compared to 1.5 (2) in the Myolaxin group (P=0.46). As the topical application of Myolaxin ointment is cheaper than lidocaine prilocaine cream and has similar efficacy, it may be a suitable alternative for reducing the incidence and severity of venous cannulation pain.

Strasuss(2004)A study conducted to evaluate the effect and optimal application time of a eutectic mixture of local anesthetic cream in relieving wrist pain during transradial coronary

pain was evaluated by using the visual analogue scale. Lidocaine prilocaine demonstrated greater pain relief by VAS. In Phase II, there was a significant difference in pain levels between the control and 1- to 2-hour groups by VAS. The study concluded that EMLA cream can be effective in reducing wrist pain during TRCP without any significant drug-related complications when the application time is 1 to 3 hours before the procedure.

Jerrold Petrofsky(2006)A prospective randomized study conducted to assass the efficacy of lidocaine prilocaine cream versus placebo cream in children receiving distraction therapy for venipuncture. Twenty-eight children attending for venipuncture were recruited, and randomly allocated to receive either lidocaine prilocaine cream or a placebo cream. All were given distraction therapy prior to and during the procedure by a play specialist. Venepuncture was carried out by investigator. A modified pediatric pain assessment chart was used for objective pain score at the end of the procedure. There was no significant difference in pain score between the two groups (Mann-Whitney test, $p = 0.7$). The low pain score in both groups suggests the effectiveness of distraction therapy, although factors such as skill of the operator and previous experience of the patient group are of relevance. The study concluded that there was no significant difference in the pain score between the lidocaine prilocaine group and placebo groups, suggesting that in this age group if carefully selected children receive distraction during venipuncture topical anesthetic cream may not be necessary.

Wen-chun Liao(2006)A study conducted to determine whether a 20 minute application of lidocaine prilocaine ointment is useful in reducing the pain of routine peripheral intravenous cannulation in the emergency department. A blinded, randomized, placxebo controlled, paired trial compared the pain of intravenous cannulation in both hands of study subjects: one hand was treated with 20 minute lidocaine prilocaine cream and the other hand was treated with 20 minute placebo cream. Forty subjects identified the more painful hand and scored pain measurement of each hand using a 10 cm visual analog scale. The study failed to demonstrate any significant benefit of lidocaine prilocaine cream compared with placebo. There may be more effective and

department setting. Patients over 18 were allocated to into one of three groups. Group I was cannulated after routine skin preparation; Group II received 1% lignocaine 0.1 ml via a 27G needle before cannulation. The pain was measured using a 100mm visual analog scale. The patients receiving lignocaine before cannulation reported lower pain scores than the saline group and immediate cannulation groups. The study concluded that the use of lignocaine before cannulation reduced cannulation pain in the emergency department setting.

Haghani(2012)A study conducted in an emergency department to compare the analgesic efficacy, adverse effects, and cost-effectiveness of a needle-free intradermal drug delivery system with lidocaine for the insertion of an intravenous cannula. Four-hundred patients were randomly allocated to one of four groups: (a) no treatment (b) Jet with 0.5 ml of saline (c) Jet with 0.5 ml of lidocaine 1% and (4) Jet with 0.5 ml of lidocaine 1%. Pain was evaluated using a numerical verbal scale. Incremental cost-effectiveness ratios were calculated. According to the results Jet treatment is not painless and costs incurred to achieve one success compared with doing nothing are not negligible. The study concluded that Jet with lidocaine is effective, but its application is not painfull.

Kheirkhah (2009)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.

Kevin B Laupland(2012)A study conducted 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 to 60 years undergoing various types of surgery were enrolled. Patients were randomized to 1 to 4 treatment groups: group 1 received propofol; group 2, a combination of propofol plus lidocaine 10 mg; group 3, lidocaine 10 mg 30 seconds before propofol administration; and group 4, lidocaine 1 mg/kg 30 seconds before propofol administration. The patients were asked to rate their pain according to the following scale: 0 = none, 1 = mild, 2 = moderate, 3 = severe. The incidence of injection pain in groups 2 and 4 was significantly lower than that in groups 1 and 3, but no significant difference in the incidence of pain was found between groups 1 and 3. The incidence of pain in group 2 was significantly lower than that in group 4. In this study population, the addition of 10 mg of lidocaine to propofol 2mg/kg, or the administration of 1 mg/kg, effectively decreased pain caused by propofol injection.

3. STUDIES RELATED TO COMPARISON OF TOPICAL ANESTHETIC CREAM AND DIFFERENT TYPES OF ANESTHESIA FOR REDUCING INTRAVENOUS CANNULATION PAIN

Tom S Stelfox(2009) A study conducted in the Department of emergency medicine to compare the pain and anxiety associated with peripheral intravenous cannula insertion after pretreatment

NRS. The pain and anxiety associated with peripheral intravenous insertion is significantly reduced by using topical lidocaine cream or injected, buffered lidocaine. Injected buffered lidocaine reduces intravenous insertion pain more than lidocaine cream but it requires an additional needle prick.

Daniel J Niven(2009) In a randomized controlled study conducted to evaluate the efficacy between lidocaine prilocaine cream and ice prior to injection, 60 patients were enrolled. A fingertip amount of lidocaine prilocaine cream was placed on the upper left arm and occluded with a bandage. Ice in a rubber glove was placed on the right upper arm for 1-2 minutes. The lidocaine prilocaine site, ice site and a control site without anesthetic were tested for cutaneous analgesia with an injection of 1% lidocaine. The discomfort was recorded using a visual analog scale. Statistically there was a significant difference in pain between lidocaine prilocaine, ice and control group. The patients felt that lidocaine prilocaine cream and ice were good topical anesthetics each with advantages and disadvantages.

A study conducted to compare the analgesic efficacy of topical anesthetics for dermal instrumentation with conventional infiltrated local anesthesia and also compare topically available amide and ester agents with a eutectic mixture of local anesthetics. Systematic reviews of randomized, controlled trial including 2,096 subjects were used. The study assessed the analgesic efficacy of various topical anesthetics, reflected in the patient's self-report of pain intensity during dermal instrumentation. Qualitative analysis demonstrated comparable analgesic efficacy between liposome-encapsulated lidocaine and EMLA. The weighted mean difference in100-mm visual analogue scale pain scores favored topical tetracaine over EMLA. Liposome-encapsulated tetracaine provided greater analgesia than EMLA according to the weighted mean difference in 100-mm visual analog scale scores. The study concluded that the 3 topical anesthetic: tetracaine, liposome-encapsulated tetracaine and liposome-encapsulated lidocaine are at least as efficious as EMLA.

Laupland L(2009)A study conducted to compare the efficacy of two methods of topical

was shorter with iontophoresis (13 minutes) compared with EMLA cream (60 minutes, P <0.001). The study concluded that use of iontophoresis in pediatric patients is safe, rapid and significantly more effective than is EMLA cream in reducing pain associated with venipuncture or intravenous cannulation.

Bavanajan H(2010) A study conducted on 'Comparision of EMLA and lidocaine iontophoresis for cannulation analgesia' to compare the analgesic efficacy of eutectic mixture of local anesthetic cream, EMLA and lidocaine iontophoresis in patients undergoing intravenous cannulation. Twenty-eight patients had the eutectic mixture of local anesthetic cream applied to the dorsum of one hand for 60 min followed by sham iontophoresis (group EMLA); the other hand had a sham cream applied for 60 min followed by 10 min of 2 mA iontophoresis with lidocaine 4% and epinephrine 1 in 50,000 (group iontophoresis). Within 5 min of completion of iontophoresis an anesthetist, unaware of treatment allocation, inserted 18-G venous cannula into veins of both hands. The patient when scored the amount of pain on annulation using a 10 point verbal rating scale. Pain scores were lower for the EMLA treated hand than for the iontophoresis side. The study conclude that although lidocaine iontophoresis is effective more quickly than the eutectic mixture in this study should be borne in mind if these treatments are used electively.

Manumanunshan k (2011) A cost-effectiveness analysis of anesthetic agents was done to compare a variety of local anesthesia methods to reduce the pain of peripheral intravenous cannulation in an emergency department setting. Outcomes were measured as improvements in the self-reported visual analog scale pain scores. Variables considered unique to the various agents were cost of the agent, time to peak onset, success rates of cannulation and mean reduction in VAS scores. A cohort of patients aged 3 through 18 years enrolled in randomized control trials that compared analgesic modalities to facilitate peripheral intravenous cannulation. The study suggested that the needle-free jet injection of lidocaine device had the lowest incremental cost-effectiveness ratio, followed by intradermal injection of buffered lidocaine, lidocaine iontophoresis, 4% lidocaine cream alone and use of a eutectic mixture of local

cream and 1% lignocaine infiltration. Following arterial cannulation, pain was assessed by the patient using a visual analog scale and by an independent observer using a four-category verbal rating score. Significantly lower pain scores were observed in all patients receiving EMLA compared with those receiving placebo cream and lignocaine infiltrations by both patient and observer assessments. There were no significant differences between the three EMLA groups.

Romario N(2011)A study conducted in the pediatric emergency department to compare the anesthetic effectiveness of J-Tip needle-free jet injection of buffered lidocaine to the anesthetic effectiveness of topical 4% ELA-Max for peripheral intravenous catheter insertion. A prospective, block randomized, controlled trial including 70 children aged 8 to 15 years was done. Of the 70 children enrolled, 35 were randomized to the J-Tip jet injection group and 35 to the ELA-Max group. All subjects recorded self-reported visual analog scale scores for pain at time of enrollment and pain felt following intravenous cannulation. Subjects were videotaped during jet injection and intravenous cannulation. Videotapes and observer reported pain scores were reviewed for jet injection and peripheral intravenous catheter insertion. The study concluded that J-Trip injection of 1% buffered lidocaine provided greater anesthesia than a 30 minute application of ELA-Max according to patient self assessment of pain for children undergoing intravenous cannulation.

Mnumarsunan J (2011)A randomized controlled trial conducted to compare the anesthetic effect of lidocaine-prilocaine cream with subcutaneous local lidocaine infiltration for radial artery cannulation. 538 adults scheduled for coronary angiography were included as subjects. EMLA was applied two hours before radial artery cannulation in one group and lidocaine infiltration was performed 5 minutes before cannulation in another group. Then pain was assessed by a 0-10verbal numerical rating scale. Pain was less severe in the EMLA group than in the lidocaine infiltration group. The study concluded that EMLA, compared with lidocaine infiltration, reduces pain associated with radial artery cannulation and improves the success rate of the procedure.

to cannulation. The pain resulting from cannulation was assessed on a 10 point visual analog scale. The incidence of venous cannulation pain was 100% in the control group as compared to 37% and 48% of patients who experienced pain in the lidocaine prilocaine (P = 0.001) and diclofenac (P = 0.001) groups respectively. The severity of venous cannulation pain was also higher in the control group i.e. VAS = 6 as compared to the VAS scores of 0 and0 in the EMLA and diclofenac groups. The study concluded that transdermal diclofenac and EMLA are equally effective in reducing venous cannulation pain.

CHAPTER-III
RESEARCH METHODOLOGY

This chapter deals with the description of the research methodology adopted by the investigator to study the effect of topical anesthetic cream to reduce the pain associated with intravenous cannulation.

Research methodology is a way of systematically solving the research problem. It refers to the controlled investigations related to the ways of obtaining, organizing and analyzing data. Methodology is the most important part of any research study, which enables the research to form a blue print for the study undertaken.

The research methodology presents the research approach and the research design. The design of the study describes about the research setting, population, sample and sampling technique, development and description of tool, procedure and technique of data collection, content validity and reliability of tools, pilot study and a plan for data analysis.

RESEARCH APPROACH

Research approach helps the researcher to know what date to collect and how to analyze it. It also suggests the possible conclusions to be drawn from the data.

The research approach adopted for this study was an evaluation approach. Evaluative approach helps to explain the effect of independent variable on the dependent variable. The present study attempts to evaluate the effectiveness of topical anesthetic cream in reducing the pain associated with intravenous cannulation. This study includes manipulation, control and randomization. Hence in view of the nature of the problem and to accomplish the objectives of the study an Experimental approach was adopted.

RESEARCH DESIGN

The research design refers to the researcher's overall plan or blue print obtaining answers to the research questions, testing hypothesis and how to handle some of the difficulties

Experimental research design (Post test only control design) was considered as the appropriate design for this study. It includes manipulation, control and randomization.

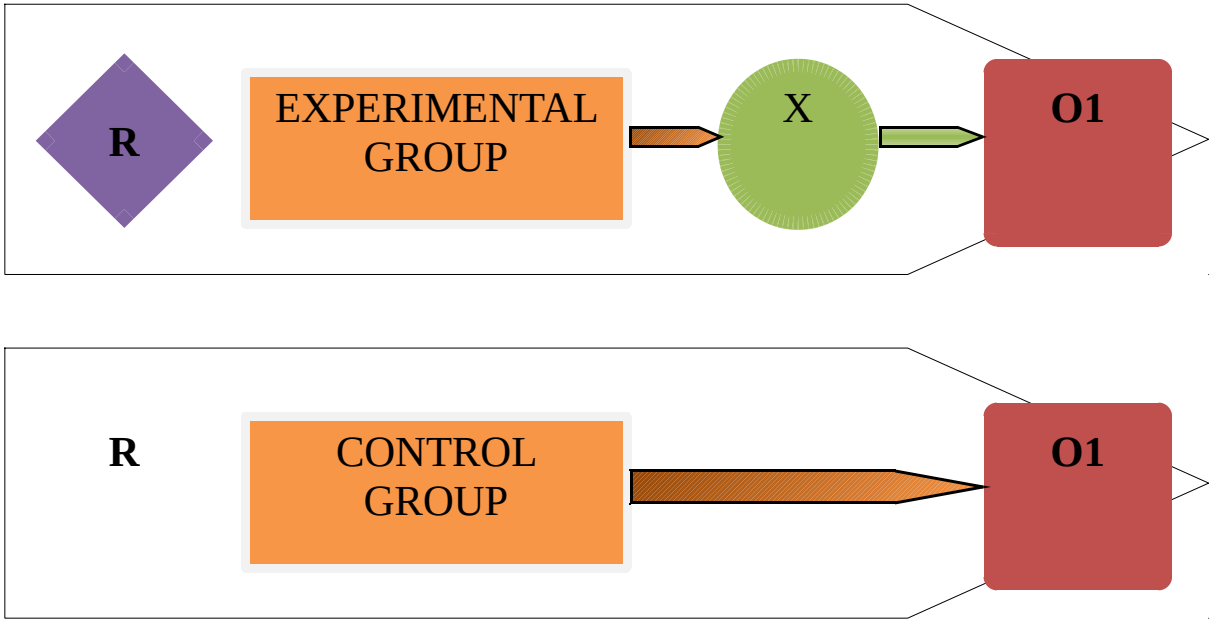


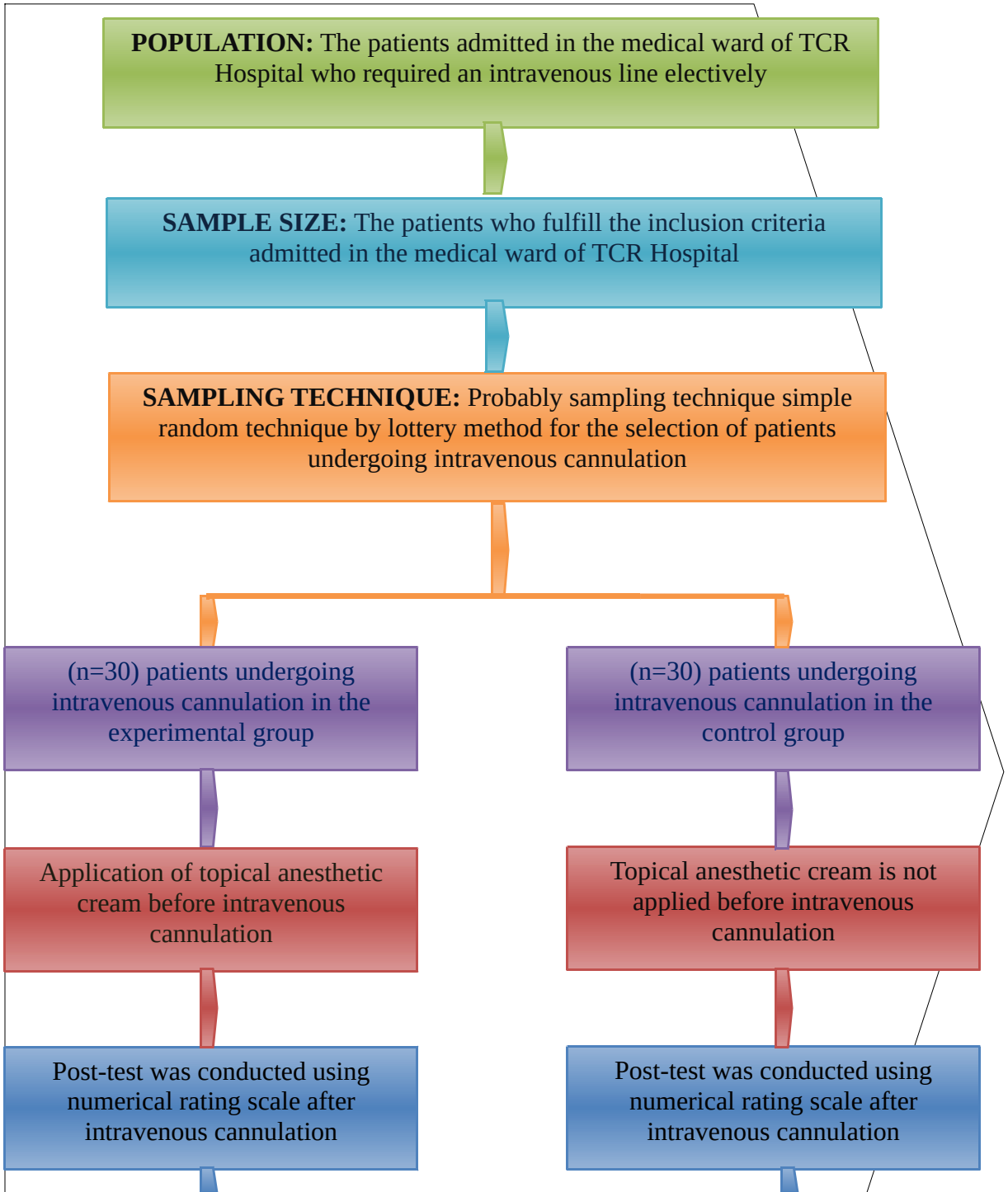
FIGURE 2: SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

KEY

R = Randomization

X = Application of Topical Anesthetic Cream

O1 = Post test


POPULATION: The patients admitted in the medical ward of TCR Hospital who required an intravenous line electively
SAMPLE SIZE: The patients who fulfill the inclusion criteria admitted in the medical ward of TCR Hospital
SAMPLING TECHNIQUE: Probably sampling technique simple random technique by lottery method for the selection of patients undergoing intravenous cannulation
(n=30) patients undergoing intravenous cannulation in the experimental group
(n=30) patients undergoing intravenous cannulation in the control group
Application of topical anesthetic cream before intravenous cannulation
Topical anesthetic cream is not applied before intravenous cannulation
Post-test was conducted using numerical rating scale after intravenous cannulation
Post-test was conducted using numerical rating scale after intravenous cannulation

VARIBLES

Variables are quality, properties or characteristics of persons, things or situations that change or vary.

In this study three types of variables are used. They are:

1. Independent variable
2. Dependent variable
3. Extraneous variable

1. **Independent variable**: An independent variable is the variable that stands alive, is not dependent on any other. In this study independent variable refers to the application of topical anesthetic cream.
2. **Dependent variable:** It is the outcome variable of interest. Dependent variable is the variable that is hypothesized to dependent on or caused by another variable, the independent variable. In the study the post test pain score is the dependent varible.
3. **Extraneous variable:** It is an uncontrollable variable that greatly influences the result of the study. In this study the extraneous variable are age, gender, religion, marital status, educational status, body built, size of cannula, site of cannula, previous exposure to intravenous cannulation, presence of pain due to any chronic disease.

SETTING OF THE STUDY

The study was conducted in TCR Hospitals after getting permission from the principal and directors of Padmavathi College of Nursing, Dharmapuri and management of in TCR Hospital,. It is situated Ten kilometers away from Padmavathi College of Nursing, Dharmapuri It is a multi-specialty hospital with 175 beds. It has various setups like general, surgical, ortho, neuro, outpatient department, Intensive care unit, post operative unit and medical ICU unit. Approximately 75 patient got admission in that hospital every month. Here various surgeries like gastro surgery, , gynocological surgery and cancer surgery are done in this hospital. They have consultant for oncology. Chemotherapy and palliative care also available in this hospital. They have special department for paediatric and neonatal care.

intravenous line electively

2. **Accessible population:** Adult patients who require new intravenous cannulas electively in general ward

.

SAMPLE

Sample were adults from TCR hospital who fulfill inclusive criteria. A sample consists of sub-set of population selected to participate in research study. The sample for the present study comprised of 60 patients who fulfilled the inclusion criteria. The sample are equally distributed among experimental and control group (30 in each group).

SAMPLING TECHNIQUE

Sampling technique is the procedure that the researcher adopts in selecting the samples for the study. Simple random sampling by lottery method was used to select sampling in the study.

CRITERIA FOR THE SELECTION OF SAMPLE

Inclusive criteria:

The patients,

1. Who requires a new intravenous line electively
2. Who are willing to participate
3. Who are capable of understanding and using the tool
4. Who are all admitted in general ward

Exclusive criteria:

The patients,

1. Who have intravenous line in place
2. Who are unable to perceive and respond to pain

intravenous cannulation and presence of pain due to any chronic disease.

Section B: standerdized pain assessment tool-Numeric Rating Scale:

The subjects are asked to choose a number of 0 to 10 that indicates their pain experience during intravenous cannulation.

RELIABILITY OF THE TOOL

The reliability of the measuring instrument is the major criterion for assessing the quality and adequacy. Reliability is the degree of consistency or accuracy with which an instrument measures an attributes it is supposed to measure.

The reliability of the tools was estimated by using Test-Reset method which measures the co-efficient of internal consistency. The reliability co-efficient was calculated by Karl-Pearson's correlation co-efficient formula represented by the symbol "r"

The tools was tested for reliability on 6 patients during pilot study by using Test-Reset method and applying Karl Pearson's correlation co-efficient formula represented by the symbol "r"

$$r=n\sum xy*\sum(x)/\sqrt{n\sum x^2-\sum(x^2)*\sqrt{n\sum y^2-\sum(y^2)}}$$

Key= r=correlation coefficient

n=Number of observations

Then it was further computed by using spearmen's formula r'= r 2/1+r

Where r=the correlation coefficient computed on the Test-Reset method.

r'=the estimated reliability of entire test.

The reliability value of the tool is 0.97 and hence the tool was found to be highly reliable.

VALIDITY OF THE TOOL

Content validity refers to the degree to which an instrument measures what it is intended to measure. Experts in the field of medical surgical nursing have established content validity of the tool. The experts where requested to review and verify the items for adequacy, clarity, appropriateness and meaningfulness. Minor modifications are made on the basics of suggestions

any part that does not work well.

After validation of the tool the researcher had started the pilot study from 3rd November 2013 to 10th November 2013 in TCR Hospital, Krishnagiri 10% of total sample size that is 6 patients who requires intravenous cannulation. Prior to the study, formal permission was taken from the Director of TCR Hospital,Krishnagiri. The investigator had selected the patients with the help of simple random sampling method (lottery method). The investigator prepared 6 chits of paper in which 3 chits were written an experimental group and 3 chits as control group. As per the patients received for intravenous cannulation, each of them was allowed to take a chit of paper which helps to allocate them either in experimental or control group. After making consent from the patient the investigator applied topical anesthetic cream (lidocane 5%) 5 minutes before intravenous cannulation only for experimental group. After the procedure the investigator assessed the pain of puncture by using numerical rating scale for both groups. A concise data analysis was done for pilot study. During the pilot study the investigator did not face any problem and found that the study to be feasible. The pilot study also helps the investigator to estimate the total time required to conduct main study including the budget.

DATA COLLECTION PROCEDURE

The data collection process involves the precise, systematic gathering of information relevant to the research purpose, questions, or a study

The investigator obtained the written permission from the hospital authorities in order to establish support and cooperation to conduct the study successfully.

The main study was conducted from 1st Feb 2014 to 28 Feb 2014. The investigators established good rapport with the participants and took consent from them to participate in the study. 60 subjects who require an intravenous line are selected as samples. As per the subjects received for intravenous cannulation, 30subjects each are allocated randomly to experimental and control group through lottery method. Lidocaine cream 0. 5gm is applied on the preferred site 5 minutes before intravenous cannulation in the experimental group. No intrvention is done

group after intravenous cannulation.

PLAN FOR DATA ANALYSIS

The data obtained where analyzed in the term of the objectives of the study using descriptive and inferential statistics. The plan of the data analysis was developed under the excellent direction of the experts in the field of nursing and statistics.

The plan of data analysis was as follows:-

1. Organize data on master sheet.
2. Frequencies and mean percentage of distribution of subjects based on their demographic variables.
3. Computer mean, mean percentage, standard deviation to describe the data.
4. Paired "t" test value to determine the effectiveness of topical anesthetic cream in reducing pain during intravenous cannulation.
5. Chi-square to find out association between pain score and Socio-demographic variables.

PROTECTION OF HUMAN RIGHTS

Research proposal was approved by the dissertation committee,Padmavathi College of nursing ,Periyanahalli, Dharmapuri.prior to the study oral consent of each study subject was obtained before starting the data collection .Assurance was given to the subjects that confidentiality should be maintained.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data collected to evaluate the effectiveness of local anesthetic cream in reducing the pain during intravenous cannulation among patients undergoing intravenous cannulation at Rajeev hospital, Hassan. The purpose of the analysis is to reduce the data to a manageable and interpretable from so that the research can be studied and tested.

The analysis and interpretation of this study are based on the data collected through numerical rating scale to evaluate the effectiveness of topical anesthetic cream in reducing the pain during intravenous cannulation. The results were computed using descriptive and inferential statistics based on the objectives of the study.

OBJECTIVES OF THE STUDY

1) Assess the level of pain during intravenous cannulation among experimental group.
2) Assess the level of pain during intravenous cannulation among control group.
3) Compare the level of pain among experimental group and control group.
4) Associate the level of pain with selected demographic variables among experimental and control group.

PRESENTATION OF DATA

In order to find the effectiveness, the data were tabulated, analyzed and interpreted using descriptive and inferential statistical methods. The data were presented under the following headings.

Section I: Distribution of subjects according to socio-demographic variables

Section II: Assessment of effectiveness of topical anesthetic cream on pain experience among patients undergoing intravenous cannulation.

Section III: Comparsion of pain scores among experimental and control group.

Section IV: Association between the level of pain and selected demographic variables.

SECTION-I

FREQUENCY DISTRIBUTION OF THE SUBJECTS ACCORDING TO SOCIO-DEMOGRAPHIC VARIABLES

TABLE 1: Frequency and percentage distribution of subjects among experimental group and control group according to their socio-demographic variables

N=30+30

Demographic variables		Experimental group		Control group	
		Number	Percentage %	Number	Percentage %
Age	21-30 years	9	30.0	4	13.3
	31-40 years	8	26.7	6	20.0
	41-50 years	3	10.0	7	23.3
	51-60 years	6	20.0	8	26.7
	61-70 years	4	13.3	5	16.7
Sex	Male	14	46.7	12	40.0
	Female	16	53.3	18	60.0
Religion	Hindu	18	60.0	20	66.7
	Muslim	2	6.7	2	6.7
	Christian	10	33.3	8	26.7
Marital status	Married	24	80.0	26	86.7
	Unmarried	6	20.0	4	13.3

status	Primary	10	33.3	15	50.0
	PUC	6	20.0	5	16.7
	Graduate & above	7	23.3	2	6.7
Body build	Thin	7	23.3	4	13.3
	Moderate	21	70.0	25	83.3
	Obese	2	6.7	1	3.3
Size of cannula	20 Gauge	22	73.3	27	19.0
	22 Gauge	8	26.7	3	10.0
Site of cannula	Cephalic vein	15	50	13	43.3
	Basilic vein	5	16.7	3	10.0
	Dorsal metacarpal vein	10	33.3	14	46.7
Previous exposure	No exposure	1	3.3	2	6.7
	1-5 times	20	66.7	15	50.0
	6-10 times	5	16.7	9	30.0
	More than 10 times	4	13.7	4	13.3
Pain due to chronic disease	Yes	1	3.3	0	0
	No	29	96.7	30	100.0

The data is shown in the figures 4 to 13.

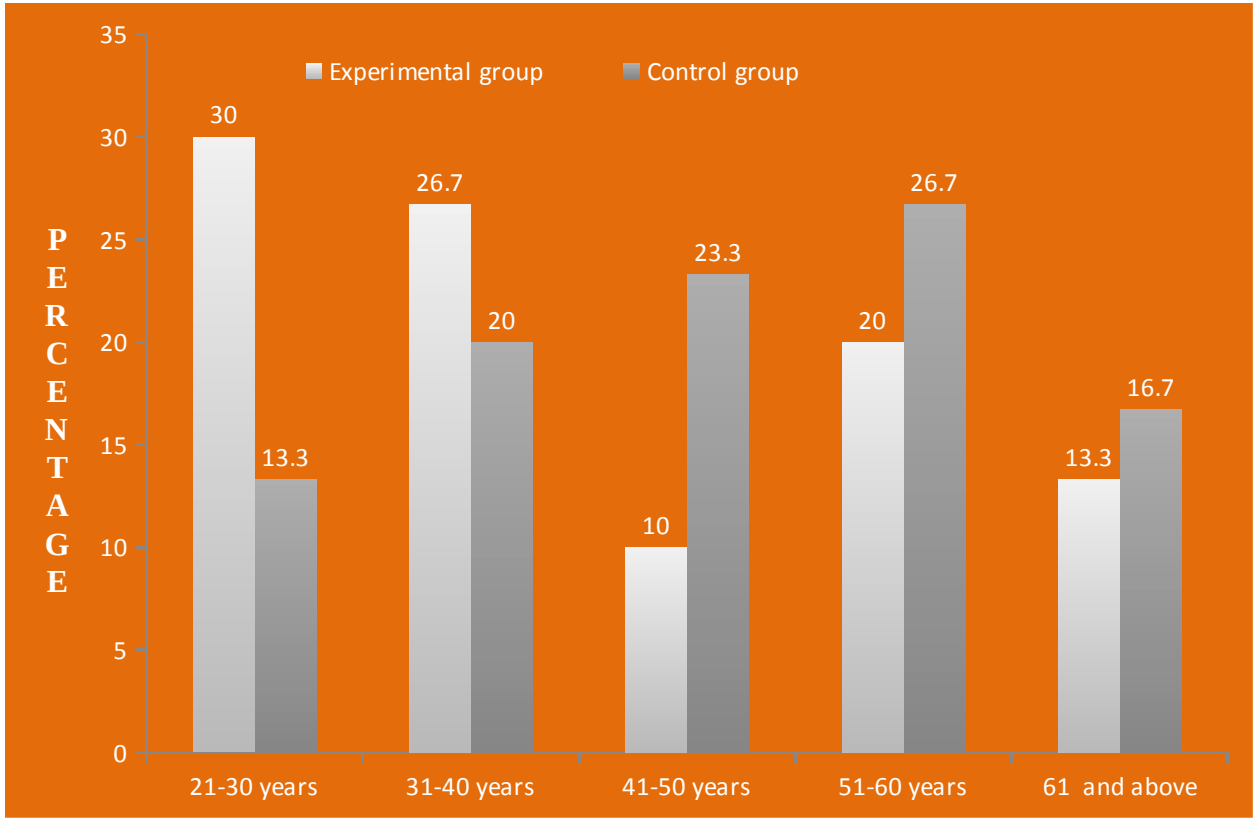


FIGURE 4: PERCENTAGE DISTRIBUTION OF THE SUBJECTS ACCORDING TO AGE GROUPS

Among experimental group 9(30%) were between 21-30 years, 8(26.7%) were between 31-40 years,3(10%) were between 41-50 years, 6(20%) were between 51-60 years and 4(13.3%) were between 60 and above age group. Among control group 4(13.3%) were between 21-30 years, 6(20%) were between 31-40 years, 7(23.3%) were between 41-50 years, 8(26.7%) were between 51-60 years, and 5(16.7%) were between 60-70 years.

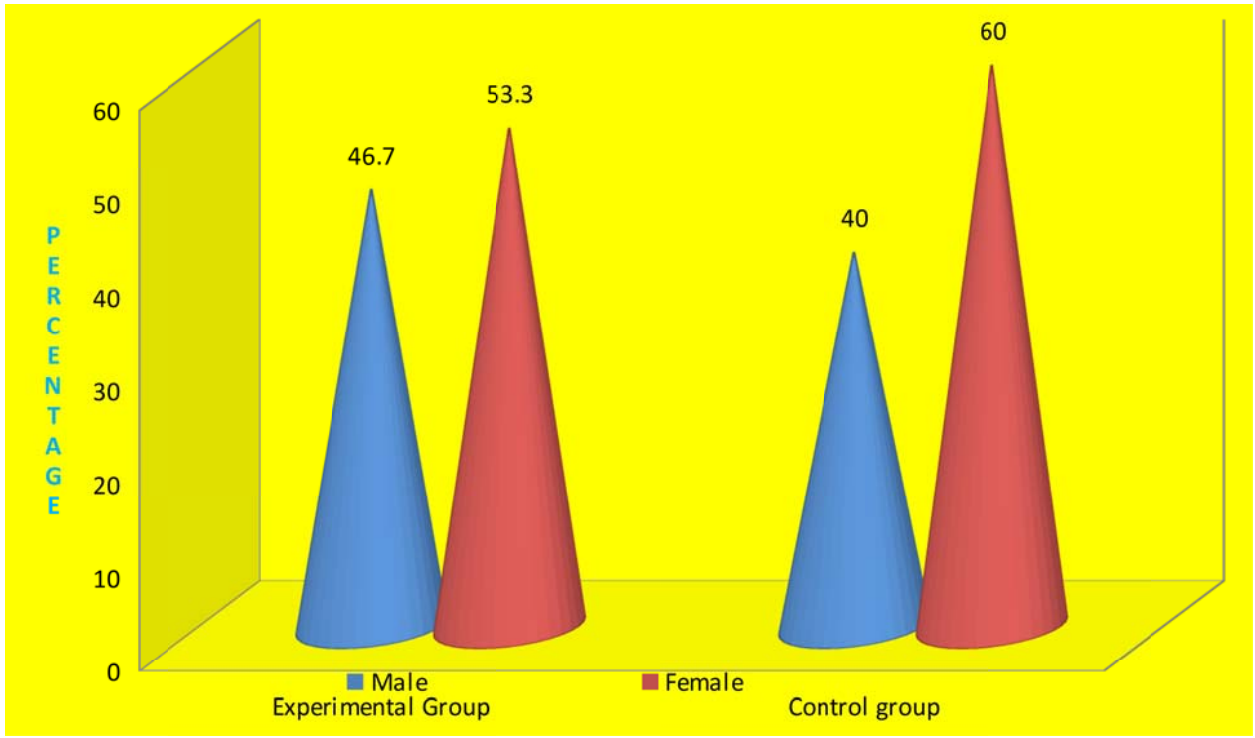


FIGURE 5: PERCENTAGE DISTRIBUTION OF THE SUBJECTS ACCORDING TO GENDER

Among experimental group 14(46.7%) were males and 16(53.3%) were females. Among control group 12(40%) were males and 18(60%) were females.

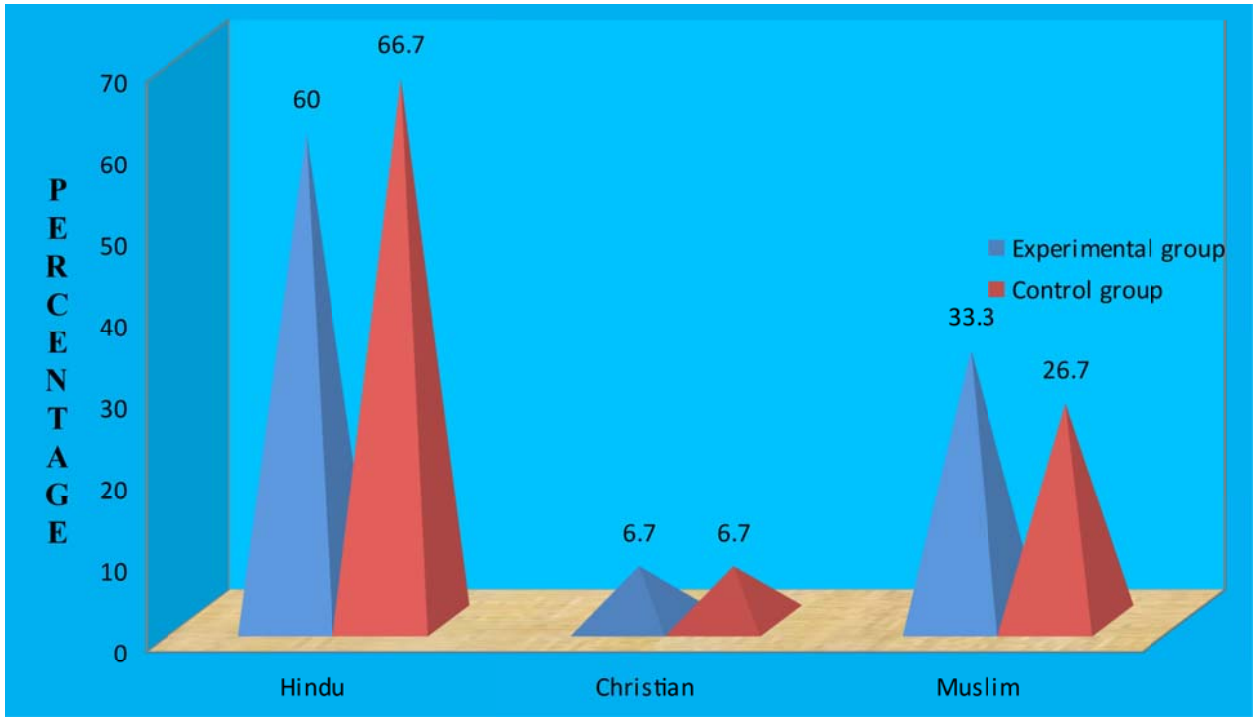


FIGURE 6: PERCENTAGE DISTRIBUTION OF THE SUBJECTS ACCORDING TO RELIGION

Among experimental group 18(60%) were Hindus, 2(6.7%) were Muslims and 10(33.3%) were Christians. Among control group 20(66.7%) were Hindus, 2(6.7%) were Muslims and 8(26.7%) were Christians.

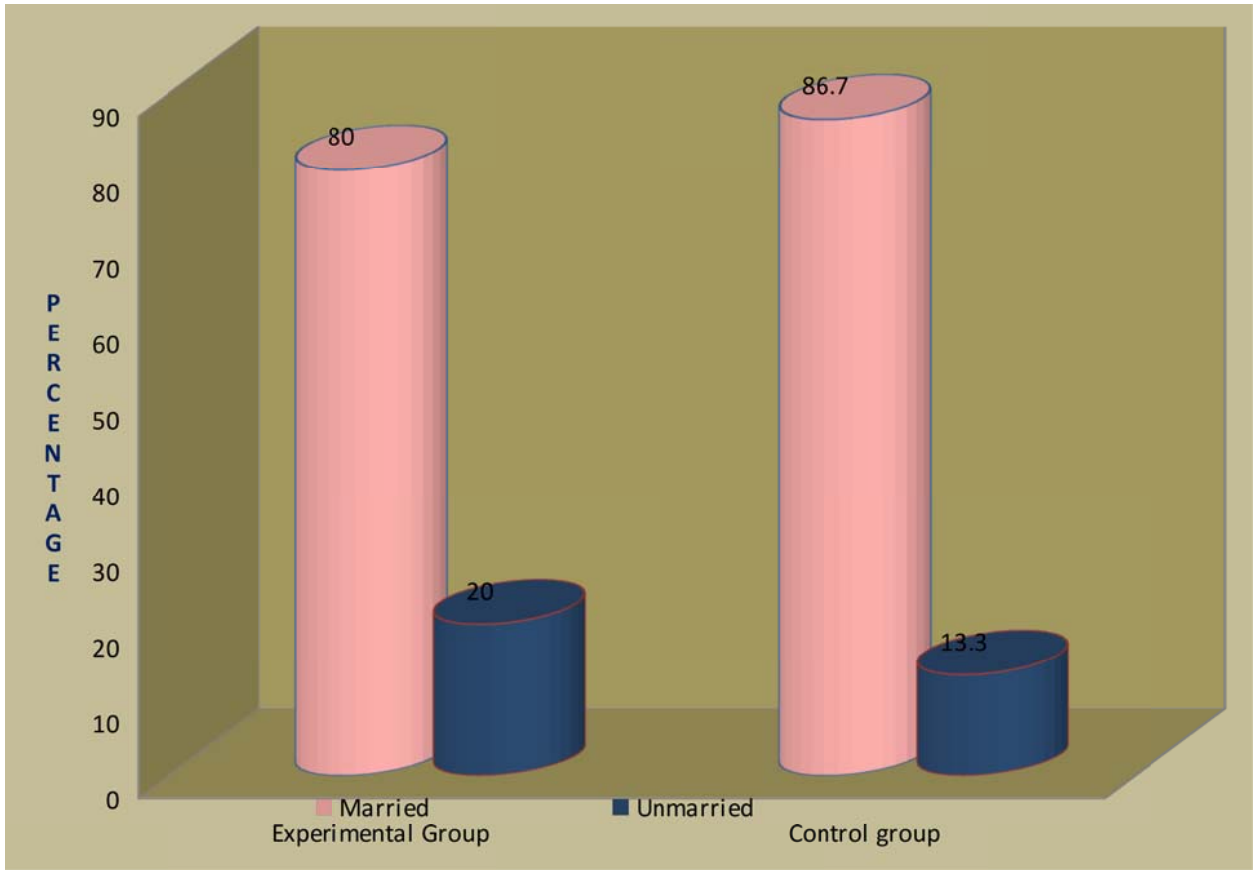


FIGURE 7: PERCENTAGE DISTRIBUTION OF THE SUBJECTS ACCORDING TO MARITAL STATUS

Among experimental group 24(80%) were married and 6(20%) were unmarried. Among control group 26(86.7%) were married and 4(13.3%) were unmarried.

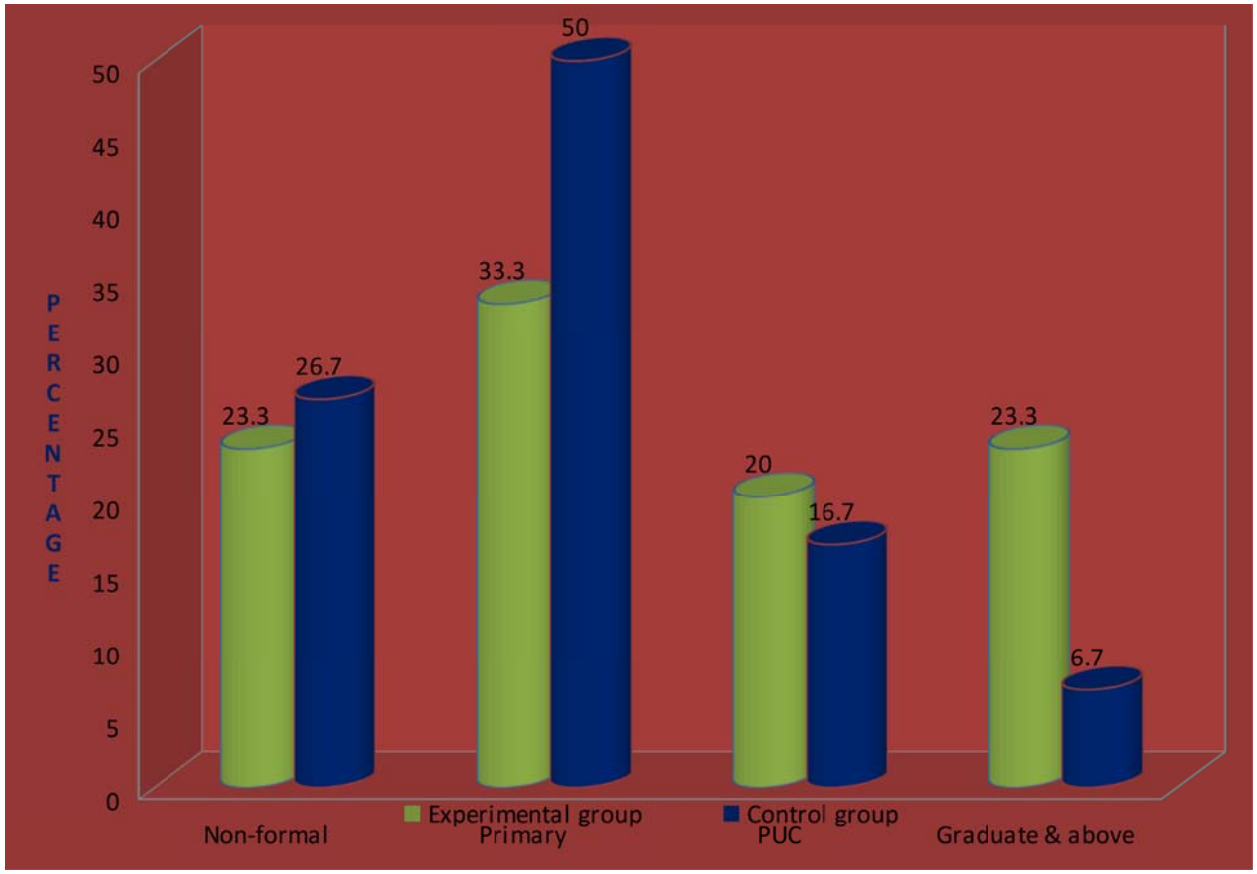


FIGURE 8: PERCENTAGE DISTRIBUTION OF THE SUBJECTS ACCORDING TO EDUCATIONAL STATUS

Among experimental group 7(23.3%) were non formal, 10(33.3%) were primary, 6(20%) were PUC and 7(23.3%) were graduates and above. Among control group 8(26.7%) were non formal, 15(50%) were primary, 5(16.7%) were PUC and 2(6.7%) were graduates and above.

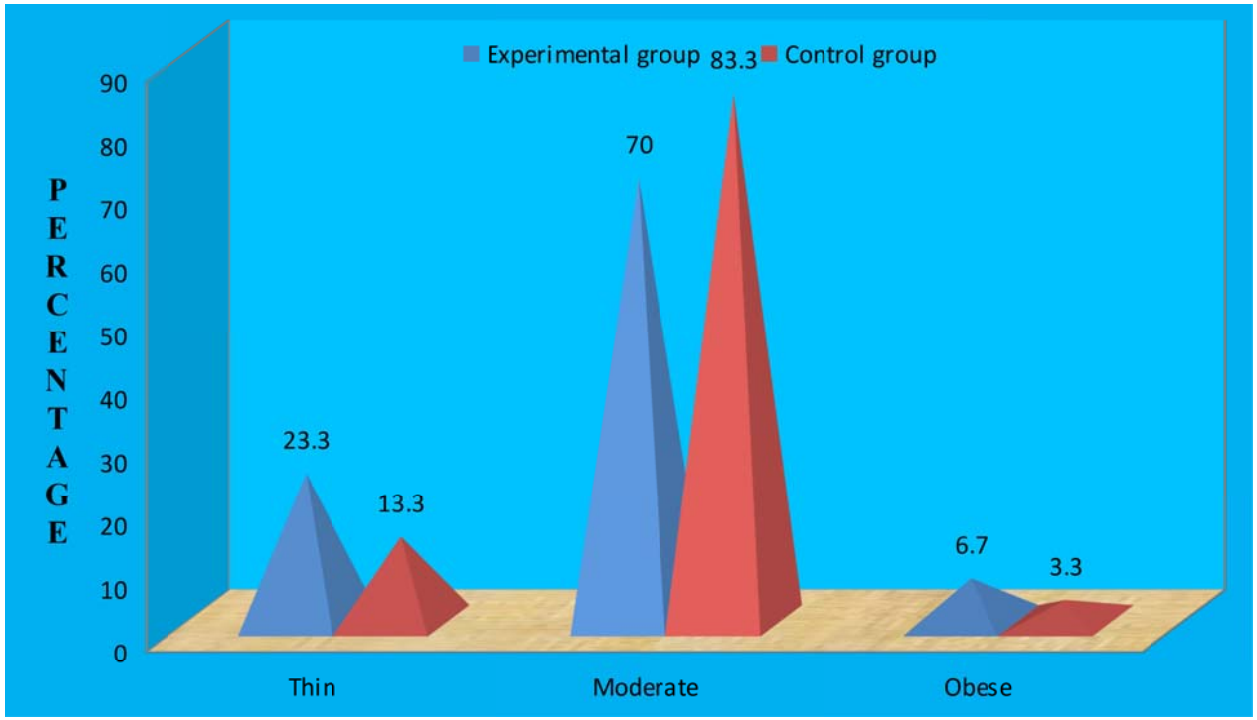


FIGURE 9: PERCENTAGE DISTRIBUTION OF THE SUBJECTS ACCORDING TO BODY BUILT

Among experimental group 7(23.3%)were thin, 21(70%) were moderately built and 2(6.7%) were obese. Among control group 4(13.3%) were thin, 25(83.3%) were moderately built and 1(3.3%) was obese.

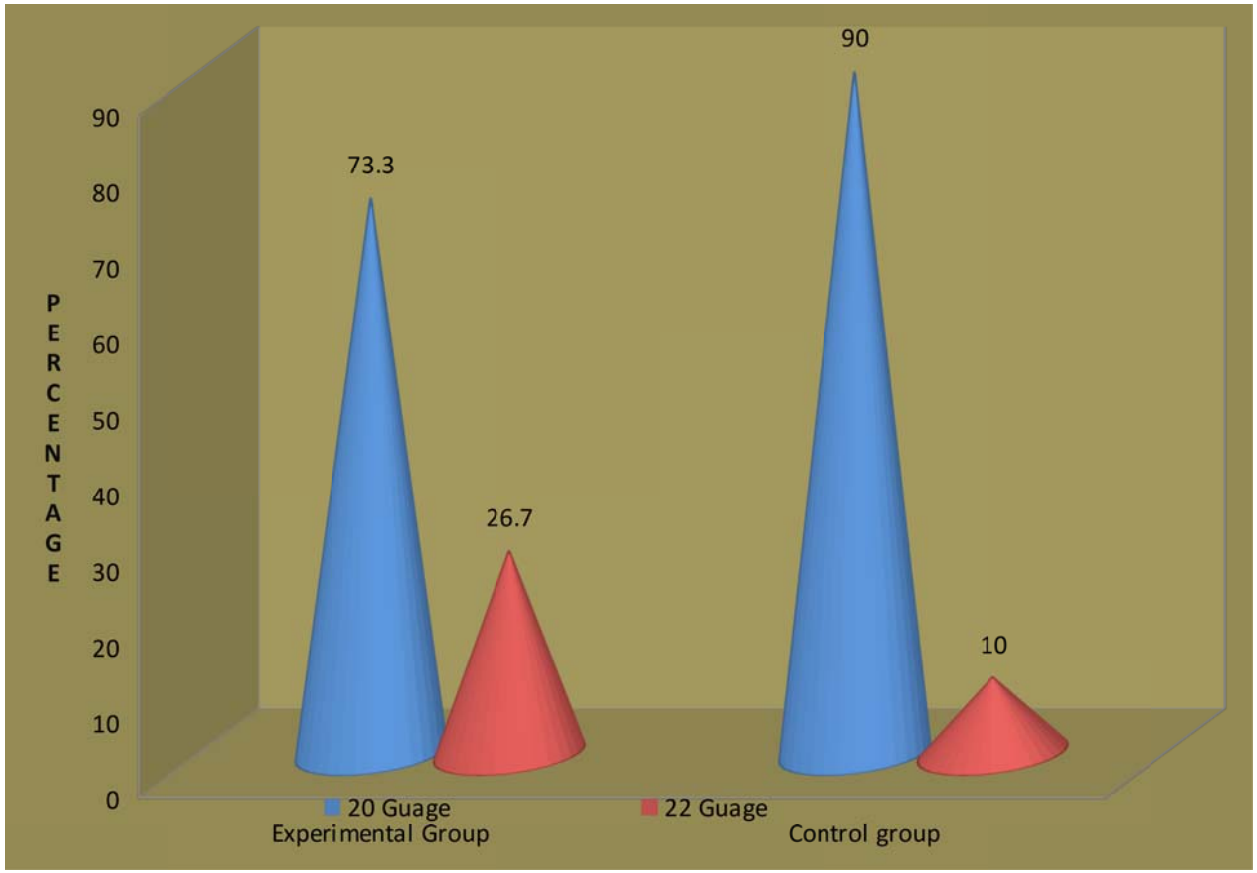


FIGURE 10: PERCENTAGE DISTRIBUTION OF THE SUBJECT ACCORDING TO SIZE OF CANNULA

Among experimental group 22(73.3%) were inserted 20 gauge cannula and 8(26.7%) were inserted 22 gauge cannula. Among control group 27(90%) were inserted 20 gauge cannula and 3(10%) were inserted 22 gauge cannula.

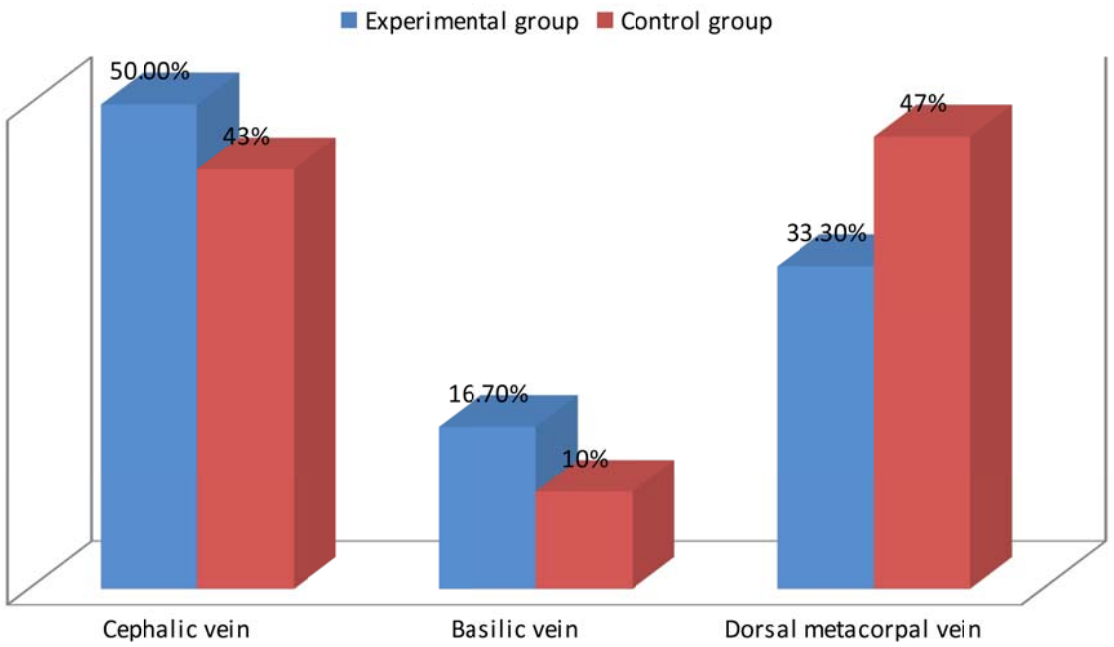


FIGURE 11: PERCENTAGE DISTRIBUTION OF THE SUBJECTS ACCORDING TO SITE OF CANNULA

Among experimental group the cannula is inserted in cephalic vein for 15(50%) patients, basilic vein for 5(16.7%) patients and dorsal metacarpal vein for 10(33.3%) patients. Among control group the cannula is inserted in cephalic vein for 13(43.3%) patients, basilic vein for 3(10%) patients and dorsal metacarpal veins for 14(46.7%) patients.

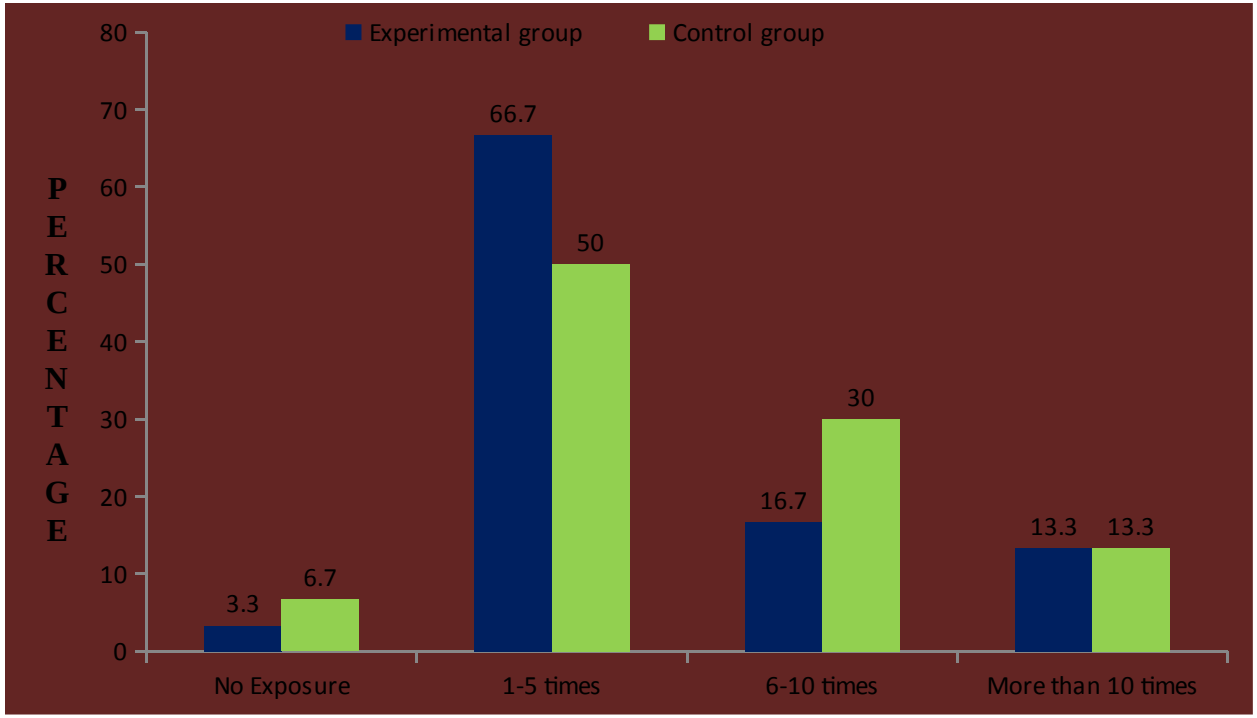


FIGURE 12: PERCENTAGE DISTRIBUTION OF THE SUBJECTS ACCORDING TO PREVIOUS EXPOSURE TO CANNULATION

Among experimental group 1(3.3%) had no previous exposure to cannulation, 20(66.7%) had 1-5 times exposure, 5(16.7%) had 6-10 times and 4(13.3%) more than 10 times exposure. Among control group 2(6.7%) had no previous exposure to cannulation, 15(50%) had 1-5 times exposure, 9(30%) had 6-10 times exposure and 4(13.3%) had more than 10 times exposure.

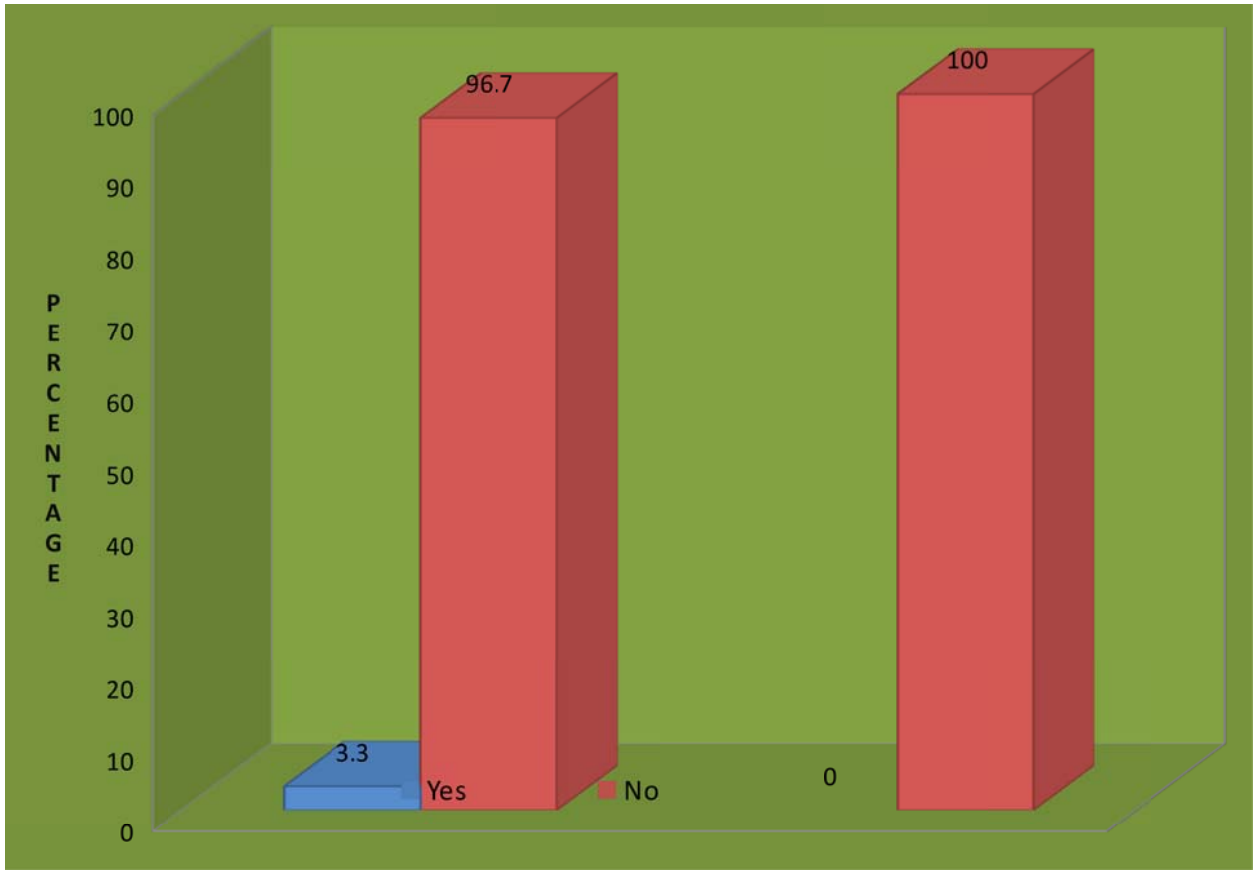


FIGURE 13: PERCENTAGE DISTRIBUTION OF THE SUBJECTS ACCORDING TO PRESENCE OF PAIN DUE TO ANY CHRONIC DISEASE

Among experimental group 1(3.3%) had no pain due to cancer and 29(96.7%) had no pain due any chronic disease. Among control group no patients 30(100%) had pain due any chronic disease

SECTION-II

ASSESSMENT OF EFFECTIVENESS OF TOPICAL ANESTHETIC CREAM ON PAIN EXPERIENCE AMONG PATIENTS UNDERGOING INTRAVENOUS CANNULATION

TABLE 2: Overall mean percentage and standard deviation of pain score among experimental and control group

N=30+30

Assessment	VAS Range	Experimental group			Control group		
		Mean score	SD	Mean %	Mean score	SD	Mean %
Pain	0-10	2.33	0.80	23.3	3.50	0.90	35

The data presented in the table 2 shows that the mean percentage of pain score for experimental group is 23.3% and for control group is 35%.

TABLE 3: Distribution of subjects among experimental and control group according to their level of pain **N=30+30**

Level of pain	Experimental group		Control group	
	Number	Percentage %	Number	Percentage %
Mild	28	93.3	15	50.0
Moderate	2	6.7	15	50.0
Total	30	100.0	30	100.0

The data presented in the Table 3 shows that among experimental group 28(93.3%) patients have mild pain and 2 (6.7%) patients have moderate pain during intravenous cannluation. Among control group 15(50%) patients have mild pain and 15(50%) patients have moderate pain during intravenous cannulation.

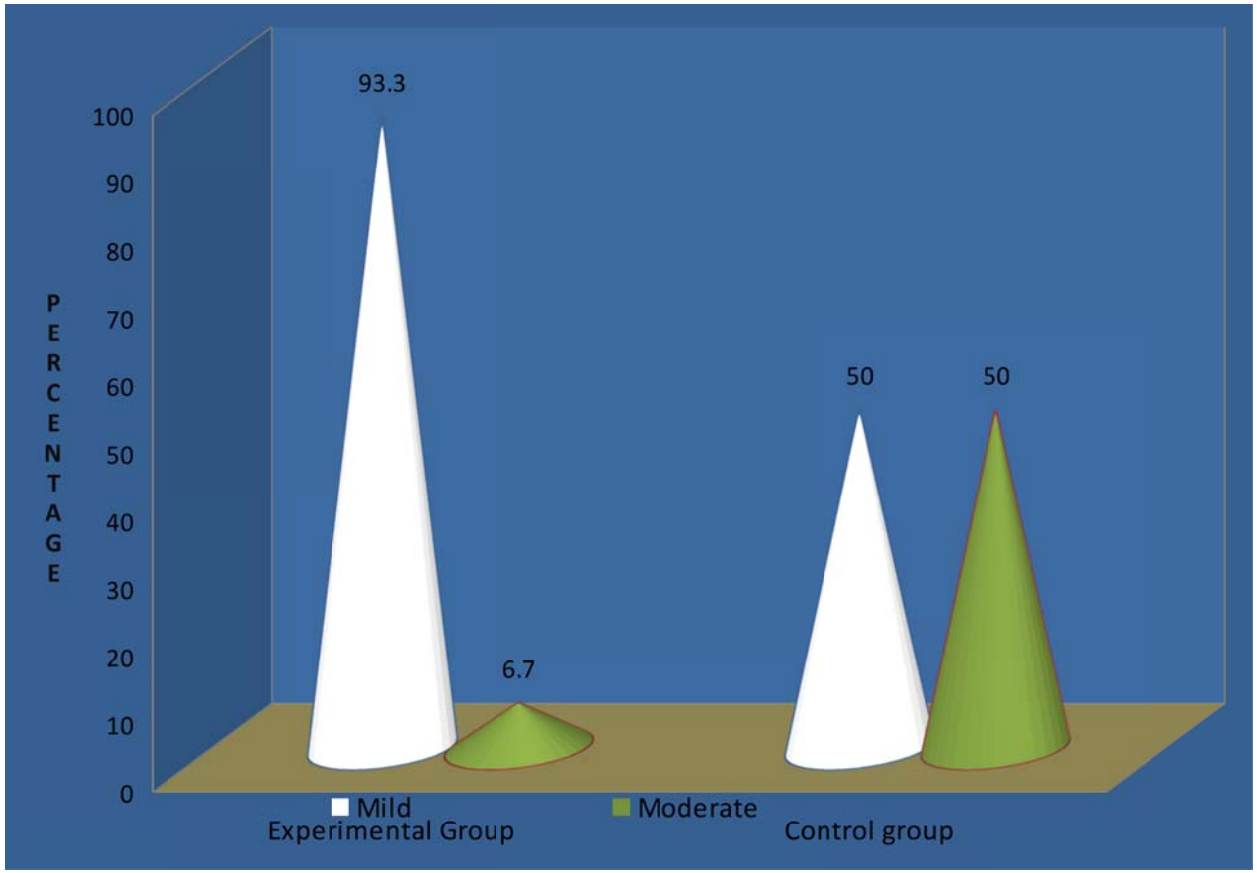


FIGURE 14: PERCENTAGE DISTRIBUTION OF SUBJECTS AMONG EXPERIMENTAL GROUP AND CONTROL GROUP ACCORDING TO THEIR LEVEL OF PAIN

Figure-14 shows that among experimental group 28(93.3%) patients have mild pain and 2 (6.7%) patients have moderate pain during intravenous cannluation. Among control group 15(50%) patients have mild pain and 15(50%) patients have moderate pain during intravenous cannulation

SECTION-III

COMPARISON OF PAIN SCORES AMONG EXPERIMENTAL GROUP AND CONTROL GROUPS

TABLE 4: Comparison of pain scores among experimental group and control group

N=30+30

Assessment	Experimental group		Control group		Difference		t-test for independent groups
	Mean	SD	Mean	SD	Mean	SD	
Over all	2.33	0.80	3.50	0.90	1.11	0.23	t=4.906 Highly significant

HS, P=0.05, df=28

The presented in the Table 4 shows that independent "t" test computed between experimental and control group pain scores statistically significant at 0.5 level of significance. The calculated "t" value (4.906) is greater than the table value, 1.96. This shows that the topical anesthetic cream is effective pain during intravenous cannulation.

TABLE 5: Comparison of average pain score percentage among experimental group and control groups

N=30+30

Variable	Experimental group Mean %	Control group Mean %	Difference Mean %
Pain	23.3	35	11.7

The data presented in the table 5 shows the effectiveness of topical anesthetic cream in reducing pain during intravenous cannulation in the experimental group the mean pain score percentage was only 23.3% compared to the control group mean pain score percentage 35% the difference in the mean percentage was 11.7%.

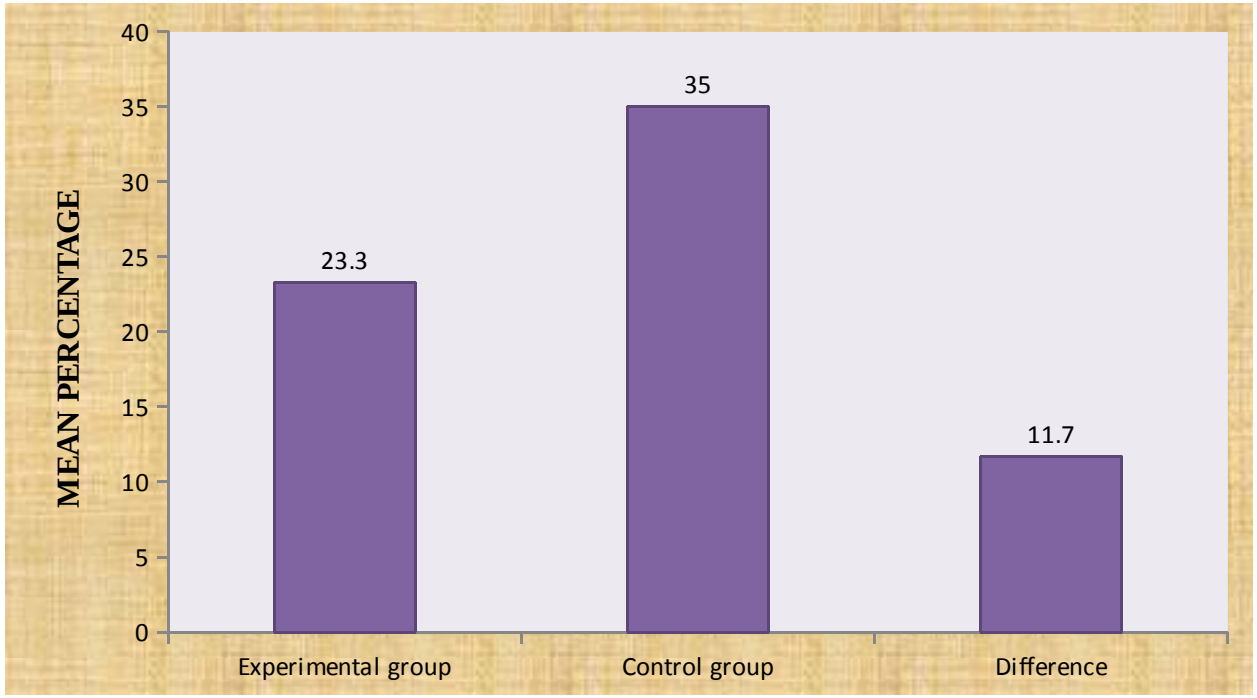


FIGURE 15: SIMPLE BAR DIAGRAM SHOWING COMPARISON OF AVERAGE PAIN SCORE PERCENTAGE AMONG EXPERIMENTAL AND CONTROL GROUPS

Comparision of average pain score percentage among experimental group (23.3%)control group (35%) mean difference is (11.7%)

SECTION-IV

ASSOCIATION BETWEEN THE LEVEL OF PAIN AND SELECTED DEMOGRAPHIC VARIABLES

TABLE 6: Association between the level of pain and demographic variables among experimental group

N=30

Demographic variable		Number	Level of pain		Chi-square test
			Mild	Moderate	
Age	21-30 years	9	9	0	Chi square value = 3.884 P= 0.867 df=8
	31-40 years	8	7	1	
	41-50 years	3	3	0	
	51-60 years	6	6	0	
	61-70 years	4	3	1	
Sex	Male	14	14	0	Chi square value = 1.88 P= 0.3906 df=2
	Female	16	14	2	
Religion	Hindu	18	16	2	Chi square value = 1.43 P= 0.839 df=4
	Muslim	2	2	0	
	Christian	10	10	0	
Marital status	Married	24	22	2	Chi square value = 0.54 P= 0.7634 df=2
	Unmarried	6	6	0	

Continued…..

Demographic variables		Number	Level of pain		Chi-square test
			Mild	Moderate	
Educational status	Non-formal	7	6	1	Chi square value = 1.760 P= 0.940 df=6
	Primary	10	9	1	
	PUC	6	6	0	
	Graduate & above	7	7	0	
Body build	Thin	7	6	1	Chi square value = 0.92 P= 0.9217 df=4
	Moderate	21	20	1	
	Obese	2	2	0	
Size of cannula	20 Gauge	22	21	1	Chi square value = 0.6 P= 0.7408 df=2
	22 Gauge	8	7	1	
Site of cannula	Cephalic vein	15	15	0	Chi square value = 4.9 P= 0.3682 df=4
	Basilic vein	5	5	0	
	Dorsal metacarpal vein	10	8	2	
Previous exposure	No exposure	1	1	0	Chi square value = 1.88 P= 0.7578 df=4
	1-5 times	20	19	1	
	6-10 times	5	4	1	
	More than 10 times	4	4	0	

TABLE 7: Association between the level of pain and demographic variables among control group

N=30

Demographic variable		Number	Level of pain		Chi-square test
			Mild	Moderate	
Age	21-30 years	4	2	2	Chi square value = 4.610 P= 0.7983 df=8
	31-40 years	6	5	1	
	41-50 years	7	3	4	
	51-60 years	8	4	4	
	61-70 years	5	1	4	
Sex	Male	12	11	1	Chi square value = 13.889 P= 0.001 df=2
	Female	18	4	14	
Religion	Hindu	20	10	10	Chi square value = 0.00 P= 1.000 df=4
	Muslim	2	1	1	
	Christian	8	4	4	
Marital status	Married	26	13	13	Chi square value = 0.00 P= 1.000 df=2
	Unmarried	4	2	2	
Educational status	Non-formal	8	2	6	Chi square value = 4.267 P= 0.6402
	Primary	15	8	7	
	PUC	5	3	2	

	Obese	1	0	1	P=0.6699 df=4
Size of cannula	20 Gauge	27	12	15	Chi square value = 3.333 P= 0.1892 df=2
	22 Gauge	3	3	0	
Site of cannula	Cephalic vein	13	9	4	Chi square value = 5.21 P= 0.266 df=4
	Basilic vein	3	0	3	
	Dorsal metacarpal vein	14	6	8	
Previous exposure	No exposure	2	8	7	Chi square value = 14.77 P= 0.221 df=6
	1-5 times	15	3	4	
	6-10 times	9	3	2	
	More than 10 times	4	1	2	

KEY

- **Significant association present**

- **No Significant association**

The data presented in the table 6 shows that there is no significant association between pain score and selected demographic variables among patients in the experimental group. The data presented in the table 7 shows that there is significant association between pain score and gender

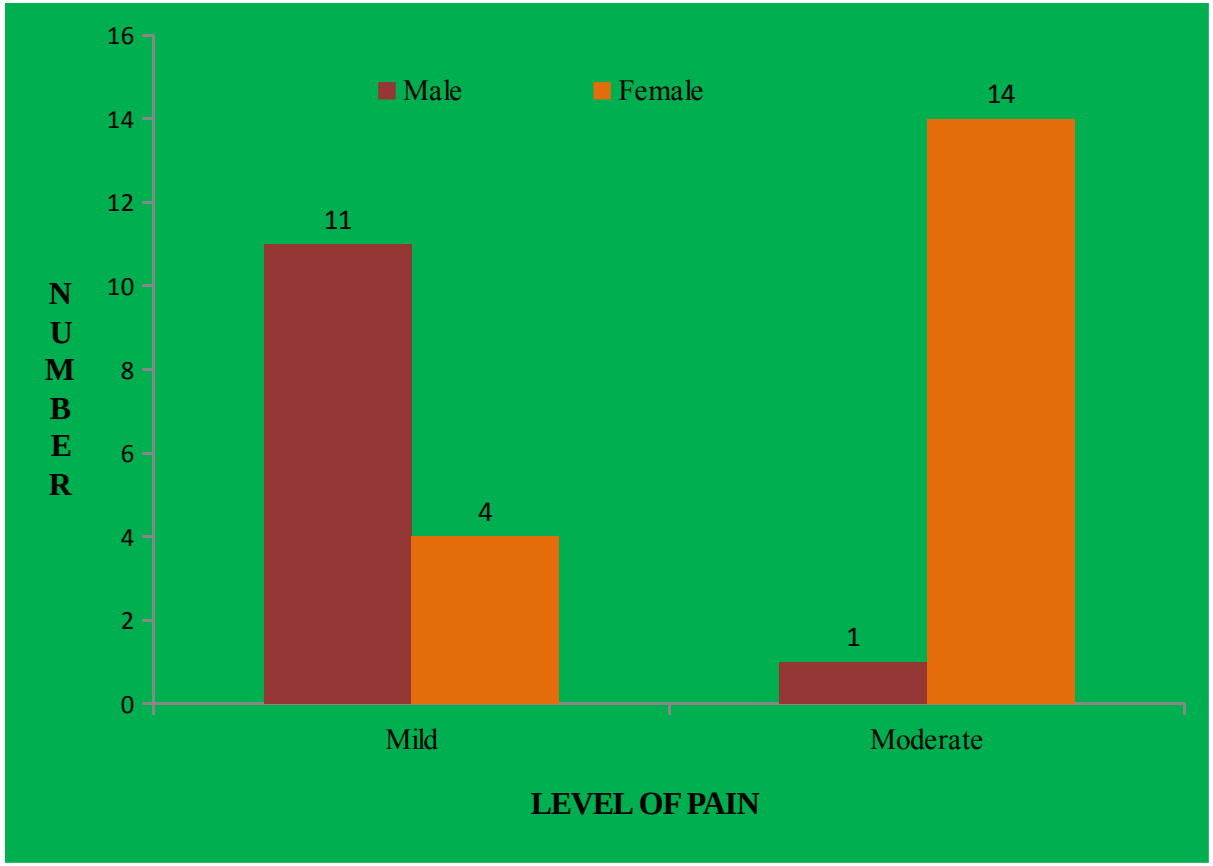


FIGURE 16: MULTIPLE BAR DIAGRAM SHOWING ASSOCIATION BETWEEN THE LEVEL OF PAIN AND GENDER AMONG PATIENTS IN THE CONTROL GROUP

Association between the level of pain and gender among patients in the control group among 11 male ,4 female patients having mild pain,1male,14female patients having moderate pain.

CHAPTER-V

SUMMARY, CONCLUSION, LIMITATIONS, NURSING IMPLICATION AND RECOMMENDATIONS

This chapter deals with the main findings of the research study in terms of objectives and hypothesis of the study. The data was obtained regarding the effectiveness of topical anesthetic cream on pain experience among patients undergoing intravenous cannulation in TCR hospital, Krishnagiri district.

The subjects were evaluated using a standardized pain assessment tool and an interview schedule including socio-demographic data and clinical variables.

STATEMENT OF THE PROBLEM

"A study to assess the effectiveness of topical anesthetic cream on pain experience among patients undergoing intravenous cannulation in selected hospital, Krishnagiri district."

OBJECTIVES

5. Assess the level of pain during intravenous cannulation among experimental group.
6. Assess the level of pain during intravenous cannulation among control group.
7. Compare the level of pain among experimental group and control group.
8. Associate the level of pain with the selected demographic variables among experimental group and control group.

HYPOTHESIS

H_1: There is a significant difference in the pain score between experimental group and control group of patients undergoing intravenous cannulation.

H_2: There is significant association between the level of pain among patients undergoing intravenous cannulation and the selected socio-demographic variables.

SAMPLE CHARACTERISTICS

- Majority of patients (30%) were in the age group of 21-30 years in the

control group respectively.

- Majority of patients were married: 80% and 86.7% in experimental group and control group respectively.
- Majority of patients were having only primary education: 33.3% and 50% in experimental and control group respectively.
- Majority of patients were moderately built: 70% and 83.3% in experimental and control group respectively.
- Majority of patients were inserted 20 gauge cannula: 73.3% and 90% in experimental and control group respectively.
- Majority of patients have undergone cannulation in cephalic vein (50%) in the experimental group and majority of patients were undergo cannulation in the dorsal metacarpal vein (46.7%) in the control group.
- Majority of patients had 1-5 times previous exposure to intravenous cannulation: 66.7% and 50% in experimental and control group respectively.
- Majority of patients have no pain due to any chronic disease: 96.7% and 100% in experimental and control group respectively.

1. The first objective of the study was to assess the level of pain during intravenous cannulation among experimental group

The data collected by the investigator revealed that the patient in the experimental group experienced lesser pain compared to that of control group.Mean pain score percentage for experimental group was 23.3%.Among experimental group 28(93.3%) patients have mild pain. And 2(6.7%) patients have moderate pain during intravenous cannulation.

2. The second objective of the study was to assess the level of pain during intravenous cannulation among control group

The data collected by the investigator revealed that the patient in the control group experienced more pain than patients in experimental group. Mean pain score percentage for control group was 35%.Among control group 15(50%) patients have mild pain and 15(50%) patients have moderate pain during intravenous cannulation.

2(6.7%) patients have moderate pain during intravenous cannulation. Among control group 15(50%) patients have mild pain and 15(50%) patients have moderate pain during intravenous cannulation. The mean pain score for experimental and control group was 23.3 and 3.50 respectively. The SD calculated for experimental and control group was 0.80 and 0.90 respectively.The independent "t" test computed between experimental and control group pain score were statistically significant at 0.05 level of significance. The calculated "t" value (4.906) is greater than the table value, 1.96. This shows that the topical anesthetics cream is effective in reducing pain during intravenous cannulation.

The above findings are supported by the study report below:

In a study conducted to determine the success rate and analgesics effectiveness of liposomal lidocaine during intravenous cannulation, the children received liposomal lidocaine or placebo before cannulation.The pain associated with intravenous cannulation and total duration of the procedure was recorded. Lower pain scores during cannulations were reported by the children who received liposomal lidocaine ($p=0.01$) than for those received placebo ($p<0.001$).The study concluded that the use of liposomal lidocaine was associated with a higher intravenous cannulation sucess rate, less pain, and shorter total procedure time among children undergoing cannulation.

4. The fourth objective of the study was to associate the level of pain with selected socio-demographic variables among experimental and control group

There was no significant association between pain score and selected demographic variables among patients in the experimental group.There is a significant association between pain score and gender ($P=0.001$) among patients in the control group.

The above findings are supported by the study report below:

In a study conducted to determine the efficiency of a 5 minutes application of lidocaine prilocaine cream for the management of pain associated with intravenous cannulation, the pain perception between an experimental group who received lidocaine prilocaine cream and a control

HYPOTHESIS TESTTING

H1: There will be a significant difference in the pain score between experimental and control group

H0: There is no significant difference in the pain score between experimental and control group

H0 suggests $\overline{X}_1=\overline{X}_2$

Where $\overline{X}_1$- mean pain score of experimental group

$\overline{X}_2$- mean pain score of control group

Table 4 shows that the mean pain score of experimental group is 23.3 and the control group is 3.50. SD of experimental group and control group are 0.80 and 0.90 respectively. The independent "t" test computed between experimental and control group pain score was stastically significant at 0.05 level of significance. The calculated "t" value (4.906) is greater than the table value, 1.96. It shows that there is a significant difference between the mean pain score of experimental and control group.

i.e. $\overline{X}_1 \neq \overline{X}_2$

So the null hypothesis (H_0) is rejected. It shows that there is significant difference between the pain scare of experimental and control group. This proves that application of topical anesthetic cream is effective in reducing the pain during intravenous cannulation.

SUMMARY

The study as aimed at accomplishing the following objectives:-

1) Assess the level of pain during intravenous cannulation among experimental group.
2) Assess the level of pain during intravenous cannulation among control group.
3) Compare the level of pain among experimental group and control group.
4) Associate the level of pain with the selected demographic variables among experimental and control group.

The conceptual framework adopted for the study is Roy's Adaptation model. Roy focuses on the individual as a biopsychosocial adaptive system that employs a feedback cycle of input (stimuli), throughput (control processes), and output (behaviors or adaptive responses). Both the

the methodology and statistical analysis.

The research design adapted for the study is true experimental, post test only control group design. The sample consists of 60 patients, 30 in experimental and 30 in control group, admitted in the medical ward of Rajeev Hospital, Hassan. Simple random technique by lottery method was used to select the subjects.

The independent variable was the application of topical anesthetic cream and dependent variable was the post test pain score during intravenous cannulation.

The tool used for the study includes two sections, section A consists of socio-demographic data including clinical variables and section B consists of a standardized pain assessment tool. Content validity of the tool was given by experts and tool is found to be reliable and flexible during pilot study.

The pilot study was conducted in the month of 3rd November 2013to10th November in TCR Hospital, krishnagiri. The sample included 6 patients who fulfilled the inclusion criteria. The reliability and feasibility of the tool were established. The feasibility of the main study and methods of statistical analysis were established.

The main study was conducted during the month of February 2014 in TCR Hospital, Krishnagiri. The gathered data were analyzed and interpreted on the basis of objectives of the study. The collected data was summarized and tabulated by utilizing descriptive statistics (Mean, Mean percentage and standard Deviation) and inferential statistics (paired' Test and Chi Square test).

The result of the study reveals that the patients in the experimental group experienced lesser pain compared to the patients in the control group. The mean pain score percentage of experimental group (23.3%) is lesser than the mean pain score percentage of control group (35%). The independent "t" test computed between experimental and control group pain scores were highly significant which shows that the topical anesthetic cream is effective in reducing pain during intravenous cannulation. The result also shows that there is a significant association

CONCLUSION

Pain is a subjective sensation. The International association for the Study of pain(IASP) defines pain as “an unpleasant sensory emotional experience, associated with actual or potential tissue damage, or described in terms of such damage”. Early pain experiences may play a particularly important role in shaping an individual’s pain responses. Inadequate relief of pain and distress painful medical procedures may have long-term negative effects on future pain tolerance and pain responses .Procedures involving a needle stick are commonly cited as among the most painful and stressful medical interventions even in comparison to disease-related and postoperative pain. Topical anesthetics are analgesic drugs that may be associated with higher magnitude of benefit for managing pain during common needle stick procedures.

The investigator has come across many incidence during her clinical practice in which the patients requesting anesthesia for inserting an intravenous cannula. Therefore the investigator want to undertake the study to assess the effectiveness of topical anesthetic cream to reduce the pain during intravenous cannulation.

Based on the findings of the study, the following conclusions were drawn.

The mean pain score percentage of experimental group is lesser then the mean pain score percentage of control group. It reveals that the experimental group experienced laser pain compared to the patients in the control group.

The independent “t” test computed between experimental and control group pain scores were highly significant. This shows that the topical anesthetic cream is effective in reducing pain during intravenous cannulation.

There is a significant association between pain score and gender ($p=0.001$) among patients in the control group. Other socio-demographic variables did not have any statistical relation with the pain score of experimental and control group.

NURSING PRACTICE

The study reveals that there is a need for knowledge and practice of applying topical anesthetic cream for reducing pain during intravenous cannulation. This study stresses that there is a need of involvement of nursing staff in planning and practicing the produced and the nurse must receive adequate preparation and training on application of topical anesthetic cream for patients undergoing intravenous cannulation.

NURSING RESEARCH

Research should be continued on newer practices and methods of reducing pain during intravenous cannulation. The findings of the present study is helpful for the nursing professionals and nursing students as a source of review of literature, to conduct further studies to find out the effectiveness of various methods for reducing pain during intravenous cannulation.

NURSING EDUCATION

Education is a key component in improving the knowledge of an individual. Education in nursing has a vital role to play because the students who are learners today are going to deal with human beings tomorrow. Hence, the right method of education with an opportunity to practice and apply what has been taught is essential.

Management of pain is an important aspect of basic educational program in nursing. The nursing education program should provide the staff nurse with evidence based rationales to improve their knowledge and practice for managing pain during intravenous cannulation.

NURSING ADMINISTRATION

Nursing administrators should take interest in providing information regarding application of local anesthetic cream for reducing pain intravenous in the hospital.

The nurse, as an administrator should plan and organize education programs for the nursing personnel regarding the pain management procedures and motivate them in practicing the procedure to provide comfort to the patients during intravenous cannulation. Planning and organization of such program requires efficient team work, planning for man power, money,

RECOMMENDATIONS FOR FURTHER STUDY

- A similar study can be conducted for a large group of samples to draw more definite conclusions and to make generalizations.
- A similar study can be replicated on samples with different socio-demographic characteristics.
- A similar study can be conducted by a quasi- experimental approach.
- A comparative study can be conducted with other pain relief measure like application of ice, massage, distraction, administration of intradermal preparations etc...

CHAPTER-VI

BIBLIOGRAPHY

1. Fillingim RB. Experience of pain. Current rheumatology reports [abstract]. 2005[cited 2005 Aug]; 7(5): 342-47. http://www.spingerlink.com/content/t501v01128qx8321.

2. Rohm KD, Scholl horn TA, Piper SN, Gwodsek M.J,.Maleek W.H, et.al. Do we necessarily need local anaesthetics for venous cannulation? A comparison of different cannula sizes. Eur J anaesthesiology [abstract] .2004[cited 2010 Jun]; 21(3): 214-16. Available from PubMed http://www.ncbi.nlm.nih.gov/pubmed/15055895.
3. Emmanuelson J .The Needle phobia-a starting point for overcoming an important, but often-ignored condition.2007. Available from http://www.needle phobia.com/.
4. Basvanthappa B.T. Nursing research.2nded. New Delhi: Jaypee publishers; 2007.p 46.
5. JagadambaA, karthiyaneekutty,Vinutha S, Annamalai N,Madhusudhana R. Gender variation in Pain perception after intravenous cannulation in adults. Internet Journal of Anaesthesiology [abstract]. 2011[cited 2010 Dec 11]; 28(1): http://www.mdlinx.com/anaesthesiology/news-articlectm/3505836/pain.
6. Kennedy RM, Janelluhmann, ZempskyW. Clinical implication of the managed needle insertion pain. Official journal of American academy of paediatrics [abstract].2008 [cited 2008 Jun4]; 122(3): 130-33. http://pediatrics.aappublications.org/content/122/Supplement_3/S130.full.
7. Sinha PK, Tandon, Agarwal A, Singh SD. Evaluating the efficacy of valsalvamanuever on venous cannulation pain: a prospective randomized study. Anaesth and Analg [abstract].2005[cited2005Oct4];101(4):1230-2.AvailablefromPubMed http://www.ncbi.nlm.nih.gov/pubmed/16192551
8. Dutt J, Gupta, .Brown T, Mycama M. Effect of communication on pain during intravenous cannulation: a randomized control trial. BJA [abstract]. 2007 [cited 2007 Sep

10. Carceles MD, Alonso JM, Gracia, Najera MD, Vila N et.al. Amethocaine-lidocaine cream, a new topical formulation for preventing venepuncture-induced pain in children. Reg anaesth pain med [abstract]. 2002[cited on 2002 May]; 27 (3): 289-95.
Available from PubMed http://www.ncbi.nlm.nih.gov/pubmed/12016603.
11. Page D, Taylor DM. vapocoolant spray versus subcutaneous lidocaine injection for reducing pain of intravenous cannulation: a randomized, controlled, clinical trial. Br J anaesth[abstract].2010[citedon2010Aug3];105(4):519-25.PubMed http://www.ncbi.nlm.nih.gov/pubmed/20682573.
12. Hijaz R, Taylor D, Richardson J. Effect of topical alkane vapocoolant spray on pain with intravenous cannulation in patient in emergency departments: randomized double blind placebo control trial. BMJ [abstract]. 2009[cited2009Feb10]; 338-39.
13. Available from PubMed http://www.ncbi.nim.nih.gov/pubmed/19208703.
14. Valdovinos NC, Reddin c, Bernard, Shafer B, Tanabe P. The use of topical anaesthesia during intravenous catheter insertion in adults: a comparison of pain scores using LMX-4 versus placebo. J Emer Nurs [abstract]. 2009 [cited 2009 Mar 3]; 35(4):299-304. Available from PubMed http://www.ncbi.nlm.nih.gov/pubmed/19591723.
15. Naykamma M, munimura, Kanya N, Tsuchida H,Nammaki A. Efficacy of alkalinized lidocaine for reducing pain on intravenous and epidural cannulation. J anaesth [abstract].2001[cited 2001]; 15(4):201-3.
Available from PubMed http://www.ncbi.nlm.nih.gov/pubmed/14569436.
16. Smith M, Pamela G. Efficacy of a five-minute application of EMLA cream for the management of pain associated with intravenous cannulation. The Internet Journal of Anaesthesiology [abstract].2002[cited2002]; 16(1):
Available from http://www.ispubcom/journal/the-internet -journal-of-anaesthesia-volume-6-number-1.
17. Eidelman A, Jocelyn M, Lau J, Cari DB. Topical anaesthetics for dermal instrumentation. A systematic randomized controlled trial. Ann Emerg Med [abstract]. 2005[cited 2005 Oct]; 46(4): 343-51.
Available from PubMed http://www.ncbi.nlm.nih.gov/pubmed/16187468
18. Vaghadia H, AL-Ahdal OA, Nevin K. EMLA patch for intravenous cannulation in adult

www.ncbi.nlm.nih.gov/pubmed/2253982.
21. Cordoni A, Cordoni LE. A Eutectic mixture of local anaesthetic reduces pain during intravenous catheter insertion in paediatric patient. Clin j pain [abstract].2001[cited2001 Jun]; 17(2):115-8.
Available from www.ncbi.nlm.nih.gov/pubmed/11444712.
22. Fetzer SJ. Reducing venepuncture and insertion pain with eutectic mixture of local anaesthetic: a meta-analysis. Nursing research [abstract]. 2002[cited 2002 March]; 51(2): Is. Available from www.ncbi. nlm.nih.gov/PubMed/11984382.
23. Kozier, Barbara.et al. Fundamentals of Nursing, 6th edition, Delhi: Pearson Education Pte Ltd; 2003.
24. Taylor Carol,R.et al. Fundamentals of Nursing, 6th edition, Philadelphia: Lippincott Williams and Wilkins Publishers; 2008.
https://dspace.gla.ac.uk/bitstream/1905/410/1/04million-elective.pdf.
25. Houck,S.Constance. Sethna,F.Navil. 'Transdermal analgesia with local anesthetics in children : review, update and future directions', Expert review of neurotherapeutics, Sep 2005, vol.5(5). pp 625-634.
26. Pesaturo,A.Kimberly. Matthews Michele. 'Topical anesthesia use in children', U S Pharmacist,march 2009; 34(3): HS-4-HS-7.
http://www.rxmed.com/b.main/b2.pharmaceutical/b2.1.monographs/cps %20Mo...9/20/2009.
27. Valdovinos,Cortex Nadya. Reddin,Christopher. 'The use of topical anesthesia during intravenous catheter insertion in adults: A comparison of pain scores using LMX-4 versus placebo',Journal of Emergency Nursing, july 2009, vol 35(4), pp 299-304.
28. Pershad,J. et al.'Cost effectiveness analysis of anesthetic agents during peripheral intravenous cannulation in the pediatric emergency department',Archieves of Pediatric and Adolescent Medicine,2008,vol 162(10), pp 952-961.
29. Smith,M.S.,et al. 'Efficiacy of a 5 min application of EMLA cream for the management of pain associated with IV cannulation', Internet journal of Anesthesiology,2002,vol 6(1).
30. Cordoni,Allyson. Cordoni,Lance E. 'Eutectic mixture of local anesthetics reduces pain during intravenous catheter insertion in the pediatric patient', The Clinical Journal of Pain 2001 vol 17(2), pp 115-118.

pain after venous cannulation in volunteers'. Canadian Journal of Anesthesia,Oct 2003,50(8), pp 775-778.
34. Vivien,Benoit. et al. 'Is lidocaine-prilocaine cream (EMLA) always useful for venous puncture in preoperative autologous blood donation ?', Canadian Journal of Anesthesia,dec march 1996,vol 43(3), pp 232-237.
35. Vaghadia,Himat. et al. 'EMLA patch for intravenous cannulation in adult surgical outpatients', Canadian Journal of anesthesia,1997,vol 44(8), pp 798-802.
36. Smith,M. et al. 'Double-blind comparison of topical lignocaine-prilocaine cream (EMLA) and lignocaine infiltration for arterial cannulation in adults', British Journal of Anesthesia,1990, vol 65(2), pp 240-242.
37. Biro,P. et al. 'Comparison of topical anesthesia methods for venous cannulation in adults', European Journal of Pain,1997, vol 1(1), pp 37-42.
38. Hallen,B. et al. 'Clinical study of a lignocaine-prilocaine cream to relieve the pain of venepuncture', British Journal of Anesthesia,1985, vol 57(3), pp 326-328.
39. Kleiber,C. et al. 'Topical anesthetics for intravenous insertion in children: A randomized equivalency study', Pediatrics, Oct 2002, vol 110(4), pp 758-761. http://www.ncbi.nlm.nih.gov/pubmed/12359791
40. Abu-saad,H.H. et al. 'Age related response to lidocaine-prilocaine(EMLA) Emulsion and effect of music distraction on the pain of intravenous cannulation', Pediatrics, May 1994, vol 93(5), pp 797-801.
41. Koh,J.L. 'Efficacy of parental application of eutectic mixture of local anesthetics for intravenous insertion',Pediatrics,June1999,vol 103(61):e79 http://www.ncbi.nlm.nih.gov/pubmed/10353976

ANNEXURE-I

Fax : (04348) 247243 Ph : (04348) 247053, 20321

PADMAVATHI COLLEGE OF NURSING

(Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)

Run by Sri Govinda Gounder Memorial Educational Trust

KRISHNAGIRI MAIN ROAD, ❁ PERIYANAHALLI - 635 205.

DHARMAPURI DIST.

Email : pcn-nsg@yahoo.com. www.sapthagiri groups.com.

Date : 30/1/14

To

The Administrative Officer

TCR Hospital

Krisnagiri

Respected sir/Mam

Mr.AJIN.R.S is a student of M.S.C Nursing programme from the Medical Surgical Nursing speciality In our College. He is conducting a study on "A true experimental study to assess the effectiveness of tropical anaesthetic cream on pain experience among patients undergoing intravenous cannulation in selected hospital,krisnagiri."

This is for the research project submitted to the Tamilnadu Dr.M.G.R. Medical university in Partial fulfilment of University requirement for the award of M.S.C.Nursing degree and will be beneficial in patient who going under the intravenous cannulation .

As a part of study he need to observe the general ward patients in your hospital .So permission may kindly be granted for he conduct the study in your hospital. He will abide by the rules and regulation of your hospital.

Thanking You

ANNEXURE-II

TCR HOSPITAL & CHARITABLE TRUST

No. 1/450, Avvai Nagar, Near LIC, Chennai Bye-pass Road, KRISHNAGIRI - 635001. Cell : 94426 04186

Dr. C. Soundara Raj, M.D.,
Founder - President

Date : 03-03-14

TO WHOMSOVER IT MAY CONCERN

This to certified that **Mr.AJIN.R.S,**Studing ,M.S.C.Nursing ,Final Year in Padmavathi College Of Nursing ,Dharmapuri ,did the study on**" A true experimental study to assess the effectiveness of tropical anaesthetic cream on pain experience among patients undergoing intravenous cannulation in selected hospital,krisnagiri."**

Thanking You

Dr. C. Soundara Raj, M.D.,
Reg. No. 54872
1/450, Avvai Nagar, Near LIC,
Chennai Bye-Pass Road,
Krishnagiri-635 001

ANNEXURE-III

INFORMED CONSENT

I _____ willing to participate in the study to assess the effectiveness of tropical anesthetic cream on pain experience among patients undergoing intravenous cannulation is harmless and easy to follow.

Yours Sincerely,

ANNEXURE-IV

LETTER SEEKING EXPERTS OPINION FOR THE VALIDITY OF THE TOOL

From

Mr.Ajin.R.S.,
M.Sc., Nursing II year,
Padmavathi College Of Nursing,
Dharmapuri.

To

Respected Sir/ Madam,

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

I Mr.Ajin.R.S., M.Sc., Nursing II year student of Padmavathi College Of Nursing, Dharmapuri, have selected the following topic**, "A true experimental study to assess the effectiveness of topical anesthetic cream on pain experience among patients undergoing intravenous cannulation in selected hospital, Krishnagiri."** for my dissertation to be submitted to Tamilnadu Dr. M.G.R. Medical University in the partial fulfillment of the requirement for award of Master of science in Nursing.

I request you to give your valuable suggestions and validate my tool. Kindly suggest modifications, additions and deletions if any in the remarks column.

Thanking You,

ENCLOSURE:

1. Problem statement, objectives, and hypothesis of the study.
2. Demographic Variables
3. Visual Analog Scale
4. Evaluation Performa.

ANNEXURE-V

CRITERIA CHECK LIST FOR VALIDATION OF THE TOOL

INSTRUCTION:

Kindly give your suggestions regarding the accuracy, relevance and appropriateness of the content. Kindly (✓) against specific columns.

Validation of Demographic variables.

Item	Very relevant	Relevant	Need for modification	Not relevant	Remarks
1					
2					
3					
4					
5					
6					
7					
8					

VALIDATION OF VISUAL ANALOG PAIN SCALE.

Very relevant	Relevant	Needs modification	Not relevant	Remarks

INSTRUCTIONS:

The expert is requested to go through the following criteria for evaluation. Three columns are given for responses and a column for remarks. Kindly please tick mark (✓) in the appropriate columns and give remarks.
Interpretation column:

Column I – meets the criteria.
Column II - Partially meets the criteria.
Column III – does not meet the criteria.

S. NO	CRITERIA	1	2	3	REMARKS
1.	Scoring -Adequacy. -Clarity. -Simplicity.				
2.	Content -Logical sequence. -Adequacy. -Relevance.				
3.	Language -Appropriate. -Clarity. -Simplicity.				
4.	Practicability -Easy to score. -Precise. -Utility.				

Signature: Any other suggestion:

Name:
Designation:
Address:

ANNEXURE-VI

LIST OF EXPERTS VALIDATED THE TOOL

1. **Dr. C.Soundara RAJ, M.B.B.S, MD,**
   Medical Consultant,
   TCR hospital,
   Krishnagiri.

2. **Dr.William,Msc(N),PhD,(N)**
   Professor,
   Holy Cross College,
   Kerala.

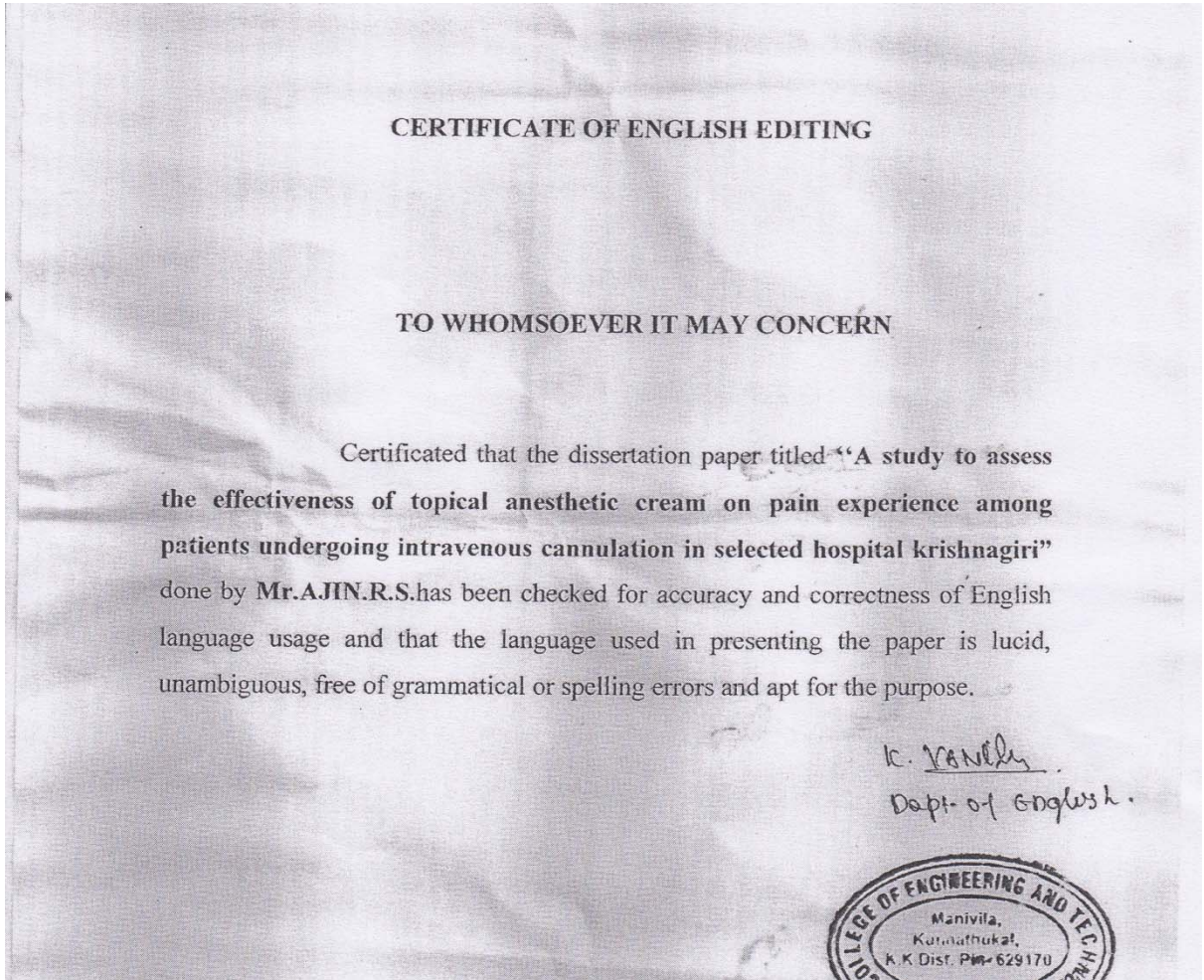
3. **Mrs.S.Sagaya Selvi.,M.Ssc (N), Ph.D .,(N),**
   Principal,
   Grace College of Nursing,
   Kaliyakavilai
   K.K. Dist.

4. **Mr. C Kishanth Olive, M.Sc., (N),**
   Reader,
   Vinayaga Mission University,
   Pondeychery.

5. **Mr. Ajish M Nair, M.Sc., (N),**

ANNEXURE- VII

CERTIFICATE OF ENGLISH EDITING



CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

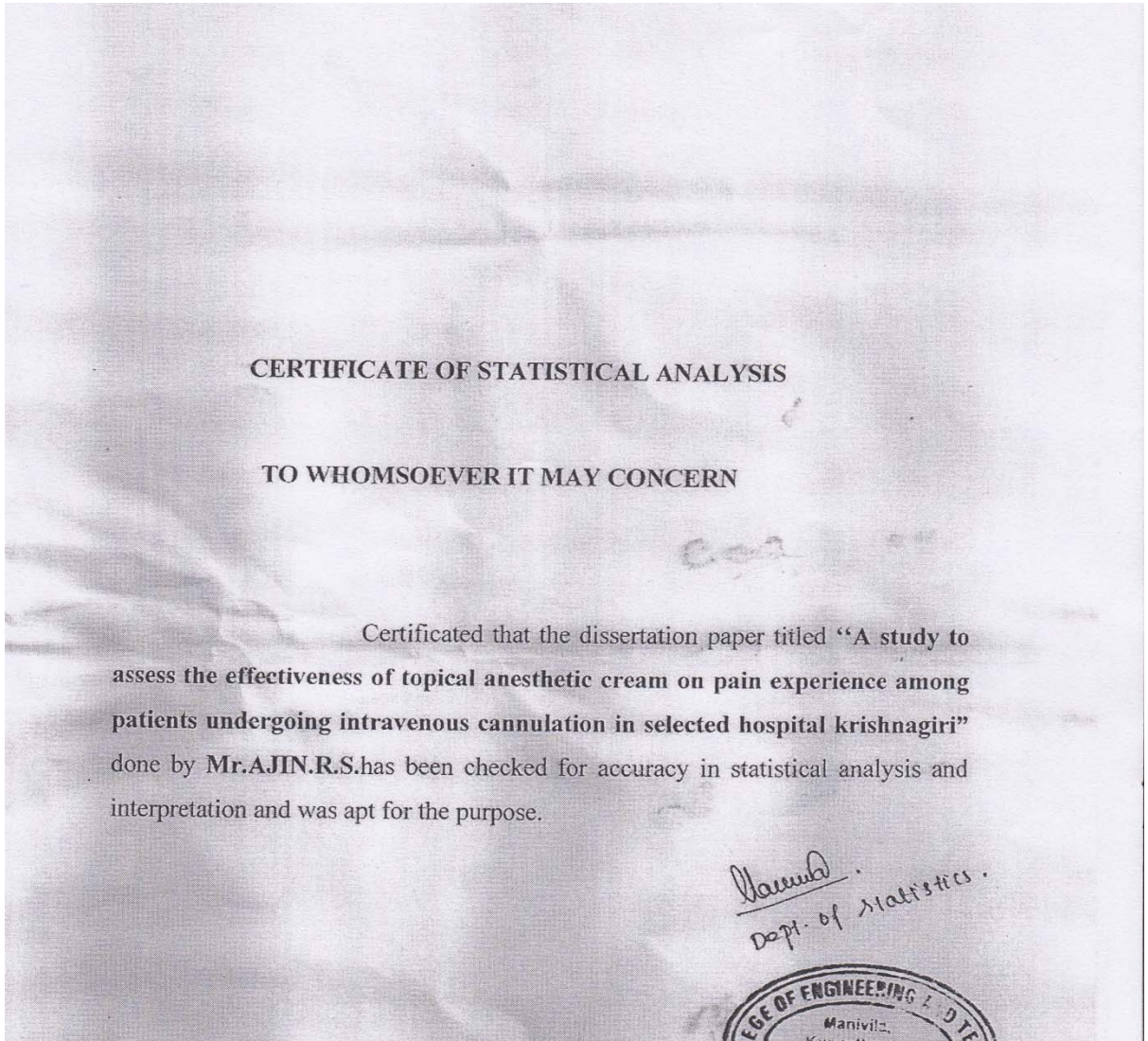
Certificated that the dissertation paper titled **"A study to assess the effectiveness of topical anesthetic cream on pain experience among patients undergoing intravenous cannulation in selected hospital krishnagiri"** done by **Mr.AJIN.R.S.**has been checked for accuracy and correctness of English language usage and that the language used in presenting the paper is lucid, unambiguous, free of grammatical or spelling errors and apt for the purpose.

K. Vanitha.
Dept. of English.

COLLEGE OF ENGINEERING AND TECHNOLOGY
Manivila,
Kumathukal,
K.K Dist. Pin-629170

ANNEXURE- VIII

CERTIFICATE FOR STATISTICAL ANALYSIS



CERTIFICATE OF STATISTICAL ANALYSIS

TO WHOMSOEVER IT MAY CONCERN

Certificated that the dissertation paper titled **"A study to assess the effectiveness of topical anesthetic cream on pain experience among patients undergoing intravenous cannulation in selected hospital krishnagiri"** done by **Mr.AJIN.R.S.**has been checked for accuracy in statistical analysis and interpretation and was apt for the purpose.

Dept. of Statistics.

EGE OF ENGINEERING
Manivila,

ANNEXURE-IX

TOOL FOR DATA COLLECTION

SECTION-A

SOCIO-DEMOGRAPHIC DATA INCLUDING CLINICAL VARIABLES

Instructions

The investigator will ask the item listed below and place the tick mark (✓) against the response given by the respondents.

1) Age of the patient
   a) 21-30 years
   b) 31-40 ye
   c) 41-50 years
   d) 51-60 years
   e) 61-70 years

2) Sex
   a) Male
   b) Female

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

4) Marital status
   a) Married

6) Body build
    a) Thin
    b) Moderate
    c) Obese

7) Size of cannula
    a) 18 Gauge
    b) 20 Gauge
    c) 22 Gauge

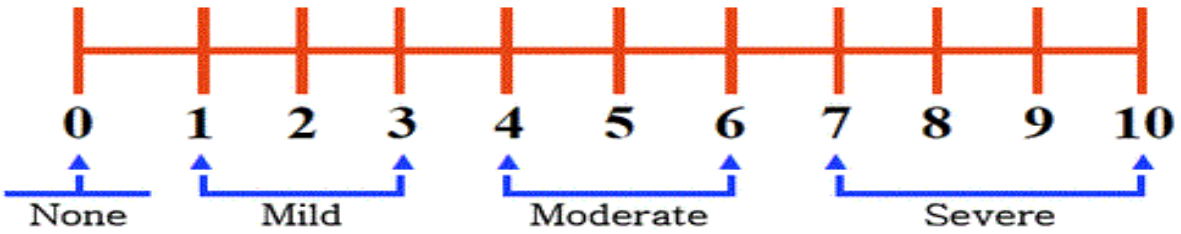
8) Site of cannula
    a) Cephalic vein
    b) Basili vein
    c) Dorsal venous vein
    d) Dorsal metacarpal vein

9) Previous exposure to intravenous cannulation
    a) No exposure
    b) 1-5 times
    c) 6-10 times
    d) More than 10 times

10) Presence of pain due to any chronic disease
    a) Yes
    b) No
    c) If yes, specify

SECTION-B

NUMERICAL RATING SCALE



KEY:

0-NO PAIN
1-3-MILD PAIN
4-6-MODERATE PAIN
7-10-SEVERE PAIN

0 - Pain free

1 - Very minor annoyance

2 - Minor annoyance but discomforting

3 - Annoying enough to be distracting but tolerable

4 - Can be ignored if you really involved in your work, but still distracting

5 - Can't be ignored for more than 30 minutes, very distressing

6 - Can't be ignored for any length of time, intense pain.

7 - Makes it difficult to concentrate, interferes with sleep, very intense pain

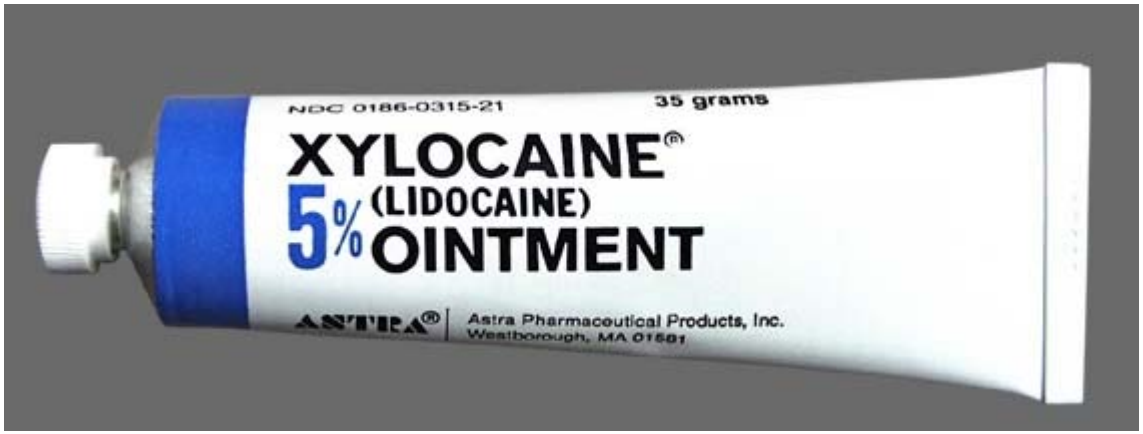
8 - Physical activity several severally limited. Nausea and dizziness may happen, utterly horrible pain.

9 - Unable to speak. Crying out of moaning uncontrollably – near

ANNEXURE- XII

PHOTOGRAPHS OF CONDUCTING STUDY

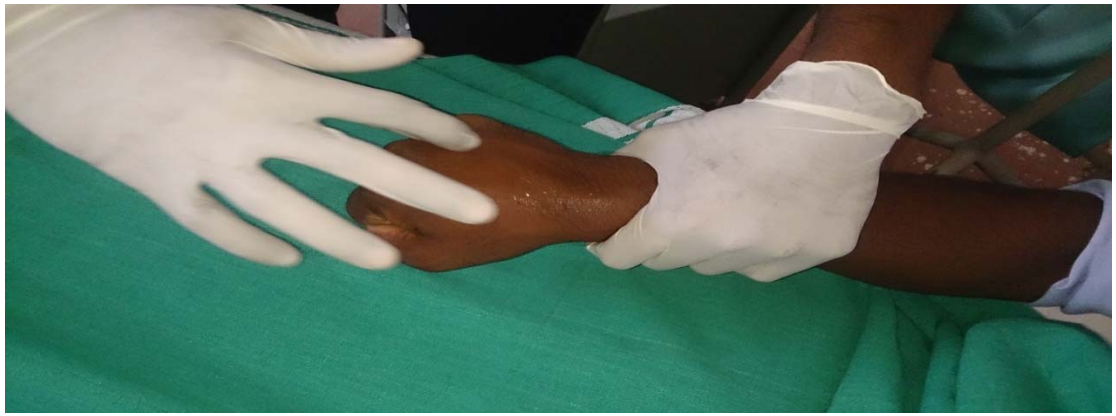
LIDOCANE OINMENT-5%



ASSESS THE BEFORE I.V.CANNULATION PAIN SCORE

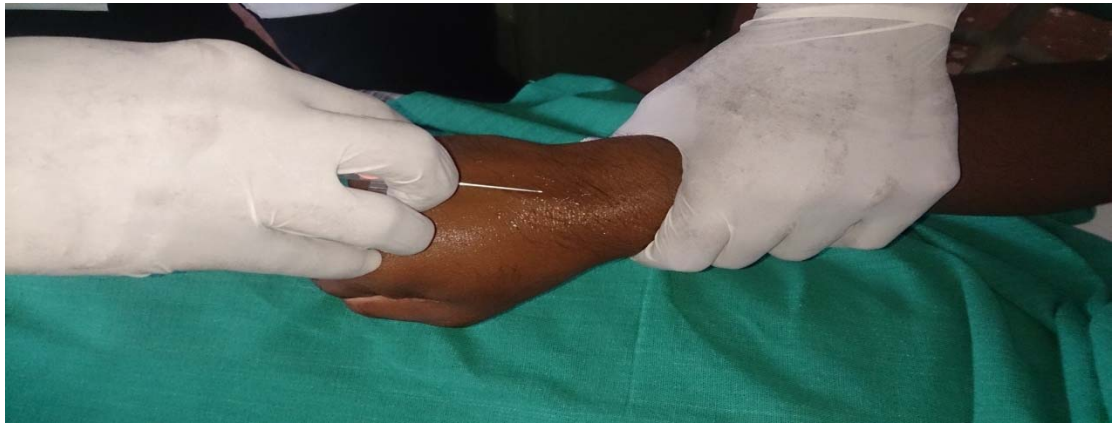

NUMERICAL RATING
SCALE

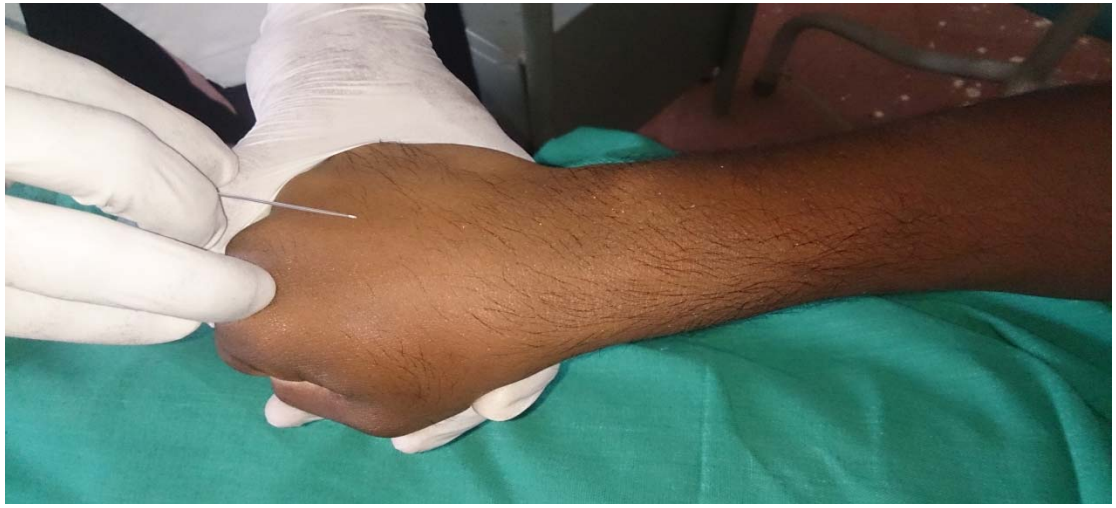
APLYING TOPICAL ANESTETIC CREAM



BEFORE INTRAVENOS CANNULATION

DURING INTRAVENOUS CANNULATION





AFTER I.V.CANNULATION PAIN ASSESSMENT


NUMERICAL RATING
SCALE