EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI.

M.Sc (NURSING) DEGREE EXAMINATION

BRANCH II- CHILD HEALTH NURSING

COLLEGE OF NURSING

MADURAI MEDICAL COLLEGE, MADURAI.

A dissertation submitted to

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

CHENNAI - 600 032

In partial fulfillment of the requirements for the award of the degree of

MASTER OF SCIENCE IN NURSING

APRIL - 2014

EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI.

Approved by the dissertation committee on _____

Expert in Nursing Research **……. ……**

Mrs. S. POONGUZHALI M.Sc (N), M.A, M.B.A, Ph.D.,

Principal,

College of Nursing,

Madurai Medical College,
Madurai-625020.

Expert in clinical specialty **……**

Mrs. N.NAGARATHINAM, M.Sc. (N),

Lecturer in Nursing,

College of Nursing,

Madurai Medical College,

Madurai – 625020.

Medical Expert **……**

Dr. G.MATHEVAN, M.D., DCH,

Director In- Charge,

Institute of Child Health and Research Centre,

Government Rajaji Hospital,

Madurai – 625020.

A dissertation submitted to

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

CHENNAI - 32.

In partial fulfillment of the requirements for the award of the degree of

MASTER OF SCIENCE IN NURSING

APRIL - 2014

CERTIFICATE

This is to certify that this dissertation titled "**EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI."** *is the bonafide work done by* ***Ms.Muthu Meenakshi. N,*** *College of Nursing, Madurai Medical College, Madurai-20 and it is submitted to* THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY, CHENNAI *towards the partial fulfillment of the requirements for the award of the Degree of* ***MASTER OF SCIENCE IN NURSING****,* ***Branch-II, Child Health Nursing****, under our guidance and supervision during the academic period from 2012-2014.*

Mrs. S.Poonguzhali M.Sc (N), M.A, M.B.A., Ph.D.,
Principal,
College of Nursing,
Madurai Medical College,
Madurai**.**

Dr. B. Santhakumar M.Sc (F.sc), M.D(F.M), PGDMLE, Dip. ND (F.N),
Dean,
Madurai Medical College,
Madurai**.**

ACKNOWLEDGEMENT

"By the grace of God I am what I am, and his grace toward me was not in vain"

First of all I praise and thank my **God Almighty** with reverence and sincerity for his heavenly blessings and abundant grace, which strengthened me in each and every step throughout this endeavor.

"A thankful heart is not only the greatest virtue, but the parent of all the other virtues."

I wish to express my sincere thanks to **Dr. Santhakumar M.Sc (F.sc), M.D(F.M), PGDMLE, Dip. ND (F.N), Dean,** Madurai Medical College, Madurai for his encouragement to conduct the study.

I express my heartfelt and faithful thanks to **Mrs.S.Poonguzhali M.Sc (N), M.A, MBA, Ph.D, Principal,** College of Nursing, Madurai Medical College, Madurai for her constant guidance and support to mould this study in successful way.

My sincere thanks to **Mrs. N. Nagarathinam, M.Sc.(N)., Lecturer in Nursing**, College of Nursing, Madurai Medical College, Madurai for her enlightening ideas, support and reassurance in completing the study.

I express my sincere thanks to **Mrs.R.Jeyasundari, M.Sc(N), M.A, M.A, M.A, M.Phil**,**PGDHA**, Faculty in Nursing, College of Nursing, Madurai Medical College, Madurai for her untiring intellectual guidance, inspiration, encouragement, expertise, prompt suggestions and patience laid strong foundation on every stage of research..

My sincere thanks to **Mrs.N.Maheswari M.Sc (N).,** Faculty in Nursing, College of Nursing, Madurai Medical College, Madurai, for her timely suggestion and guidance in every part of research.

I extend my heartfelt thanks to **Prof. Dr.G.Mathevan M.D.,** Director In-Charge, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai for rendering his greatest help in sharing his valuable thoughts and guiding me for the completion of the study.

I am grateful to **Dr. A. Helen M. Perdita**, **M.Sc (N), Ph. D,** Principal, Madurai Apollo College of Nursing, Madurai, **Mrs. S.M.Agnes Merin, M.Sc (N),** Associate Professor, Matha College of Nursing, Manamadurai, **Mrs. Jyothi Lakshmi, M.Sc (N**), Reader, Sacred Heart College of Nursing, Madurai for their suggestions and tool validity.

I express my thanks to all the faculty members of College of Nursing, Madurai Medical College, Madurai for the support and assistance given by them in all possible manners to complete the study.

I extend my sincere thanks to **Prof.Mr.Dhanapal ,M.Sc, M.Phil, Ph.D,** Bio-statistician for his valuable help in statistical analysis of the study.

I am thankful to **Mrs.R. Sarojini, M.A., M.Ed., M.Phil.,** Headmistress**, Mrs. K.Ayyammal, M.A., M.Ed.,** Post Graduate Assistant in Tamil for editing my dissertation study.

I am thankful to **Mr.S.KalaiSelvan M.A., B.Lib.Sc**., Librarian, College of Nursing, Madurai Medical College, Madurai, for his cooperation in collecting the related literature for this study.

Gratitude is extended to all my friends and colleagues especially **Ms.Rajeshwari. C** and my affectionate thanks to my roommates **Mrs.Suganthi.C and Mrs.Priya.S,** my department mates **Mrs.Saranya.P, Mr. N.Chendrya Perumal, Mr. Absar Hussain.J. and Mrs. S.JayaShree** for their constant physical and psychological support to me in completing this study.

It gives me immense pleasure to express my affectionate thanks to my father **Mr.P.Natarajan**, my loving mother **Mrs.N.Palaniammal** and my sisters **Ms. Jeya Pratha.N** and **Ms. Mani Pratha.N**, who has been the backbone of my endeavors and for their care, assistance and support throughout this study which cannot be expressed in words.

I extend my heartfelt thanks to Laser Point and City Xerox for their timely work and assistance in doing DTP work.

Last but not least, I extend my heartfelt thanks to all my class mates for their continuous support, strength and guidance from the beginning to the end of this research study.

ABSTRACT

Effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in paediatric ward, Government Rajaji Hospital, Madurai.

Objectives: The main objective of the study was to evaluate the effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in paediatric ward, Government Rajaji Hospital, Madurai. **Conceptual Framework:** The conceptual framework for this study was based on modified Widenbach's prescriptive theory (1964). **Design:** This study employed True experimental - Post test only design. **Setting of the Study:** The study was conducted at paediatric ward, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai. **Subjects:** A total of 60 subjects were included in the study (30 in experimental group and 30 in control group). Subjects were selected using simple random sampling technique. **Intervention:** Children in the experimental group were displayed the cartoon movie on the laptop during the whole duration of the venipuncture. The usual standard technique was given for the children in control group. **Main outcome measure:** Numerical Pain Rating Scale was used for measurement of pain level and Cooperative Behaviour Scale of Children in Venipuncture (CBSCV) was used to assess the cooperation level. **Findings**: In the experimental group majority of the children 43% had no pain and 70% had good cooperation. Whereas, in control group children 53% had severe pain and 70% had no cooperation. The obtained 't' value for pain level 12.07 was significant at $p<0.001$ level. Similarly the obtained 't' value for cooperation level 11.67 was significant at $p<0.001$ level. The correlation between the pain level and cooperation level, in experimental group was 'r'= 0.62 significant at $p<0.001$ level and in control group

was ‘r’= 0.57 significant at p<0.001 level. So, there was highly positive correlation between the pain level and the cooperation level during venipuncture. The number of previous venipuncture was significantly associated with the pain and cooperation level of the children in the experimental and control group. **Conclusion:** The study concluded that distraction technique was effective in reducing the pain and promoting the cooperation of school aged children during venipuncture. This distracting technique is highly recommended because it is effective, easy to carry out and inexpensive.

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER -I

INTRODUCTION

"Discovery consists of seeing what everybody has seen and thinking what nobody has thought."

- Albert Gyorgyi

"Bitter are the tears of a child: sweeten them.

Deep are the thoughts of a child: quiet them.

Sharp is the grief of a child: take it from him.

Soft is the heart of a child: Do not harden it."

-Pamela Glenconner

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.

- The International Association for the Study of Pain

Distraction is a cognitive coping strategy that works by diverting attention from a painful stimulus by passively redirecting the subject's attention or actively involving the subject with a task.

- Kleiber and Harper, 1999

The word pain is derived from the Latin word '*Poena'* which means punishment. The international association for the study of pain further states that, "pain is subjective. Each individual learns the application of the word through experiences related to it in early life." This definition emphasizes the individuality of each person's pain response and the importance of pain experiences, especially those in early life, in shaping that response. Thus, a child's experience during painful

medical procedures plays a significant role in shaping that individuals pain response to future events.

Pain may cause physical and emotional distress and anxiety in children experiencing medical or surgical procedures. **Price** has presented an alternative definition of pain that explains how coping strategies can be useful in the multidimensional context of a painful experience: Pain often occurs within a situation that is threatening, such as during physical trauma or disease. Part of the affective dimension of pain is the moment-by-moment unpleasantness, which consists of emotional feelings that pertain to the present or the short-term future such as annoyance, fear, or distress. This definition describes how the physical part of pain can only explain a small part of the individual's total pain perception. The main reason for pain perception is the emotional thoughts that arise from the pain signals. The experience of pain from a nerve signal is processed in the brain. The brain determines if the child experiences an injury or cannulation with a painful experience.

Melzack and Wall, 1965 presented the theory of gate control, which assumes that all pain transmission in the dorsal horn is centrally controlled. The theory of gate control includes the hypothesis of a gate that reacts to emotions or tactile stimulation. If an emotion-based coping strategy brings the children enjoyment, it inhibits the pain signals from reaching the brain. Conversely, a feeling of distress and anxiety opens the gate and lets the pain signals pass to the brain.

Nociceptors (free nerve endings at the site of tissue damage) transmit information via specialized nerve fibers to the spinal cord. Unmyelinated C fibers slowly transmit dull, burning, diffuse pain as well as chronic pain. Large, myelinated A-delta fibers quickly transmit sharp, well-localized pain. Nociceptors are stimulated

by mechanical, thermal, and chemical injury. Biochemical mediators (bradykinin, prostaglandin, leukotrienes, serotonin, histamine, catecholamines, and substance P) are produced in response to tissue damage. These substances help move the pain impulse from the nerve endings to the spinal cord. After the sensory information reaches the substantia gelatinosa in the dorsal horn of the spinal cord, the pain signal may be modified depending on the presence of other stimuli, from either the brain or the periphery. The pain signal is then transmitted through the lateral spinothalamic tract, to the thalamus of the brain where perception occurs. Once the sensation reaches the brain, interpretation of pain occurs, and emotional responses may increase or decrease the intensity of the pain perceived.

Worldwide, children represent a higher proportion of the population, with children younger than age 15 accounting for 1.8 billion (28%) of the world's 6.4 billion persons (Kliegman. *et al.*, 2007). Children are the major receivers of health care. In India about 35 % of total populations are children below 15 years of age. Children fall in the most important age group in all societies (Dutta, P., 2009). Illness and hospitalization expose children to unfamiliar and unpleasant feelings. Children may undergo a wide range of intervention in hospitals, many of which can be stress full, traumatic and painful (Movahedi, A. F., *et al.*, 2006).

Venipuncture and other invasive procedures (blood draws, intramuscular injections, heel pricks) are the most commonly performed painful procedures in children. These can be a terrifying and painful experience for children and their families (Ricci, S. S., *et al.*, 2009). Although the degree of pain during common medical procedures is less than during severe illnesses and injuries, millions of children experience these procedures which cause considerable distress. Children

requiring needle sticks (intramuscular injections, intravenous catheters, blood sampling) view this procedure as frightening and a significant source of pain (Movahedi, A. F., *et al.,* 2006).

Venipuncture is puncturing the vein with an injection needle. Venipuncture is being increasing in paediatric practice. Hana. et al., Wong and Baker and Duff agree that repeated venipuncture is an especially stressful and painful experience for children.

Relief of pain is a basic need and right of all children. Management of pain in the child must be individualized. Age, sex, birth order, cultural background, parents, caregiver's response and past experiences affects the child's response. The newborn baby, the infants, and the toddler are unable to localize and describe the severity of pain. During the pre-school period, the child acquires the ability to verbally describe the pain experience. The school children are able to communicate verbally the pain they experience. They can indicate the location and intensity of the pain.

Nurses are in a unique position to improve the management of children's pain; because children and parents will often tell them things they do not tell physicians and they are often the professionals who have the most contact with an ill child in and out of the hospital. The nurse must be aware of the child's response to pain through assessment of behavioral responses and differentiation of crying.

Nursing intervention can alleviate some of the fear and pain caused by painful procedures. Depending on the cause of the pain experience, non pharmacologic or pharmacologic interventions or both may be utilized. The nurse should provide explanation for what is happening to the school-age child. The nurse should explore coping pattern and encourage their use in helping this young people deal with pain.

Many non-pharmacological techniques such as distraction, guided imagery, oral glucose suctioning, virtual reality glasses, cartoon, non-procedural talk and cutaneous stimulation provides coping strategies that may help to reduce pain. Distraction technique is the most effective when adapted according to the developmental level of the child. According to Whaley and Wong's, school aged children are easily distracted even though they have different temperaments.

Distraction is a hypothesized effective strategy for decreasing procedural pain, fear, and distress among children by reducing the sensory and effective component of pain. Distraction alters nociceptive responses by triggering an internal mechanism of pain inhibition. It is also a vehicle to modify how painful stimuli are processed. When an individual is distracted, regional cerebral blood flow associated with processing a painful event is reported to reduce. Likewise when an individual's attention is occupied by a distracting task, activation reduces to the areas of the brain associated with pain such as the thalamus, and the interior cingulated cortex producing correspondingly lower pain scores.

Distraction involves focusing patient's attention on something other than the pain. Distraction is thought to reduce the perception of pain by stimulating the descending control system, resulting in fewer painful stimuli being transmitted to the brain. The effectiveness of distraction depends on the patient's ability to receive and create sensory input other than pain. Pain relief is generally increased in direct relation to the person's active participation, the number of sensory modalities used, and the person's interest in the stimuli. (Brunner & Suddarth)

1.1 NEED FOR THE STUDY:

When one door of happiness closes, another opens; but often we look so long at the closed door that we do not see the one which has opened for us.

-Helen Keller

Pain is one of the most frequent complaints presented in paediatric settings. Pain in children and adolescents with acute and chronic diseases is a major public health problem that has been increasing over the last 20 years. Hospitalization itself is very stressful place for children. Thus it is important for health care providers to follow a child centered or individual approach in the assessment and management of pain and painful procedures.

Ideally procedures should be done in a child-friendly environment, using appropriate non-pharmacologic interventions with routine pain assessment and reassessment. Numerous modalities exist to decrease procedural pain, from topical anesthetics up to complete deep sedation. The latter requires expertise, forethought, and considerable expense and may not be available in every community. Despite ready availability, however, only 6% of paediatric offices use pain control for shots and only 2.1% of an estimated 18 million venipuncture are performed each year with pain control.

In fact, children's most common pain experiences are medical pain (Committee on Psychosocial Aspects of Child and Family, 2001); primarily needle pain (e.g., venipunctures, immunizations) (Blount, Piira, & Cohen, 2003). Children experience needle pain soon after birth, beginning with heel sticks and immunizations, and continuing throughout childhood with additional immunizations and blood tests. Children will undergo approximately 28 intra-muscular immunization injections and

possibly a number of venipunctures by the time they reach their sixth birthday (Center for Disease Control and Prevention [CDC], 2004).

School children are able to communicate verbally the pain they experience. They can indicate the location and intensity of the pain. Some children try to postpone the painful event, and it becomes necessary for the nurse to limit the number of procrastinations children use. At times, children may refuse to admit that they are having pain to avoid the injection.

Children remember pain, and may avoid future medical care because of painful experiences in a hospital or clinic. Untreated pain suffered early in life can have profound and long-lasting effects on social and physical development, and can cause permanent changes in the nervous system that will affect future pain experience and development.

Perception of pain in paediatrics is complex, and entails physiological, psychological, behavioral, and developmental factors. However, in spite of its frequency, pain in infants, children, and adolescent is often underestimated and under treated. It has also been shown that infants and children, who experience pain in early life, show long-term changes in terms of pain perception and related behaviors. Health care professionals in this setting have a responsibility to reduce pain and anxiety as much as possible while maintaining patient safety.

Children cry, are scared and refuse to collaborate, whereas parents are often worried and unable to provide any support. Parents and nurses consistently indicate that many children do indeed fear the “needle shot”. This can be manifested by the child’s distress behaviors such as aggressiveness, intense cry, withdrawal or regressive behavior, physical resistance by pushing painful stimulus away, guarding the painful

area, clinging to parents, requesting for emotional support, refusal to cooperate and inability to sleep. As a result it can significantly have a negative sequelae on the life of children, in which the developing brain neuronal architecture may be permanently altered by repeated noxious stimuli.

Studies confirm that pain can negatively affect the life of children as well as that of their parents. Memory for the painful event is another factor influencing long-term negative effects. Even though children who display low distress, tend to have a distorted negative recall of the pain they experienced with procedures. Recall is further distorted if children were distressed at the procedure. These fragmented traumatic memories easily become exaggerated memories of the pain experienced, resulting in increased distress at subsequent procedures. Thus, inadequate treatment of a child's distress at an initial procedure produces a negative ongoing cycle of distress at subsequent procedures. Altering their distorted memories to more realistic ones through postevent suggestion and feedback may break this cycle. The first step to adequate pain management is adequate assessment. Assessment instruments used must be practical, reliable, valid and appropriate for the Child's developmental stage.

Yoo, H., Kim, S., Hur, K.H. and Kim, H.S. (2011) conducted a study to identify the effects of an animation distraction intervention on pain response of preschoolers during venipuncture. This study was conducted in Korea. The results revealed that there were significant differences in self-reported pain response, and behavioral pain response between the experimental group and the control group. The researcher concluded that this intervention requires minimum effort and time and may be a cost-effective and convenient nursing intervention that could be used easily in clinical settings.

Wanga, Z., Sunb, L.H. and Chena, A.P. (2008) conducted a study in China to assess the efficacy of non-pharmacological methods of pain management in school age children receiving venipuncture. Random sampling technique was used in this study to assign 300 patients (8–9 years) into audiovisual distraction group (n = 100), intervention group (n = 100) and control group (n = 100). The results revealed that procedures were more painful in the control group than in the audiovisual distraction or the intervention group. The researcher concluded that audiovisual distraction was demonstrated to be effective in reducing self-reported pain and improving patient cooperation.

Belleni, C.V and Cordelli, D.M. (2006) conducted an experimental study in Siena, to assess the analgesic effect of passive or active distraction during venipuncture in children. A purposively selected sample of 69 children aged 7–12 years undergoing venipuncture were randomly divided into three groups: a control group, a group in which mothers performed active distraction and a TV group. The results revealed that procedures performed during TV watching were less painful ($p<0.05$) than control or procedures performed during active distraction. The researcher concluded that TV watching was more effective than active distraction.

Cassidy, K.L., et al. (2002) conducted an experimental study among 62 children's to watch TV as audiovisual distraction in Preschool Immunization, they were randomly assigned to watch television (TV) (N = 29) or a blank TV screen (control) (N = 33) during immunization. Higher levels of distraction (i.e., greater time looking at the TV screen) related to lower levels of pain measures. Thus watching cartoons distract children during needle injection and reduce their pain.

Health care practices can have an impact both on pain onset and its relief. Challenges to the nurses who provide their care, co- operation of children during painful invasive procedures is very important. It is reported that anxiety in children can increase their subjective perception of pain, but it can be reduced if their attention is focused on a pleasant activity. Literature refers to many coping strategies that can be facilitated by means of relaxation and distraction activities. In addition, if the perception of pain does not meet children's expectations they might be unwilling to cooperate properly in the future and in adult age they could have distorted memories of the pain suffered. Furthermore, literature unanimously reports that it is important to obtain the child's collaboration and when this is not possible, literature suggests to postpone the procedure, possibly after negotiating the new date directly with the children to ensure their collaboration in the future.

Of the non-pharmacological pain relief methods used during school age, literature cites distraction as the most effective. It has been demonstrated that distraction – a simple and easily applicable technique – relieves pain in children during venipuncture procedures.

The investigator during her clinical experience felt that children are often exposed to painful procedures on admission to hospital. One such common procedure is venipuncture which is very painful to children. Thus, the investigator is interested to emphasize on the measure of pain relief by distraction to reduce pain and improve the cooperation among children during venipuncture. With this intention, the investigator has taken steps to evaluate the effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children.

1.2 STATEMENT OF THE PROBLEM

"A study to evaluate the effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in paediatric ward, Government Rajaji Hospital, Madurai."

1.3 OBJECTIVES OF THE STUDY

1. To assess the pain level and cooperation level during venipuncture among children in experimental group and control group.
2. To compare the pain level and cooperation level during venipuncture between children in experimental group and control group.
3. To correlate between the pain level and cooperation level among children in experimental group and control group.
4. To associate between the selected baseline variables and the pain level, cooperation level among children in experimental group.

1.4 HYPOTHESES

H_1: There will be significant difference in the pain level and cooperation level during venipuncture among children in experimental group and control group.

H_2: There will be significant correlation between the pain level and cooperation level during venipuncture among children in experimental group and control group.

H_3: There will be significant association between selected baseline variables and the pain level, cooperation level during venipuncture among children in experimental group.

1.5 OPERATIONAL DEFINITIONS

Effectiveness:

In this study it refers to the ability of distraction technique upon pain level as evidenced by the numerical pain rating scale scores and the cooperation level of the children by Cooperative Behaviour Scale of Children in Venipuncture (CBSCV).

Distraction technique:

In this study it is the cartoon movie displayed on a monitor for diverting the child's attention from painful experience during venipuncture.

Pain Level:

In this study it is the feeling of hurt experienced by the children during venipuncture measured by the numerical pain rating scale.

Cooperation Level:

In this study it refers to the behaviour of the children during venipuncture which is observed by Cooperative Behaviour Scale of Children in Venipuncture (CBSCV).

Venipuncture:

In this study it refers to insertion of venflon for medication administration and intravenous infusion.

School Aged Children:

In this study it refers to children between 7-9 years of age who are admitted in the Government Rajaji Hospital, Madurai.

Paediatric ward:

It refers to the paediatric medical ward of Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai, where the children get hospitalized for treatment.

1.6 ASSUMPTION:

- Every child is unique and responds in a unique way during venipuncture.
- All school aged children watch cartoon movies.
- Venipuncture is a painful procedure for children.

1.7 DELIMITATION:

- This study is confined only to school aged children admitted in paediatric ward, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai.
- This study is limited only to the period of six weeks.
- This study is limited only to children undergoing venipuncture.

1.8 PROJECTED OUTCOME:

At the end of the study, children in the experimental group will have reduced level of pain than children in the control group and the level of cooperation will be good among children in experimental group than children in the control group. In addition, the results will motivate the health care workers to use this non pharmacological and cost effective technique to reduce the pain during venipuncture.

CHAPTER- II

REVIEW OF LITERATURE

"What we see depends mainly on what we look for."

- John Lubbock

Review of literature is a key step in research process. The review of literature is defined as a broad, comprehensive in depth, systematic and critical review of scholarly publications, unpublished scholarly print materials, audio- visual materials and personal communication.

Emphasis has been placed on pharmacologic procedural sedation and analgesics, but environmental and non pharmacologic therapies contribute greatly to distress reduction.

This chapter deals with two parts:

Section A: Review of literature

Section B: Modified Conceptual framework on Widenbach's Prescriptive theory

SECTION - A

Review of literature has been organized under the following section.

SECTION I : LITERATURE RELATED TO ASSESSMENT OF PAIN DURING INVASIVE PROCEDURES.

SECTION II : LITERATURE RELATED TO NON-PHARMACOLOGICAL INTERVENTIONS FOR PAIN DURING INVASIVE PROCEDURES.

SECTION III : LITERATURE RELATED TO DISTRACTION FOR PAIN DURING PAINFUL PROCEDURES.

SECTION IV : LITERATURE RELATED TO DISTRACTION FOR PAIN DURING VENIPUNCTURE.

SECTION I

2.1 LITERATURE RELATED TO ASSESSMENT OF PAIN DURING INVASIVE PROCEDURES.

Rosenbloom. et al. (2011) conducted a prospective cohort study to assess the effect of parental sex and age on pain assessment of young children. A total of 61 couples were examined. The investigators provided instructions regarding the use of a visual analogue scale (VAS) to both parents at the same time using a standard information kit. Both parents were asked to rank the child's pain on a 100-mm VAS. The result conclude that there was no significant difference between mothers' VAS (59.1 ± 27.4) compared with father's VAS (57.9 ± 26.3) (P = 0.75).

Ranjit, S., and Manias, E. (2010) conducted a study in Australia to examine paediatric nurses' pain assessment and management practices in relation to postoperative care for children following surgery of a fractured lower limb. A retrospective audit of all medical records (n = 106) was undertaken over two years of children aged 5-15 years. The study results revealed that assessment and management of children's postoperative pain was inadequate. On average, 75% of children experienced some degree of pain; 50% had moderate to severe pain. Nurses assessed pain less frequently compared to the number of times they were expected to assess pain postoperatively. Most analgesics were prescribed on an 'as needed' basis and patients received significantly lower amounts of analgesics than prescribed amounts. The researcher concluded that clinical audit addressing children's postoperative analgesic needs was not consistent with evidence-based guidelines.

Rasha, S., Ratnabalan, R. and Susan, S. (2010) conducted a study on pain assessment and non pharmacological management. The researcher concluded that pain perception in children is complex, and is often difficult to assess. A review of

pain assessment scales was used in children across all ages. Neonatal Facial Coding System (NFCS), Neonatal Infant Pain Scale (NIPS), Crying Requires Increased Vital Signs Expression Sleeplessness (CRIES), Maximally Discriminate Facial Movement Coding System (MAX) were used for neonates. The Faces Legs Activity Cry Consolability Scale (FLACC) were used for infants. Observational Pain Scale (OPS), The Toddler-Preschooler Postoperative Pain Scale (TPPPS) were used for toddlers. The Child Facial Coding System (CFCS), Poker Chip Tool, Ouchers scale were used for preschoolers. Visual Analogue Scale (VAS), Paediatric Pain Questionnaire was used for schoolers. The distractions techniques are provided by nurses to manage pain in children is most effective when adapted to the developmental level of the child.

Anna Taddio., et al. (2009) conducted a systemic review on inadequate pain management during routine childhood immunization: the nerve of it. MEDLINE, Psyc INFO, EMBASE, CINAHL and the Cochrane central register for primary research and review articles published from beginning of October 2008 data bases were searched for the study. Result showed that on average younger children exhibit more distress and pain than do older children. More than 90% of toddlers and 50% of primary school children exhibit severe distress during immunization. The investigator concluded that individual child factors such as developmental level, temperament may have a considerable effect on children's immunization.

Harrison, D., **Loughnan, P. and Johnston, L. (2006)** conducted a postal survey on current pain assessment and procedural pain management practices in neonatal units in Australia. The survey comprised questions relating to pain assessment scores, pain reduction strategies. Surveys were sent to 181 organizations, and 105 of these were returned (58%). Six units (6%) used pain assessment scores on

a regular basis, and 16 units (15%) had an articulated policy directing pain management practices during painful procedures. Result suggested that twenty-four units (24%) used sucrose or other sweet-tasting solutions during procedures.

Elizabeth, A., Stanford, Christine, T., Chambers, Kenneth, D., Patrick, J., and Keri-Leigh Cassidy. (2005) conducted a study on ‘‘Ow!’’: Spontaneous verbal pain expression among young children during immunization. Fifty-eight children between the ages of 4 years 8 months and 6 years 3 months (67% female) were videotaped while receiving their routine preschool immunization. Children provided self-report of pain using a 7-point faces pain scale. Fifty-three percent (53%) of children used verbalizations spontaneously to express their pain. The modal verbalization was the interaction ‘‘Ow!,’’ which expressed negative affect and was specific to the experience of pain.

Catherine, B.M., Cohen, L.L. and Joseph, K. E. (2003) conducted a study on infant distress during immunization. A multimethod assessment of distress was conducted to investigate infants (N = 37) undergoing routine immunizations. Measures of infant distress included parent report, nurse report, infant heart rate, and an observational measure of infant distress. Parents rated their infant's distress and pain significantly higher than did nurses. Observational and physiological ratings of infant distress were found to vary significantly by phase, and there were no correlations between adult ratings of pain and distress and physiological ratings. Findings suggested that infant procedural distress can be assessed in a number of manners. The discordance between these measures emphasized the need for multimethod assessment of paediatric procedural distress in both research and clinical settings.

SECTION - II

2.2 LITERATURE RELATED TO NON-PHARMACOLOGICAL INTERVENTIONS FOR PAIN DURING INVASIVE PROCEDURES.

Anurani, A. and Umarani, J. (2013) conducted a study to assess the effect of music therapy in reducing invasive procedural pain in Mangalore. Quasi experimental post test only design was adopted in this study. 80 children aged 3-7 years who underwent invasive procedures were selected using convenience sampling technique and randomly assigned to experimental (n=40) and control (n=40) groups. Data was collected using FLACC Behavioral pain assessment scale. The study result revealed that the mean pain score of children in experimental group (3.88) was lower than control group (8.15). The independent 't' value (t=15.448) computed between experimental and control group was statistically significant at $p<0.05$. The researcher concluded music therapy has the potential to decrease the pain perception.

Sikorovaa, L. and Hrazdilovab, P. (2011) conducted a study to determine the effect of structured psychological intervention on the level of perceived pain in children undergoing venipuncture. Children aged 5-10 years, were randomly divided into a control group and an intervention group. Perceived pain levels were assessed by the CHEOPS scale and the self report Wong and Baker faces pain rating scale. The psychological intervention carried out by a nurse proved to lower pain levels. A greater level of pain was found in 5-7 years of children and in children where the parents were present. The researcher concluded that consultation should be part of the standard of care for children with indications for venipuncture.

Baxter, A.L., Cohen, L.L., McElvery, L.L., Lawson, L.L. and Baeyer, C.L. (2011) conducted a study to compare a reusable device combining cold and vibration to standard care for pediatric venous access pain relief. Prospective randomized clinical trial was used in this study. A convenience sampling technique was used. 4- to 18-year-old patients requiring blood tests or venous access were included in this study. Pain was measured via self- and parent-report using the 0- to 10-point Faces Pain Scale Revised and with coded videotaped observed behaviors. The study result revealed that 81 were randomized to the device (n = 41) or standard care (n = 40). Patient-reported pain scores with the device were lower than with standard care. Observed distress behaviors were more common with standard care than with the device. The researcher concluded that the combination of cold and vibration decreased venipuncture pain significantly more than standard care.

Nilsson, S., Finnstrom, B., Kokinsky, E. and Enska, K. (2009) conducted a study in Sweden to examine the effect of using non-immersive Virtual Reality (VR) during a needle-related procedure on reported pain or distress of children and adolescents. Data were recorded on 42 (21 -intervention group and 21 - control group) children and adolescents aged 5–18years who underwent either venous punctures or subcutaneous venous port devices. Self-reported pain and distress, heart rate and observational pain scores were collected before, during and after the procedures. The study results revealed that self-reported and observed pain and distress scores were low in intervention group. The researcher concluded that non-immersive VR is a positive experience for children undergoing a minor procedure.

Balan, R. (2009) conducted a prospective randomized control study in Mumbai, to determine comparative efficacy of local anesthetic cream, Indian classical

instrumental music and placebo, in reducing pain due to venipuncture in children. Purposively selected children aged 5-12 years requiring venipuncture were randomly assigned to 3 groups: local anesthetic (LA), music or placebo (control) group. Pain was assessed independently by parent, patient, investigator and an independent observer using a Visual Analogue Scale (VAS). The difference between VAS scores in EMLA group were significantly lower than those in music group only at some time-points and with some categories of observers (parent: 1min; investigator:5 min and independent observer: 5 min). The researcher concluded that pain experienced during venipuncture can be significantly reduced by using EMLA or Indian classical instrumental music.

Boivin, J.M. (2008) conducted a study to assess a multi factorial strategy of pain management in reducing pain among children of 4 to 12 years, in Iran. The design used was pseudo randomization design. The sample size consisted of 239 children, 132 using pain management, 107 multi factorial strategies. The tool used was self-report scale and visual analogue scale. The result showed that there was decreased pain while using multi factorial strategy ($p<0.0001$) conformation by self-report scale for pain ($p=0.005$). Therefore multi factorial method has significantly decreased pain rather than any usual pain management for children.

Caprilli, S., Anastasi, F., Grotto, R.P., Abeti, S.M. and Messeri, A. (2007) conducted a study in Italy to assess the effect of interactive music on pain and stress in children during venipuncture. A randomized prospective study was adopted in this study. In this study sample composed of 108 (54 in music group and 54 in control group) The distress experienced by the child before, during and after the blood test was assessed with the Observation Scale of Behavioral Distress, and pain experience

with FACES scale (Wong Baker Scale) after the venipuncture. The study results showed that distress and pain intensity was significantly lower ($p<.001$; $p<.05$) in the music group compared with the control group before, during, and after blood sampling. The researcher concluded that songs and music, performed by "professional" musicians, have a beneficial effect in reducing distress before, during, and after blood tests.

Uman, L.S. (2006) conducted a randomized control study in London, on psychological interventions for needle related procedural pain and distress in children and adolescents. The study was conducted among randomly assigned 1951 participants aged between 2-19 years undergoing needle related procedures. The data was collected using Oxford Quality Scale. The result showed that distraction techniques, hypnosis, combined cognitive behavioral interventions and cognitive behavioral interventions can be used with children and adolescents to manage or reduce pain and distress associated with needle related procedures.

Fetzer and Jane, S. (2002) conducted the study to determine the effect of EMLA cream application in reducing VE and IV insertion pain. A meta-analysis of 20 studies was conducted. The results showed that EMLA cream had a large significant effect on VE pain (d = 1.05) with a 95% confidence interval from .92 to 1.34 and a large significant effect on IV insertion pain (d = 1.04) with a 95% confidence interval from .84 to 1.46. Subject age (child versus adult), type of pain scale, number of therapists, location of insertion site, premedication, funding, or study design did not appear to act as effect modifiers. The researcher concluded that EMLA cream can significantly decrease VE and IV insertion pain in 85% of the population.

SECTION - III

2.3 LITERATURE RELATED TO DISTRACTION FOR PAIN DURING PAINFUL PROCEDURES.

Gedam, D.S., Verma, M., Patil, U. and Gedam, S. (2013) conducted a study in Bhopal to assess effectiveness of audio-visual distraction techniques in toddlers during and after vaccination. The study used a quasi experimental three group pretest post test design. Group- 1 (120 Patient) was encouraged to see and play with light and sound producing toy. Group- 2 (120 Patient) children were encouraged to see cartoon movie and children of control group- 3 (110 patient) were immunized without any distraction technique. Face, Leg, Activity, Cry, Consolability (FLACC) Pain Scale was used to assess the level of pain. The results revealed that the mean pain score of test group during procedure (Group-1: 2.30 & Group-2: 3.65) were lower than the score of control group (Group-3: 5.30). Similarly after procedure Score (Group-1: 4.62 & Group-2: 2.79) were lower than the score of control group (Group-3: 6.20). The researcher concluded that distraction technique i.e. light & sound producing toys and cartoon movies are practical way to reduce pain during routine medical interventions in toddler.

Caprilli, S., Vagnoli, L., Bastiani, C., Messeri, A. (2012) conducted a study to investigate the effectiveness of using soap bubbles as a distraction technique to reduce children's pain and distress before, during and after blood sampling. This study included sixty children, aged between 3 and 6. The experimental group where they were distracted with soap bubbles, (n=30), or to the control group (n=30). All children received local anaesthesia with EMLA cream. Distress experienced by children was measured with the Observation Scale of Behavioural Distress, while the

children perceived pain was assessed with the Wong Baker Scale. The study results revealed that the levels of distress and pain are lower in children assigned to the distraction group than in control group. Correlation between distress during blood sampling and children age (r=0.571; p=0.001) and correlation between age and pain (r=0.577; p=0.001) is significant. The researcher concluded that distracting using soap bubbles is an effective method to manage and decrease venipuncture pain and distress in children.

Weiss, K.E., Dahlquist, L.M., Wohlheiter, K. and Baltimore (2011) conducted a study in USA to examine the effects of interactive versus passive distraction on healthy preschool-aged children's cold pressor pain tolerance. A mixed model experimental design was used in this study. Stratified random sampling was used to select the samples. Sixty-one children aged 3–5 years were randomly assigned to one of the group. Participants underwent a baseline cold pressor trial followed by interactive distraction trial, passive distraction trial, or second baseline trial. The results showed significantly higher pain tolerance during both interactive and passive distraction relative to baseline. The researcher concluded that the interactive and passive video game distraction was effective for preschool-aged children during pain exposure.

Dahlquist, L.M., Weiss, K.E., Clendaniel, L.D., Law, E.F., Ackerman, C.S. and McKenna, K.D. (2009) conducted a study to test effects of videogame distraction using a virtual reality type head-mounted display helmet on cold pressor pain in children. This study was conducted in Baltimore, USA. 41 children, aged 6–14 years, underwent one or two baseline cold pressor trials followed by two distraction trials in which they played the same videogame with and without the helmet in

counterbalanced order. Pain threshold (elapsed time until the child reported pain) and pain tolerance (total time the child kept the hand submerged in the cold water) were measured for each cold pressor trial. The results showed that both distraction conditions resulted in improved pain tolerance relative to baseline. Older children appeared to experience additional benefits from using the helmet, whereas younger children benefited equally from both conditions. The findings suggest that virtual reality technology can enhance the effects of distraction for some children.

Slifer, K.J. et al. (2009) conducted a randomized clinical trial to compare two brief parent-training interventions for child distress during parent-administered needle procedures, in United States. A 2-group design across repeated parent-administered needle procedures was used. Forty-seven children with a chronic illness requiring recurrent injections were observed at baseline and 2 intervention sessions. Videotaped observations of parent–child interactions were coded. Across groups, many children displayed minimal to no distress at baseline. Among participants with significant distress, neither intervention group displayed consistently decreased procedural distress or increased use of child behavior management strategies.

Biermeier, A.W. and Sjoberg, I. (2007) conducted a study in Canada to investigate the effectiveness of a distraction technique in reducing a child's perceived pain and behavioral distress during an acute pain experience. A convenience sample of 100 children, aged 3 year 6 months to 12 years 11 months, scheduled for routine blood draws, was recruited and randomly assigned to an experimental or control group. During venipuncture, the control subjects received standard preparation, while experimental subjects were encouraged to use a kaleidoscope as a distraction

technique. The results revealed that the experimental group perceived less pain and demonstrated less behavioral distress than the control group ($p = 0.01$).

Cohen, L.L. (2002) conducted a Meta analytic study in USA to assess the usefulness of distraction to decrease children's distress behavior and pain during medical procedures. A total of 491 samples randomly selected were analyzed from 16 studies on child's distress and behavior. The results indicated that for distress behavior, the mean effect size was 0.33 (+/-0.17), with 74% of the variance accounted for by sampling and measurement error. For pain, the mean effect size was 0.62 (+/-0.42) with 35% of the variance accounted. The researcher concluded that distraction had a positive effect on children's distress behavior.

Cassidy, K.L., et al. (2002) conducted a study in Canada to evaluate the effectiveness of audiovisual distraction in the reduction of pain associated with intramuscular immunization. Five-year-old children (N = 62) were randomly assigned to watch television (TV) (N = 29) or a blank TV screen (control) (N = 33). Pain measurements included the children's self-reports on Faces Pain Scale, facial actions on Child Facial Coding System, and Children's Hospital of Eastern Ontario Pain Scale. The results showed that there were no significant group differences for any pain or distraction measures. Higher levels of distraction (i.e., greater time looking at the TV screen) related to lower levels of pain on all three pain measures. Only correlations with objective pain measures were statistically significant. The researcher concluded that watching cartoons distract children during needle injection and reduce their pain.

SECTION - IV

2.4 LITERATURE RELATED TO DISTRACTION FOR PAIN DURING VENIPUNCTURE.

Lobo, M.R. and Umarani, J. (2013) conducted a study to assess the effect of cartoon distraction on pain during venipuncture among preschoolers in Mangalore. A quasi-experimental design was adopted for this study. The study comprised of 60 preschoolers selected by convenience sampling method - 30 in experimental and 30 in control group. The tool included baseline proforma, Wong – Baker Faces pain scale. The results revealed that there was significantly ($p< 0.05$) less pain felt by the children in experimental group than children in control group. The findings also revealed that there was no significant association between the level of pain and demographic variables. It was concluded that cartoon distraction was an effective distraction method for the children undergoing venipuncture.

Bagnasco, A., Pezzi, E., Rosa, F., Fornoni, L. and Sasso. L. (2012) conducted a study in Genoa to assess the effectiveness of distraction techniques in children during venipuncture. The study sample included 203 patients aged between 2 and15 years. During venipuncture a video was shown to the patient. The result showed that significant differences were observed between the mean score of pain in experimental group (2.53 ± 1.76) than the mean score in control group (5.22 ± 2.53). In the experimental group, the mean level of cooperation was 0.38 (SD = 0.63) compared to 0.20 (SD = 0.54) in the control group. The researcher concluded that audio-visual distraction effectively improved pain management and favored children's cooperation during venipuncture.

James, J., Ghai, S., Rao, K.L.N. and Sharma, N. (2012) conducted a study in Chandigarh to determine the effectiveness of animated cartoons as a distraction strategy on behavioural response to pain perception among children undergoing venipuncture. A quasi - experimental design was adopted for this study. The study comprised of 50 children (3-6 years) selected through purposive sampling method. The tools used for the study included a baseline proforma, FLACC (Face, Legs, Activity, Cry and Consolability) behavior pain scale. The results revealed that there was significantly ($p < 0.001$) less pain related behavioural responses. The findings also revealed that there is no influence of gender on perception of pain but there was an inverse relation of behaviour pain response with age of the child. It was concluded that animated cartoon is an effective distraction strategy to reduce pain among the children undergoing venipuncture.

Yoo, H., Kim, S., Hur, K.H. and Kim, H.S. (2011) conducted a study in Korea to identify the effects of an animation distraction intervention on pain response of preschoolers during venipuncture. The study employed a nonequivalent control group pretest–posttest quasi-experimental design. The experimental group (n =20) was provided with an animation distraction intervention and the control group (n =20) received standard treatment. The results revealed that there were statistically significant differences in self-reported pain response and behavioral pain response between the experimental group and the control group. The researcher concluded that this intervention requires minimum effort and time and may be a cost-effective and convenient nursing intervention that could be used easily in clinical settings.

Alhani, F., Shad, H. and Anoosheh, M. (2009) conducted a quasi experimental study in Iran to assess the effect of programmed distraction on the pain caused by venipuncture among adolescents on hemodialysis. Three pediatric

hemodialysis centers were assigned to case group (one centre with 21 patients) and control groups (two centers with a total of 21 patients) randomly. The Wong-Baker face pain scale was used to assess pain caused by venipuncture. Assessment of pain was done in 12 sessions in both case and control groups. Results showed that case and control groups matched in demographic variables and pain intensity. After distraction, pain intensity during venipuncture significantly decreased (p = .003). This study concluded that the effect of a simple, inexpensive distraction is a quick way for decreasing the pain caused by venipuncture.

Wanga, Z., Sunb, L.H. and Chena, A.P. (2008) conducted a randomized controlled trial in China to assess the efficacy of non-pharmacological methods of pain management in school age children receiving venipuncture. Random sampling technique was used in this study to assign 300 patients (8–9 years) into audiovisual distraction group (n = 100), intervention group (n = 100) and control group (n = 100). The results revealed that venipuncture time was significantly higher in the control group than in the other two groups (P <0.05). Procedures were more painful in the control group than in the audiovisual distraction or the intervention group (VAS score: 4.55 ± 2.26 and 4.38 ± 2.32 in the audiovisual distraction and intervention groups respectively, P <0.05). The researcher concluded that audiovisual distraction was demonstrated to be effective in reducing self-reported pain, improving patient cooperation and increasing success rate in venipuncture procedures.

Tu¨fekci, F., Ayda, C. and Sibel, K. (2008) conducted a study to assess the effect of distraction using kaleidoscope to reduce perceived pain, during venipuncture in healthy school-age children. The study was carried out as an intervention–control group design in children (n = 206). Wong–Baker FACES Pain Rating Scale and

Visual Analogue Scale was used to evaluate the pain. The study results revealed that pain level in intervention group were lower than in control group and was statistically significant ($p < 0.001$). The researcher concluded that the distraction made with kaleidoscope effectively reduced the pain related to venipuncture in healthy school children and that some features of the children influenced the perception of pain.

Biermeier, A.W., Sjoberg, I., Dale, J.C., Eshelman, D. and Guzzetta, C.E. (2007) conducted a study in Dallas to evaluate the effect of distraction on pain, fear, and distress during venous port access and venipuncture in children and adolescents with cancer. An intervention-comparison group design was adopted in this study. A convenience sampling technique was used to select the samples. 50 children and adolescents with cancer, aged 5 to 18 years, were randomized to the control group ($n = 28$) or intervention group ($n = 22$). Results showed that self-reported pain and fear were significantly correlated ($P = .01$) within treatment groups but not significantly different between groups. Intervention participants demonstrated significantly less fear ($P < .001$) and distress ($P = .03$) as rated by the nurse and approached significantly less fear ($P = .07$) as rated by the parent. The researcher concluded that distraction has the potential to reduce fear and distress during port access and venipuncture.

Vangronsveld, K.L.H., Johanna H.C. and Vlaeyen, J.W. S. (2007) conducted a study in Maastricht to assess the influence of distraction on pain and anxiety during venipuncture in children aged between 8 and 11 years. A randomized and controlled experimental design study was used in 20 ambulatory patients. Distraction intervention used was completing a find-the-hidden-items puzzle. The study results revealed that distraction did not reduce pain and anxiety in the

experimental group as compared with the control group. Children with high anxiety reported more pain than children with low anxiety. The researcher *c*oncluded that distraction is an effective intervention to decrease pain and anxiety.

Belleni, C.V. and Cordelli, D.M. (2006) conducted an experimental study in Siena, to assess the analgesic effect of passive or active distraction during venipuncture in children. A purposively selected sample of 69 children aged 7–12 years undergoing venipuncture were randomly divided into three groups, (n=33) in each group: a control group (C), a group (M) in which mothers performed active distraction, and a TV group (TV) in which passive distraction. Pain levels rated by the children were 23.04 (SD 24.57), 17.39 (SD 21.36), and 8.91 (SD 8.65) for the C, M, and TV groups, respectively. Pain levels rated by mothers were 21.30 (SD 19.9), 23.04 (SD 18.39), and 12.17 (SD 12.14) for the C, M, and TV groups, respectively. The results indicated that procedures performed during TV watching were less painful ($p<0.05$) than control or procedures performed during active distraction. The researcher concluded that TV watching was more effective than active distraction in reducing the pain.

Gold, J.I., Kim, S.H., Kant, A.J., Michael, H.J. and Albert. (2006) conducted a study in California to test the efficacy and suitability of virtual reality (VR) as a pain distraction for pediatric intravenous (IV) placement. 21 requiring IV placement were randomly assigned to two groups. VR distraction using Street Luge, presented via a head-mounted display, or standard care. Responses from the Faces Pain Scale–Revised indicated a fourfold increase in affective pain within the control condition; by contrast, no significant differences were detected within the VR condition. Significant associations between multiple measures of anticipatory anxiety,

affective pain, IV pain intensity, and measures of past procedural pain provided support for the complex interplay of a multimodal assessment of pain perception. The researcher concluded that VR pain distraction is a promising tool for decreasing pain, and anxiety in children undergoing acute medical interventions.

MacLaren, J.E. and Cohen, L.L. (2005) conducted a study in Georgia to compare the effects of two distraction strategies for venipuncture distress in children. 88 children (1-7-year) receiving venipuncture were randomly assigned to one of three treatment conditions: interactive toy distraction, passive movie distraction, or standard care. The study results revealed that children in the passive condition were more distracted and less distressed than children in the interactive condition. The researcher concluded that despite literature suggests that interactive distraction should lower distress more than passive distraction; results indicate that a passive strategy might be most effective for children's venipuncture.

Cavender, K., Goff, M.D., Hollon, E.C. and Guzzetta, C.E. (2004) conducted a study in Dallas, USA to determine the effectiveness of parental positioning and distraction on the pain, fear, and distress of pediatric patients undergoing venipuncture. An experimental-comparison group design was used to evaluate 43 patients (20 experimental and 23 control) who were 4 to 11 years old. Experimental participants used parental positioning and distraction. Self-reported pain and fear were highly correlated ($p < .001$) but not significantly different between the two groups. Fear rated by child life specialists ($p < .001$) and parents ($p = .003$) was significantly lower in experimental participants. The researcher concluded that parental positioning-distraction intervention has the potential to enhance positive clinical outcomes with a primary benefit of decreased fear.

PART – B

2.5 CONCEPTUAL FRAMEWORK

Conceptual framework is a network of inter-related concepts that provide a structure for organizing and describing the phenomenon of interest. Research studies are based on a theory or conceptual framework that facilitates visualizing the problem and places the variables in a logical context.

This study was based on the concept of distraction technique reduces the pain level and improves the cooperation level during venipuncture among school aged children in paediatric ward. The investigator adopted a Widenbach's prescriptive theory (1964) as the foundation for developing the conceptual framework.

WIDENBACH'S THEORY IS MADE UP OF THREE FACTORS AS FOLLOWS:

- The central purpose
- Prescription
- Realities

Central purpose:

The nurse's central purpose defines that quality of health she desires to effect and she recognizes to be her special responsibility in caring for the patient. In this study the central purpose is to assess the effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in paediatric ward, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai

Prescriptions:

Once the nurse identified needs of the patient, she develops a prescription or plan of care. In this study, the investigator planned to provide distraction technique for experimental group.

Realities:

The realities are:

- Agent
- Recipient
- Goal
- Framework

THE CONCEPTUAL FRAMEWORK OF THIS NURSING THEORY CONSISTS OF FOLLOWING STEPS

1) Identification of the patients need for help
2) Ministration of the help needed
3) Validation that the action taken was helpful to patient

Identification:

The nurse identifies the patient need. In this study the need was pain reduction during venipuncture among school aged children.

Ministration:

Ministering to the patient, the nurses apply a comfort measure, or therapeutic procedure.

Ministration had two components:

Prescription:

The nurse provides care to the patient. Distraction technique was given for the children in experimental group. For the children in the experimental group, a cartoon movie was shown during the whole duration of the venipuncture. Venipuncture was started 3 minutes after the beginning of the movie, chosen by the child according to own personal tastes. Usual standard technique was given for the control group.

Realities:

Agent : It means who is the practicing nurse.
In this study the researcher is the agent.

Recipient : The patient's are the recipients of the nurse's action.
In this study the school aged children were the recipients.

Goal : The goal is the desired outcome the nurse wishes to achieve.
In this study the goal is to reduce the pain level of children.

Framework : Framework consists of human, environmental, professional and organization facilities. In this study the framework is paediatric ward.

Validation:

After help has been ministered the nurse validated that the actions were indeed helpful. At the end the child was asked to give a score to the pain level in the numerical pain rating scale. Furthermore, the child's cooperation level was assessed using Cooperative Behaviour Scale of Children in Venipuncture (CBSCV).

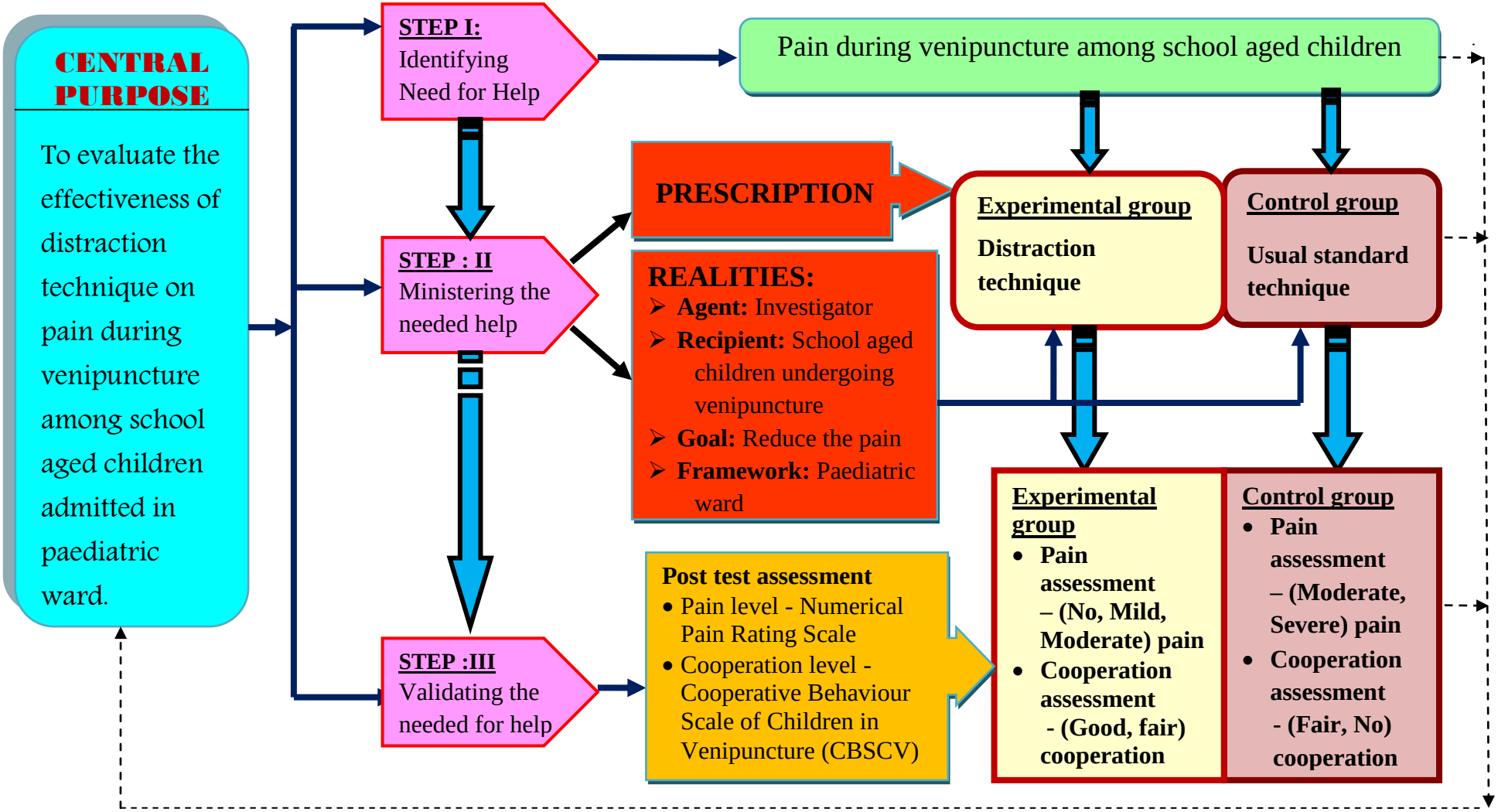


Fig: 1 MODIFIED WIDENBACH'S PRESCRIPTIVE THEORY (1964)

CHAPTER-III

METHODOLOGY

"Methodology Is Applied Ideology"

Methodology refers to the investigation of the ways of obtaining, organizing and analyzing data. Methodological studies address the development, validation and evaluation of research tools or methods.

-Polit (2004)

The methodology is the most important in research as it is the frame work for conducting the study. This chapter includes research design, research approach, setting, sample, sampling technique, development and description of tool, development of assessment strategy, pilot study, data collection and plan for data analysis.

3.1 RESEARCH APPROACH

Research approach is defined as "a general set of orderly discipline procedures used to acquire information.

-Polit (2004)

Quantitative approach was used for the study to evaluate the effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in paediatric ward, Government Rajaji Hospital, Madurai

3.2 RESEARCH DESIGN

Nancy Burns, Susan. K. Groove (2005), defined research design as a blue print for conducting the study that maximizes control over factors that could interfere with the validity of the findings. The research design guides the investigator

in planning and implementing the study in a way that is most likely to achieve the intended goal.

The research design selected for the present study was True Experimental Study – Post test only design. A true experiment involves Manipulation, Control and Randomization. The study intended to evaluate the effectiveness of distraction technique on pain and cooperation level during venipuncture among the school aged children admitted in paediatric ward, Government Rajaji Hospital, Madurai.

	GROUP	INTERVENTION	POST TEST
R	Experimental group	X	O1
	Control group	-	O1

R - Randomization

X - Intervention to experimental group (Distraction technique)

O1 - Post test for both experimental group and control group

3.3 VARIABLES

A variable is a measurable component of an object or event that may fluctuate in quantity /quality from one individual object or event of the same general class.

-**Manoj Kumar Yadav(2009)**

Variables included in the study were

- DEPENDENT VARIABLE: pain level and cooperation level
- INDEPENDENT VARIABLE: Distraction Technique
- BASELINE VARIABLES: Age, gender, birth order, nutritional status, previous hospitalization, previous venipuncture, duration of hospitalization, size of venflon, site of insertion, care giver present with the child.

3.4 SETTING OF THE STUDY

The physical location and condition in which data collection takes place in a study. **-Polit & Beck (2008)**

The research setting was at Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai. It is a multi specialty hospital and one of the premier institutions in Tamilnadu. It is the second biggest Government medical college hospital in Tamilnadu. It has all specialty departments and caters to the health need of the people of the southern Tamilnadu. The hospital is equipped with bed strength of 2800 beds.

Paediatric medical ward was chosen for my study purpose, were the children get admitted for treatment. Paediatric medical ward has five units. Here children with Acute gastro enteritis, Bronchopneumonia, Diarrhea, Epilepsy, Fever, Meningitis, Nephrotic syndrome, Glomerulo nephritis and many other conditions are treated. This Hospital was chosen because of the investigator's familiarity with the setting.

3.5 POPULATION

A population is the entire aggregation of cases in which the investigator is interested. **- Polit and Hungler, 2004.**

Target population:

Population included school aged children who were undergoing venipuncture.

Accessible Population:

Population included school aged children who were undergoing venipuncture in paediatric ward, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai.

3.6 SAMPLE

A subset of population, selected to participate in the study.

The sample of the present study included school aged children who were undergoing venipuncture in paediatric ward, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai and who fulfilled the inclusion criteria.

3.7 SAMPLE SIZE

The total sample size was 60 (30 in experimental group and 30 in control group).

3.8 SAMPLING CRITERIA

The following were the criteria for selection of samples for the study.

Inclusion criteria

- Children within the age group of 7-12years.
- Children who were undergoing venipuncture.
- Children who were willing to participate in the study.
- Children with no current acute pain.
- Children who understands Tamil or English.

Exclusion criteria

- Children who were critically ill.
- Children who were mentally retarded.
- Children who were with severe physical disability.
- Children who were with neurological deficit.
- Children who were chronically ill.
- Children who received pain reducing medication.

3.9 SAMPLING TECHNIQUE

Sampling is the process of selecting a portion of the population to represent the whole population**.**

In this study Probability sampling - Simple Random Sampling Technique was used.

METHOD OF SAMPLE SELECTION

The samples those who fulfilled the inclusion criteria were selected. Simple random sampling technique (Lottery method) was used with non replacement method. The odd and even numbers were given to the samples. From this with the use of lottery method the odd numbers were considered as control group. And even numbers were considered as experimental group.

3.10 RESEARCH TOOL

The tool was developed after extensive review of literature, internet sources and discussion with experts. The tool consists of:

- Section- I : Baseline variables.
- Section- II : Standardized Numerical Pain Rating Scale
- Section- III : Standardized Cooperative Behaviour Scale of Children in Venipuncture (CBSCV)

DESCRIPTION OF THE TOOL

The tool consists of following three sections;

SECTION I:

It consists of 10 items seeking information about baseline variables like age, gender, birth order, nutritional status, previous hospitalization, previous venipuncture,

duration of hospitalization, size of venflon, site of insertion, care giver present with the child during venipuncture.

SECTION II:

It consists of Numerical Pain Rating Scale. The Numerical Pain Rating Scale is a segmented numeric version of the visual analog scale (VAS) in which a respondent selects a whole number (0–10 integers) that best reflects the intensity of the pain. An 11-point numeric scale (NRS 11) with 0 representing one pain extreme ("no pain") and 10 representing the other pain extreme ("worst pain imaginable") was used. Children were asked to indicate their pain level by putting a mark on the scale that corresponds to their pain.

SCORE INTERPRETATION

The minimum obtainable score of pain response was zero and maximum score was 10. Based on the score the pain response is graded as follows:

SCORE	INTERPRETATION
0	No pain
1-3	Mild pain
4-6	Moderate pain
7-10	Severe pain

SECTION- III:

Cooperative Behaviour Scale of Children in Venipuncture (CBSCV) was developed by Zi- Xuan Wang, M.D., Department of Interventional Radiology, Qingdao Municipal Hospital, Qingdao, China. Cooperative Behaviour Scale of Children in Venipuncture (CBSCV) tool was used to assess child cooperation using

behaviour during venipuncture, graded from 0-2 according to the behaviour of the child.

SCORE INTERPRETATION:

SCORE	INTERPRETATION
0	Good cooperation
1	Fair cooperation
2	Non cooperation

3.11 RELIABILITY & VALIDITY OF THE TOOL

VALIDITY

The content validity of the tool was ascertained by the expert's opinion in the following field experience

Paediatrician - 2

Paediatric nurse specialist - 3

Addition or modification that was suggested by the experts was incorporated in the tool. All the experts have their consensus and then the tool was finalized.

RELIABILITY

The reliability of the tool Numerical Pain Rating Scale was established by test-retest method to assess the reliability of pain level at different timings. The reliability score was r= 0.88. The 'r' value indicated the highly positive correlation. And the inter-rater reliability coefficients for Cooperative Behaviour Scale of Children in Venipuncture (CBSCV) were found to be high, with value r = 0.75. Hence the tool was considered highly reliable for proceeding with the main study.

3.12 PILOT STUDY

Pilot study was conducted at paediatric ward, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai, to test the feasibility, relevance and practicability of the intervention. The pilot study was undertaken from 16.9.2013 to 21.9.2013. 10 samples were selected. A brief self introduction was given to the subjects. The purpose of the study was explained to the subjects and their parents. Subject's parents were asked to sign the informed consent form. 10 school aged children who fulfilled the inclusion criteria were selected with the use of Simple Random Sampling technique (Lottery method). Among 10 samples, 5 samples were in experimental group and 5 samples were in control group.

Interview method was used to collect the baseline variables. Usual standard technique was given to the control group. Then the investigator assessed the pain level with the use of numerical pain rating scale and the cooperative behaviour with the use of Cooperative Behaviour Scale of Children in Venipuncture (CBSCV). For the children in the experimental group, a cartoon movie was shown during the whole duration of the venipuncture. Venipuncture was started 3 minutes after the beginning of the movie, chosen by the child according to own personal tastes. At the end the child was asked to give a score to the pain level in the numerical pain rating scale. Furthermore, the child's cooperation level was assessed using Cooperative Behaviour Scale of Children in Venipuncture (CBSCV) by the investigator.

Findings of the pilot study revealed that the study was feasible and practicable to conduct the main study. The data collection for the main study was planned to be done by excluding the samples included in the pilot study.

3.13 DATA COLLECTION PROCEDURE

The main study was conducted for a period of 6 weeks from 01.10.2013 to 15.11.2013 at paediatric ward, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai. Among the school aged children who underwent venipuncture those who satisfied the inclusion criteria were selected. With the use of simple random sampling technique (lottery method) the samples were chosen. Odd and even numbers were given to the samples. The odd numbers were considered as control group. And even numbers were considered as experimental group. A brief self introduction was given to the subjects and their parents. The purpose of the study was explained to the subjects and their parents and assured of confidentiality of the data collected. Both verbal and written consent was obtained from the parents of all the study subjects. Interview method was used to collect the base line variables. The usual standard technique was given for the children in the control group. Children in the experimental group were given a choice of ten appropriate cartoon videos. The cartoon movie was displayed on the laptop during the whole duration of the venipuncture. Venipuncture was started 3 minutes after the beginning of the movie, chosen by the children according to their own personal tastes. At the end the child was asked to give a score to the pain level in the numerical pain rating scale. Furthermore, the child's cooperation was assessed using Cooperative Behaviour Scale of Children in Venipuncture (CBSCV) by the investigator.

During the first week 10 samples (5 in experimental group and 5 in control group) were taken with the use of simple random sampling technique. Baseline variables were collected by interview method. Distraction technique was given for the experimental group. The investigator selected the site of insertion. Venipuncture was performed after 3 minutes of beginning of the cartoon movie. The total time taken for

distraction technique of each subject was 30 minutes. The child's cooperation during the venipuncture was assessed by the investigator using Cooperative Behaviour Scale of Children in Venipuncture (CBSCV). At the end the child was asked to give a score to the pain level in the numerical pain rating scale.

Usual standard technique was given for children in the control group. The appropriate site of insertion was selected. Venipuncture was performed. The child's cooperation during the venipuncture was assessed by the investigator using Cooperative Behaviour Scale of Children in Venipuncture (CBSCV). Subsequently, pain level was measured by the numerical pain rating scale.

During the second, third, fourth, fifth and sixth week the same procedure was repeated for 10 samples (5 in experimental group and 5 in control group). Children in experimental group received distraction technique and Children in control group received usual standard technique. And the same procedure of assessment was followed.

3.14 PLAN FOR DATA ANALYSIS

Data analysis is the process of organizing and synthesizing the data so as to answer research questions and test hypothesis. Data collection is followed by analysis and interpretation of data where the collected data are analyzed and interpreted in accordance with the study objectives. It involved the use of statistical procedures to give an organization and meaning to the data. Descriptive and inferential statistics used for data analysis. To compute the data, a master sheet was prepared by the investigator.

Descriptive statistics

1. Frequency and percentage distribution was used to analyze the baseline variables of children in experimental and control group.

2. Mean and standard deviation was used to analyze pain level and cooperation level among children in experimental and control group.

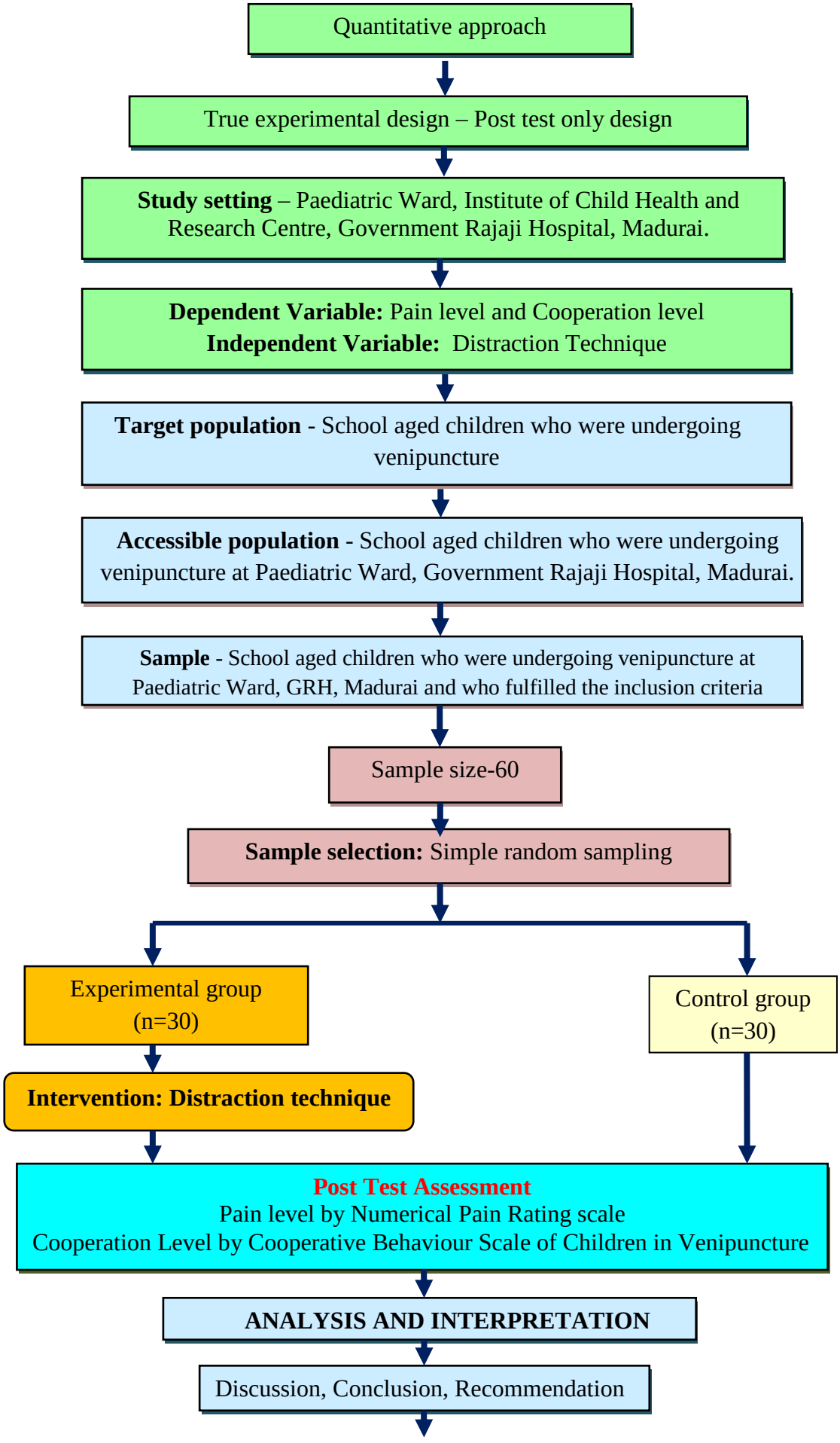
Inferential statistics

1. Unpaired‘t’ test was used to compare the pain level, the cooperation level between children experimental and control group.
2. Karl Pearson’s Correlation was used to find out the relationship between the pain level and the cooperation level among children in experimental and control group.
3. Chi-square test was used to find out the association of the pain level, the cooperation level with selected baseline variables among children in experimental group.

3.15 PROTECTION OF HUMAN RIGHTS

The proposed study was conducted after the approval of dissertation committee of College of Nursing, Madurai Medical College, Madurai. In order to protect the human rights ethical clearance was obtained from Ethical Committee, Madurai Medical College, Madurai. A formal permission was obtained from the Director, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai to conduct the study. Both verbal and written consent was obtained from all the study subjects and the data collected was kept confidential. Assurance was given that they can withdraw from the study at any time. The possible benefit of participating in the study was explained to all the study subjects. Reassurance was given to the study subjects that confidentiality and privacy was maintained throughout the study.

3.16 SCHEMATIC REPRESENTATION OF RESEARCH STUDY



CHAPTER – IV

DATA ANALYSIS & INTERPRETATION

"Not everything that can be counted counts, and not everything that counts can be counted."

- Albert Einstein

Analysis is the process of organizing and synthesizing the data so as to answer research questions and test hypothesis. **- Suresh K. Sharma (2011)**

This chapter deals with the analysis and interpretation of data collected from the 60 school aged children those who were undergoing venipuncture. The data have been analyzed and presented under the following headings.

SECTION: A

Base line characteristics of children in experimental and control group

This analysis has been done to find out the frequency and percentage distribution of baseline variables such as age, gender, birth order, nutritional status, previous hospitalization, previous venipuncture, duration of hospitalization, etc., in experimental and control group.

SECTION: B

Assessment of pain level and cooperation level during venipuncture among children in experimental and control group.

Pain level has been analyzed in four levels (No pain, Mild pain, Moderate pain and severe pain) for the experimental and control group during venipuncture in frequency and percentage.

Cooperation level has been analyzed in three levels (Good cooperation, Fair cooperation and No cooperation) for the experimental and control group during venipuncture in frequency and percentage.

Pain level and cooperation level has been analyzed for the experimental and control group during venipuncture by descriptive statistics (mean, standard deviation and mean percentage).

SECTION: C

Comparison of the pain level and cooperation level during venipuncture between children in experimental and control group.

Comparison of pain level in experimental and control group has been done by mean score and its significance by statistical test

Comparison of cooperation level in experimental and control group has been done by mean score and its significance by statistical test

SECTION: D

Correlation between pain level and cooperation level during venipuncture among children in experimental and control group.

Pain level and cooperation level during venipuncture among children in experimental group has been correlated.

Pain level and cooperation level during venipuncture among children in control group has been correlated.

SECTION: E

Association of selected base line variables with pain level and cooperation level during venipuncture among children in experimental group.

Base line variables of experimental group have been analyzed in association with pain level during venipuncture.

Base line variables of experimental group have been analyzed in association with cooperation level during venipuncture.

SECTION – A

DISTRIBUTION OF BASE LINE VARIABLES OF CHILDREN IN EXPERIMENTAL AND CONTROL GROUP

TABLE -1

Frequency and percentage distribution of base line variables of children in experimental and control group

n=60

S. No	Baseline variables	Experimental group (n=30)		Control group (n= 30)	
		f	%	f	%
1	Age				
	a) 7 years	11	37	17	57
	b) 8 years	8	26	6	20
	c) 9 years	11	37	7	23
2	Gender				
	a) Male	18	60	16	53
	b) Female	12	40	14	47
3	Birth order				
	a) 1	9	30	8	27
	b) 2	16	53	13	43
	c) 3	5	17	7	23
	d) 4 and so on	-	-	2	7
4	Nutritional status				
	a) Normal (above 90%)	5	17	6	20
	b) I degree (90- 75%)	8	26	9	30
	c) II degree (75- 60%)	15	50	14	47
	d) III degree (below 60%)	2	7	1	3
5	Number of previous hospitalization				
	a) Nil	13	43	16	53
	b) 1-2 times	8	27	10	34
	c) 3-4 times	8	27	3	10
	d) 5 times and above	1	3	1	3

S. No	Baseline variables	Experimental group (n=30)		Control group (n= 30)	
		f	%	f	%
6	Number of previous venipuncture				
	a) Nil	10	34	9	30
	b) 1-2 times	8	26	9	30
	c) 3-4 times	6	20	6	20
	d) 5 times and above	6	20	6	20
7	Duration of present hospitalization				
	a) 1-3 days	11	37	16	53
	b) 4-6 days	11	37	4	13
	c) More than 6 days	8	26	10	34
8	Size of venflon				
	a) 24 gauge	6	20	10	34
	b) 22 gauge	23	77	20	66
	c) 20 gauge	1	3	-	-
9	Site of insertion				
	a) Veins of the upper arm	-	-	1	3
	b) Veins of the forearm	16	53	12	40
	c) Veins of the hand	14	47	17	57
10	Caregiver along with the child during venipuncture				
	a) Father	3	10	8	27
	b) Mother	21	70	16	53
	c) Grandparent	6	20	6	20

The above table represent that, with the view of age group, in experimental group 11 (37%) were in the age group of 7 years, 8 (26%) were in the age group of 8 years and 11 (37%) were in the age group of 9 years. In control group 17 (57%) were in the age group of 7 years, 6 (20%) were in the age group of 8 years and 7 (23%) were in the age group of 9 years.

With regard to gender, in experimental group 18(60%) were males and 12 (40%) were females. In control group 16 (53%) were males and 14 (47%) were females.

With the aspect of birth order, in experimental group 9 (30%) were first child, 16 (53%) were the second child and 5 (17%) were the third child of the family. In the control group 8 (27%) were the first child, 13 (43%) were the second child of the family, 7 (23%) were the third child of the family and 2 (7%) were the fourth child and so on of the family.

Based on the nutritional status 5 (17%) were in normal status, 8 (26 %) were in Degree I, 15(50 %) were in Degree II and 2 (7 %) were in Degree III in experimental group. In control group 6 (20%) were in normal nutritional status, 9 (30%) were in Degree I, 14 (47%) were in Degree II and 1 (3 %) were in Degree III.

With regard to number of previous hospitalization, in experimental group 13(43%) were not hospitalized previously, 8 (27%) were hospitalized 1-2 times, 8 (27%) were hospitalized 3-4 times and 1 (3%) were hospitalized 5 times and above. In control group 16(53%) were not hospitalized previously, 10 (34%) were hospitalized 1-2 times, 3 (10%) were hospitalized 3-4 times and 1 (3%) were hospitalized 5 times and above.

With regard to number of previous venipuncture, in experimental group 10 (34%) were not previously venipunctured, 8 (26%) were venipunctured 1-2 times, 6 (20%) were venipunctured 3-4 times and 6 (20%) were venipunctured 5 times and above. In control group 9 (30%) were not previously venipunctured, 9 (30%) were venipunctured 1-2 times, 6 (20%) were venipunctured 3-4 times and 6 (20%) were venipunctured 5 times and above.

With aspect of duration of hospitalization, in experimental group 11(37%) were hospitalized for 1- 3 days, 11(37%) were hospitalized for 4-6days, 8 (26%) were hospitalized for more than 6 days. In control group 16(53%) were hospitalized for 1-3 days, 4(13%) were hospitalized for 4-6days, 10 (34%) were hospitalized for more than 6 days.

With regard to size of venflon, in experimental group 6(20%) were inserted 24 gauge venflon, 23 (77%) were inserted 22 gauge venflon and 1 (3%) were inserted 20 gauge venflon. In control group 10(34%) were inserted 24 gauge venflon and 20 (66%) were inserted 22 gauge venflon.

With regard to site of insertion, in experimental group 16 (53%) were inserted in veins of forearm and 14 (47%) were inserted in veins of hand. In control group 1 (3%) were inserted in veins of upper arm, 12 (40%) were inserted in veins of forearm and 17 (57%) were inserted in veins of hand.

With aspect of the caregiver present with the child during venipuncture, in experimental group 3 (10%) were with father, 21 (70%) were with mother and 6 (20%) were with grandparent. In control group 8 (27%) were with father, 16 (53%) were with mother and 6 (20%) were with grandparent.

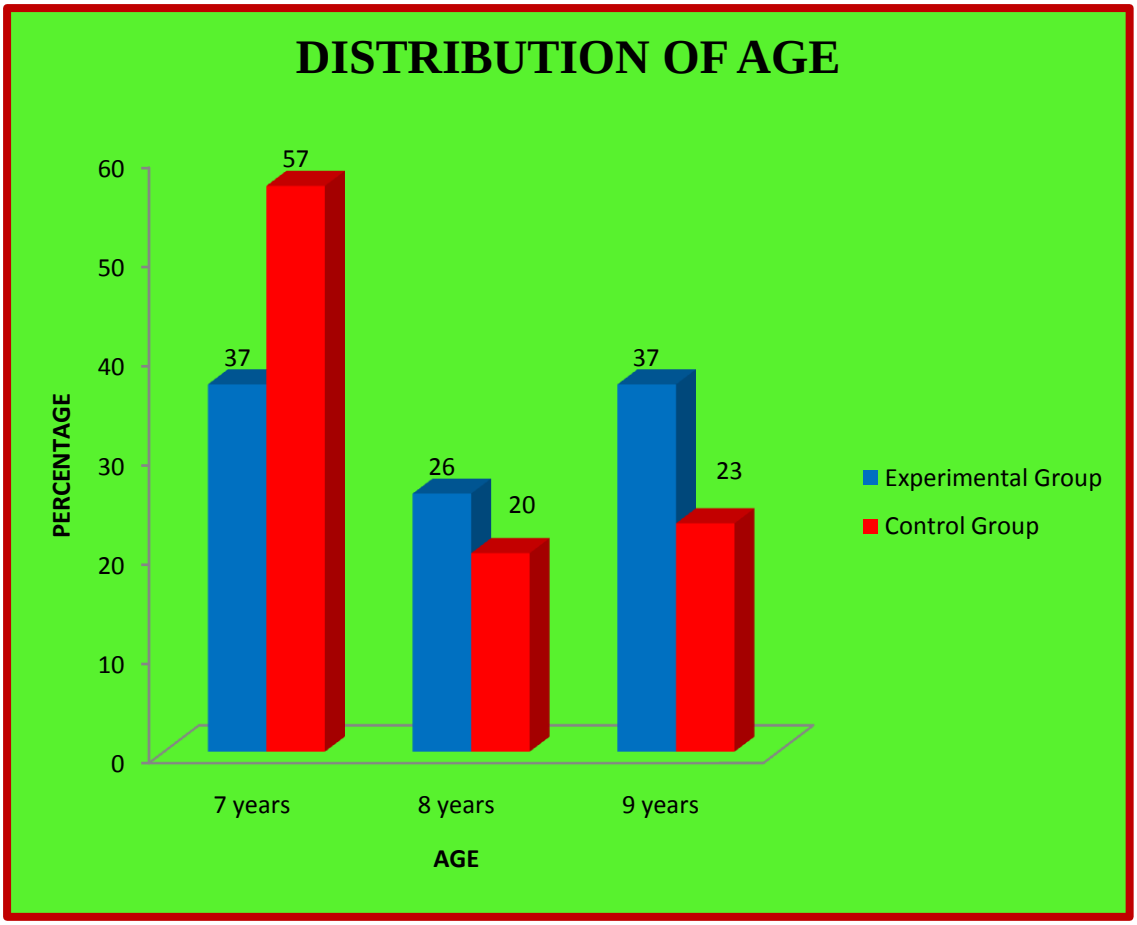


Fig.2. Percentage distribution of children according to their age in experimental and control group.

The above graph represents that, in experimental group 37% were in the age group of 7 years and 37% were in the age group of 9 years. Whereas in control group 57% were in the age group of 7 years.

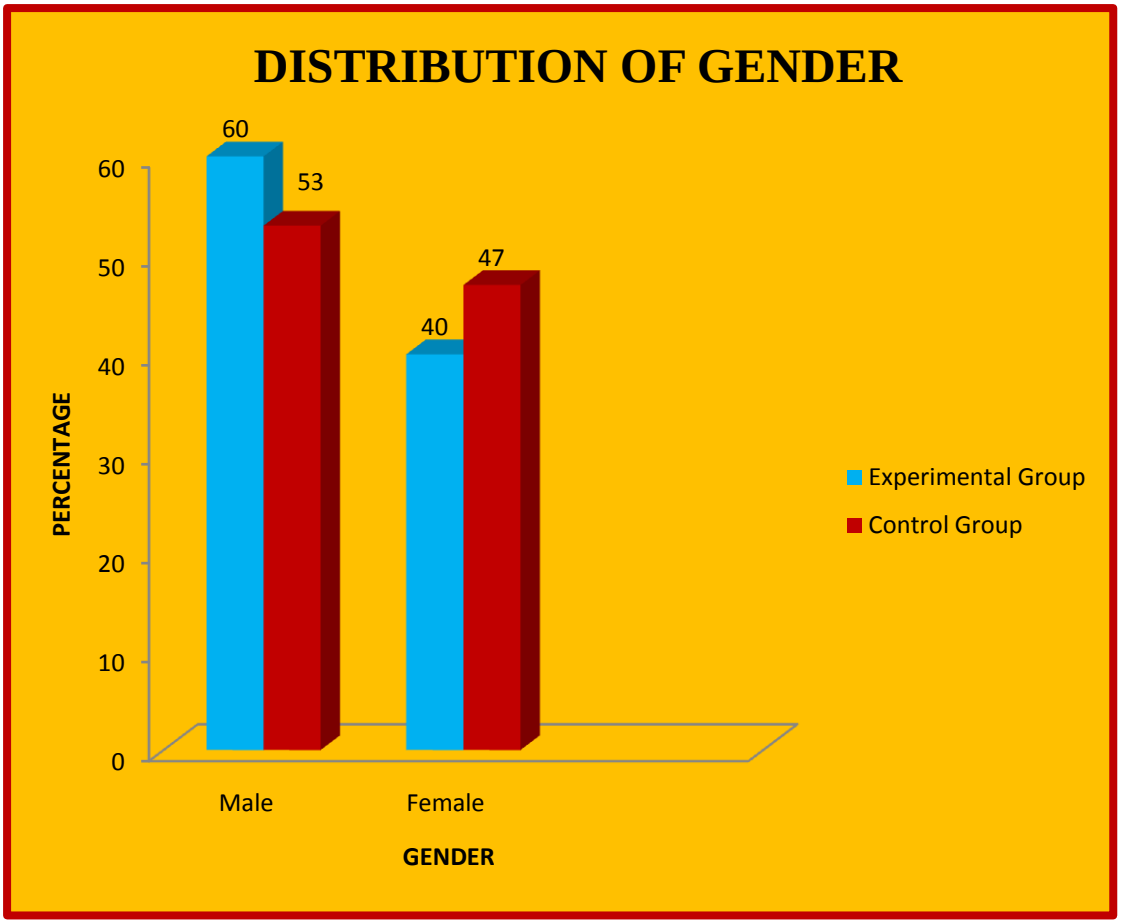


Fig.3. Percentage distribution of children according to their gender in experimental and control group.

The above graph represents that, with regard to gender, in experimental group 60% were males and in control group 53% were males.

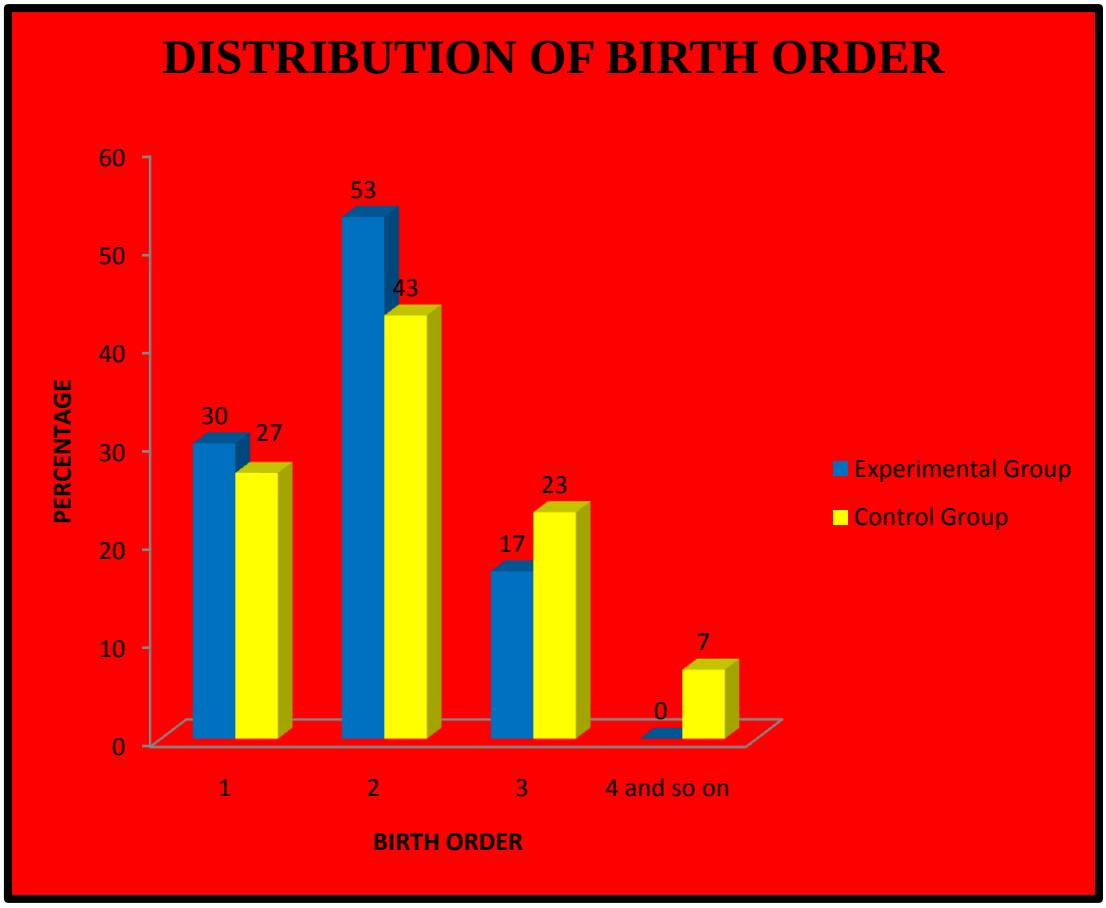


Fig.4. Percentage distribution of children according to their birth order in experimental and control group.

The above graph represents that, with the aspect of birth order, in experimental group 53% were the second child and in the control group 43% were the second child of the family.

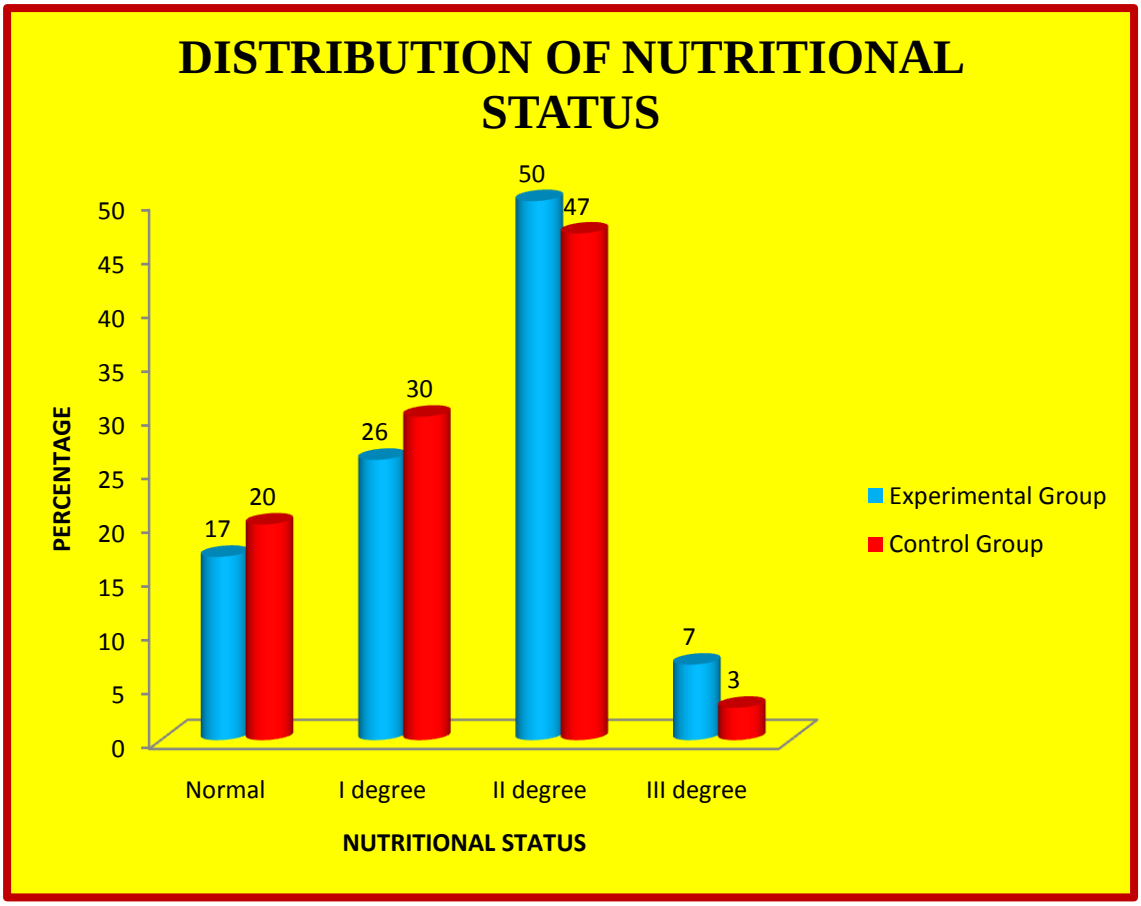


Fig.5. Percentage distribution of children according to their nutritional status in experimental and control group.

The above graph represents that, with regard to nutritional status in experimental group 50 % were in Degree II nutritional status and in control group 47% were in Degree II nutritional status.

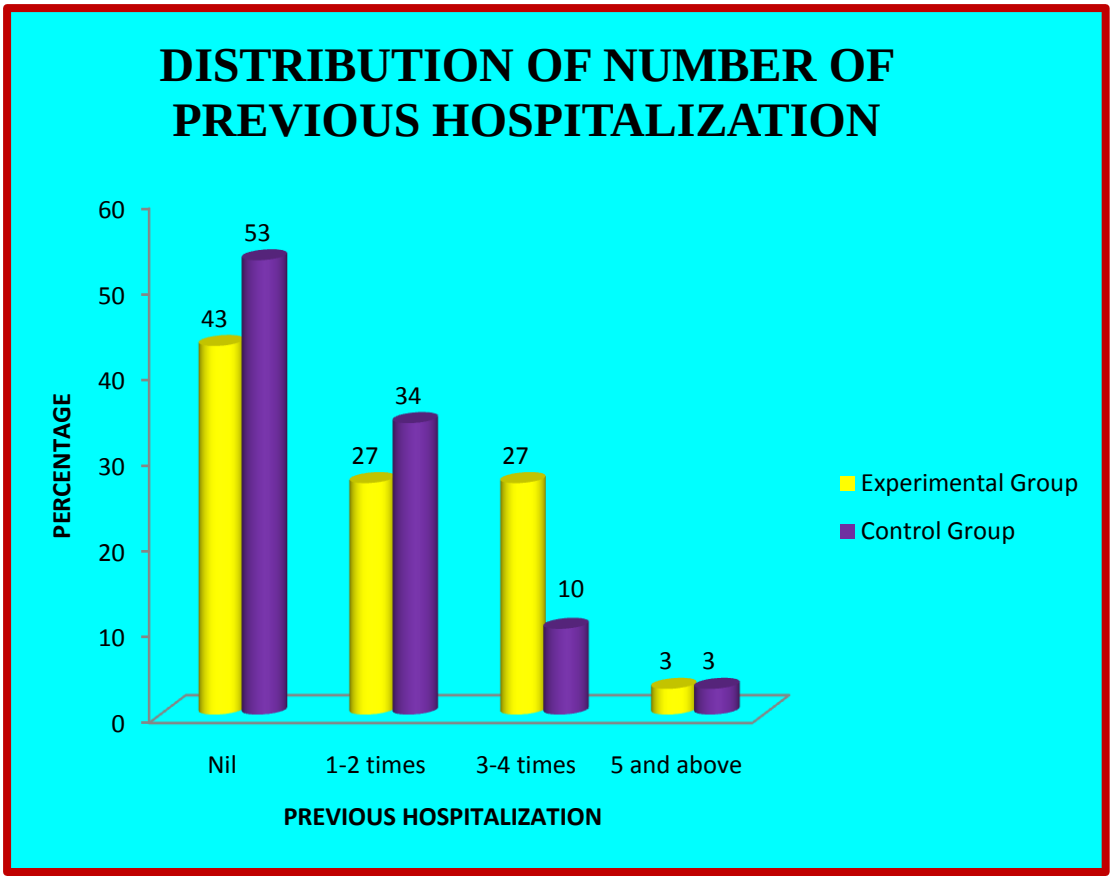


Fig.6. Percentage distribution of children according to the number of previous hospitalization in experimental and control group.

The above graph represents that, with regard to number of previous hospitalization, in experimental group 43% were not hospitalized previously and in control group 53% were not hospitalized previously.

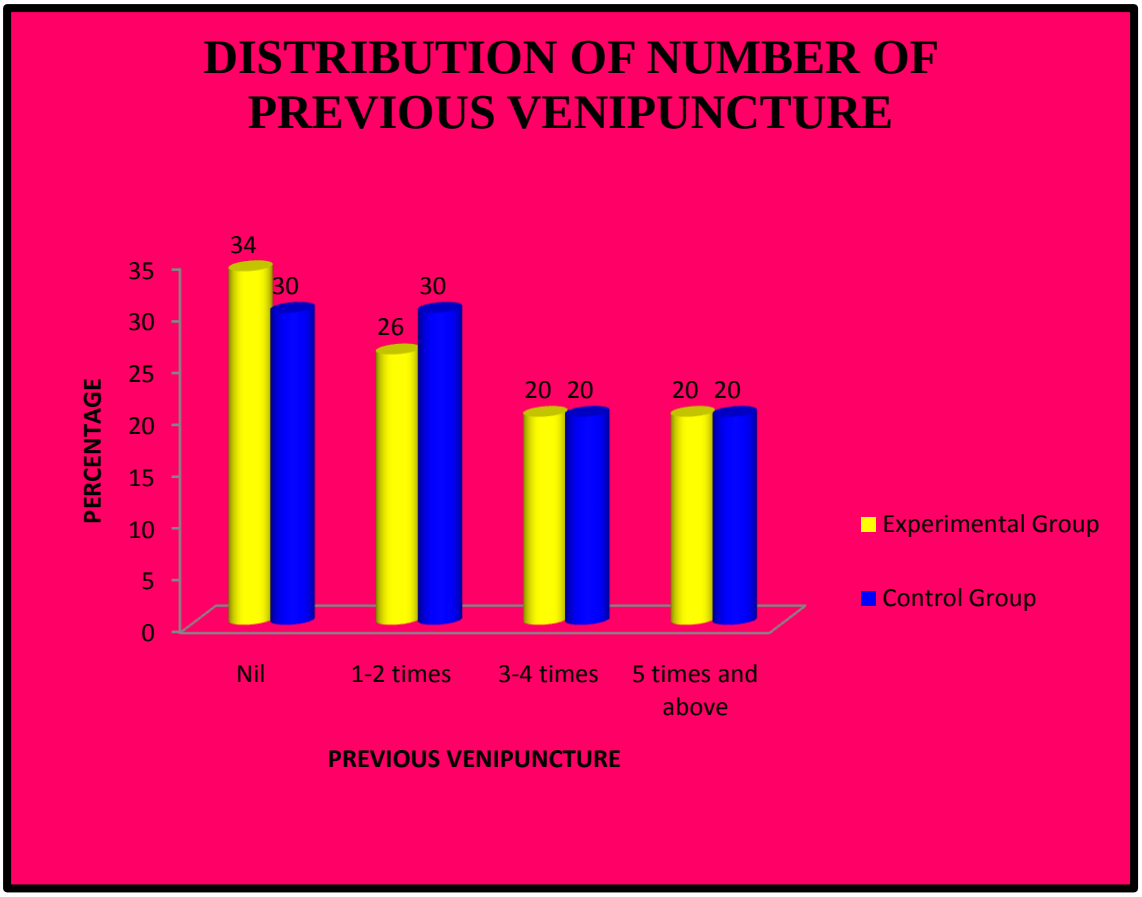


Fig.7. Percentage distribution of children according to the number of previous venipuncture in experimental and control group.

The above graph represents that, with regard to number of previous venipuncture, in experimental group 34% were not previously venipunctured, whereas in control group 30% were not previously venipunctured and 30% were venipunctured 1-2 times.

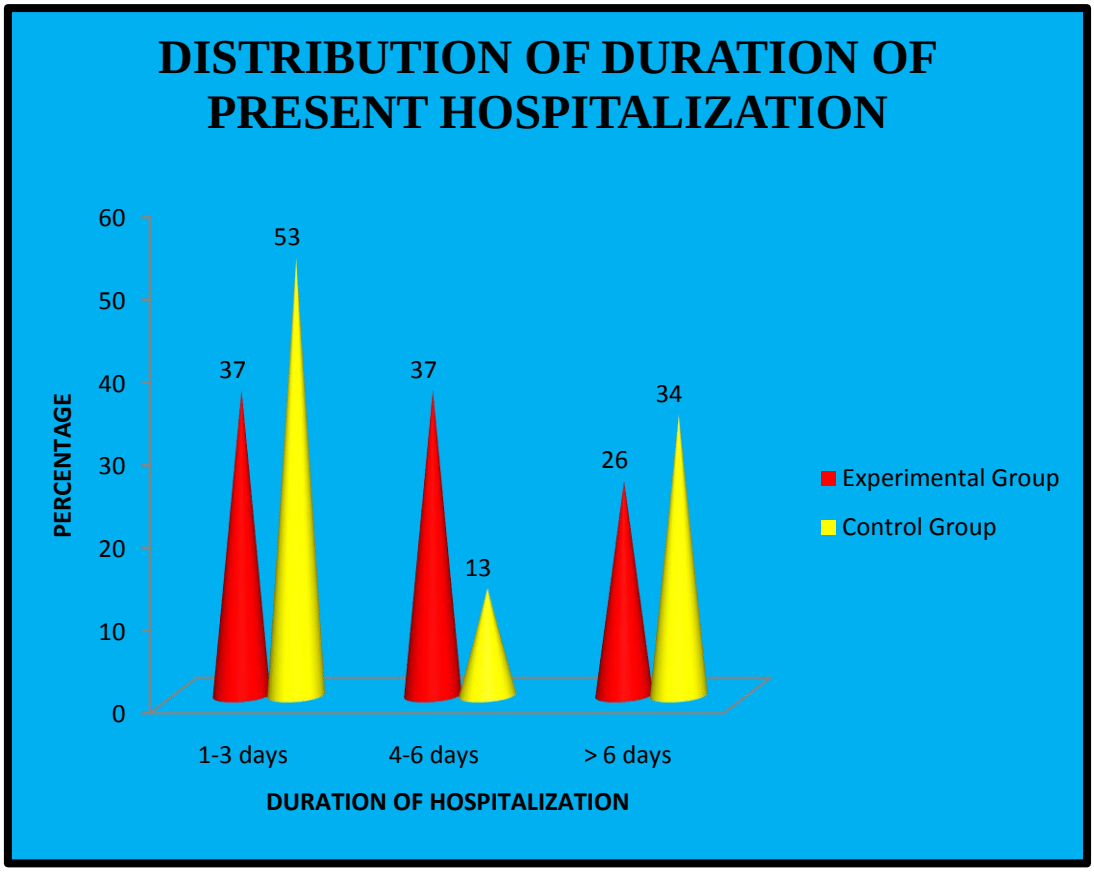


Fig.8. Percentage distribution of children according to the duration of hospitalization in experimental and control group.

The above graph represents that, with aspect of duration of hospitalization, in experimental group 37% were hospitalized for 1- 3 days and 37% were hospitalized for 4-6days. In control group 53% were hospitalized for 1- 3 days.

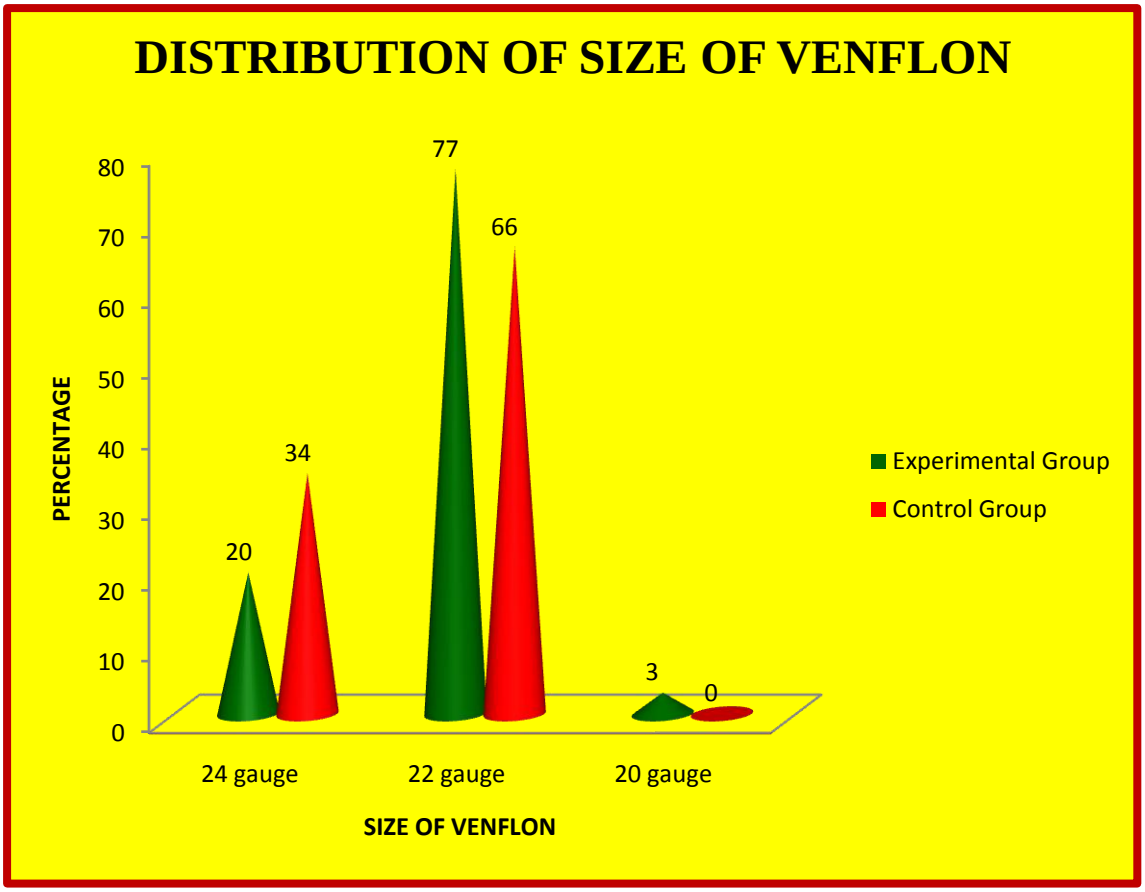


Fig.9. Percentage distribution of children according to the size of venflon in experimental and control group.

The above graph represents that, with regard to size of venflon, in experimental group 77% were inserted 22 gauge venflon and in control group 66% were inserted 22 gauge venflon.

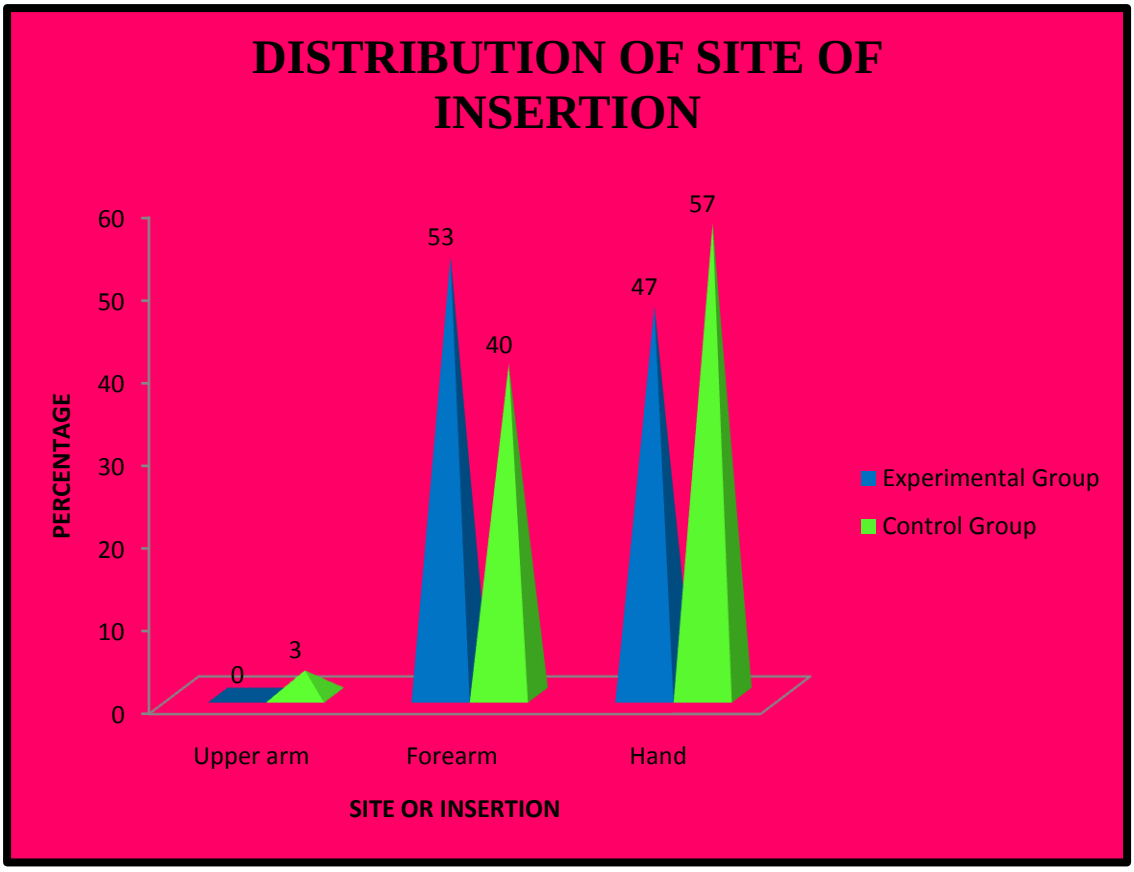


Fig.10. Percentage distribution of children according to the site of insertion in experimental and control group.

The above graph represents that, with regard to site of insertion, in experimental group 53% were inserted in veins of forearm and in control group 57% were inserted in veins of hand.

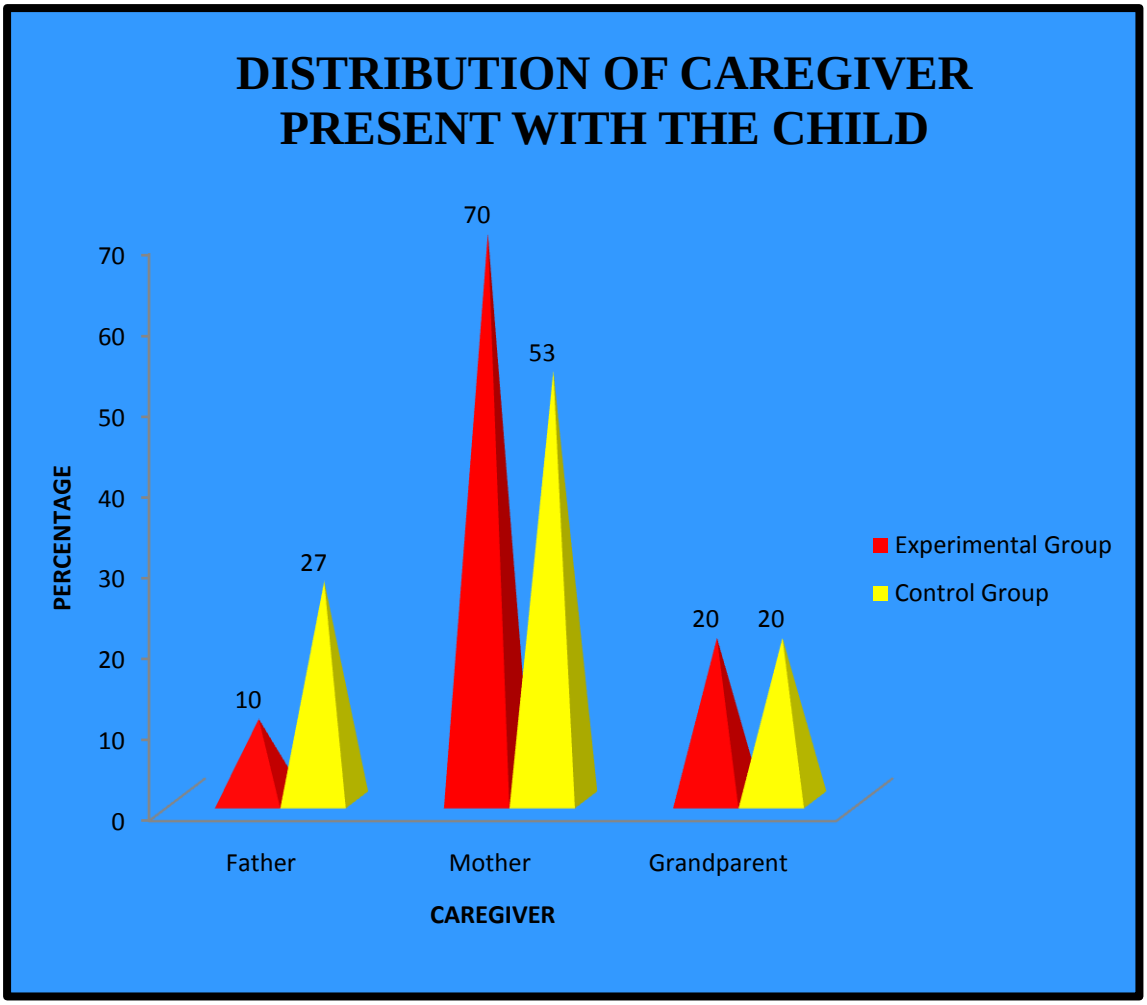


Fig.11. Percentage distribution of children according to the caregiver present with the child in experimental and control group.

The above graph represents that, with aspect of the caregiver present with the child during venipuncture, in experimental group 70% of the children were present along with their mother and in control group 53% of the children were present along with their mother.

SECTION: B

ASSESSMENT OF PAIN LEVEL AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG CHILDREN IN EXPERIMENTAL AND CONTROL GROUP.

TABLE – 2

Frequency and percentage distribution of pain level during venipuncture among children in experimental and control group

n= 60

Level of pain	Experimental group n=30		Control group n=30	
	f	%	f	%
No pain	13	43	-	-
Mild pain	12	40	-	-
Moderate pain	5	17	14	47
Severe pain	-	-	16	53

The above table represents that, in experimental group 13 (43%) of the children had no pain, 12 (40%) had mild pain and 5 (17%) had moderate pain during venipuncture. And in control group 14 (47%) had moderate pain and 16 (53%) had severe pain.

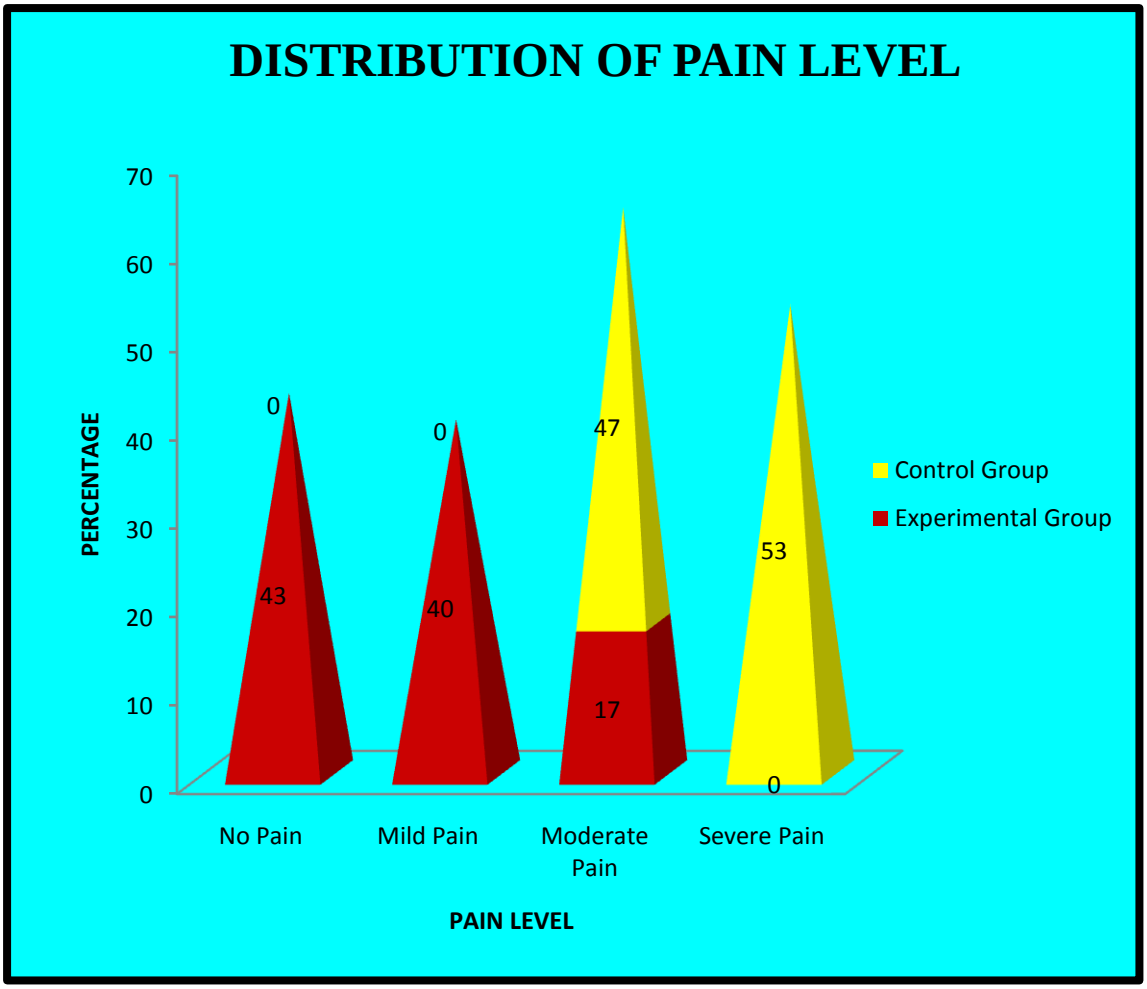


Fig.12. Percentage distribution of children according to pain level in experimental and control group.

This graph represents that majority of the children in experimental group 43% had no pain, whereas in control group 53%of the children had severe pain.

TABLE – 3

Frequency and percentage distribution of cooperation level during venipuncture among children in experimental and control group

n= 60

Level of cooperation	Experimental group n=30		Control group n=30	
	f	%	f	%
Good cooperation	21	70	-	-
Fair cooperation	9	30	9	30
No cooperation	-	-	21	70

This table represents that 21 (70%) children had good cooperation and 9 (30%) had fair cooperation during venipuncture in experimental group. And 9 (30%) had fair cooperation and 21 (70%) were non cooperative during venipuncture in control group.

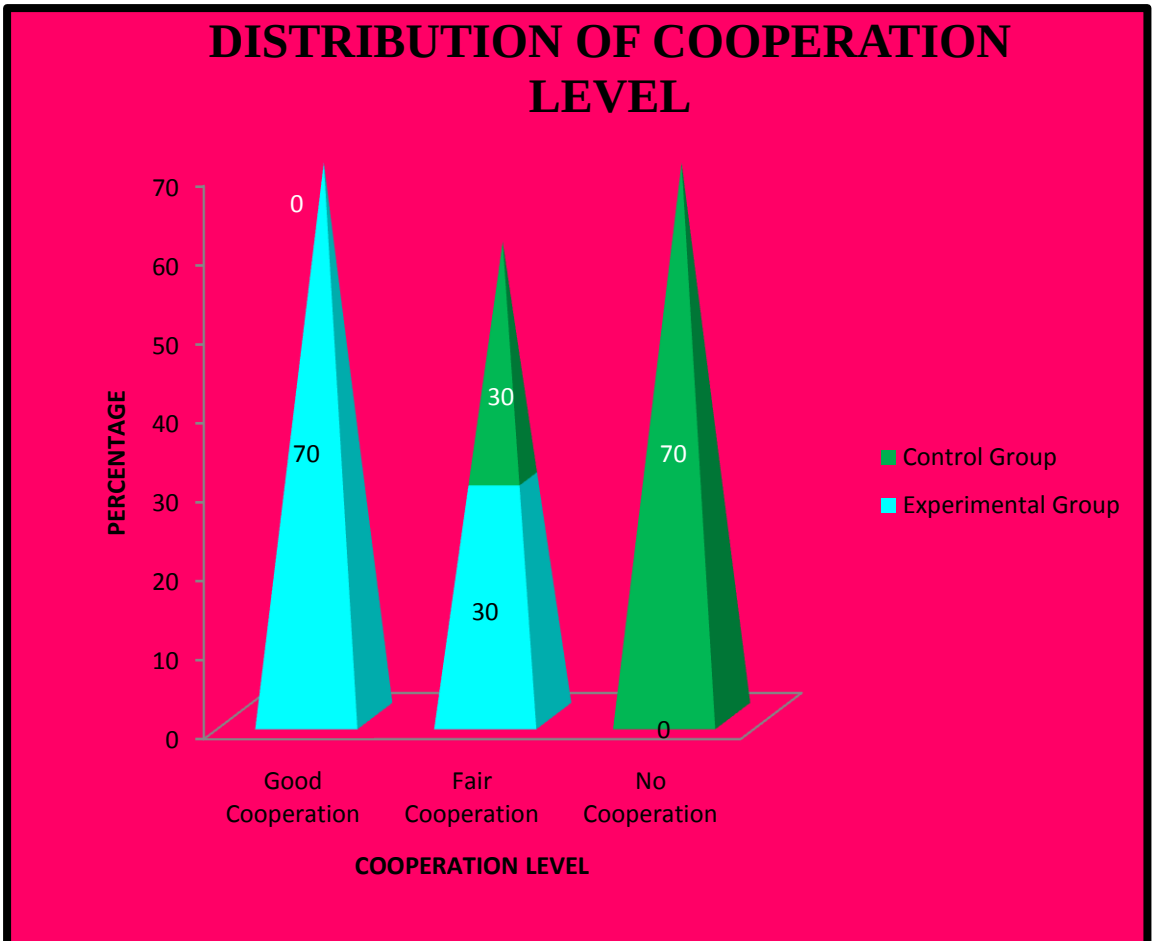


Fig.13. Percentage distribution of children according to cooperation level in experimental and control group

The above graph represents that in experimental group 70% children had good cooperation during venipuncture. In control group 70% children were non cooperative during venipuncture.

TABLE - 4

MEAN, STANDARD DEVIATION AND MEAN PERCENTAGE OF PAIN LEVEL AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG CHILDREN IN EXPERIMENTAL AND CONTROL GROUP

n= 60

	Experimental group n= 30			**Control Group n= 30**			**Difference in Mean %**
	Mean	**SD**	**Mean %**	**Mean**	**SD**	**Mean %**	
Pain Level	1.53	1.696	15	6.77	1.941	68	53
Cooperation level	0.3	0.47	15	1.7	0.47	85	70

The above table shows that, the mean pain level was 1.53 in the experimental group and in the control group was 6.77 whereas the standard deviation in the experimental group was 1.696 and in the control group was 1.941. The mean percentage of pain level was 15 in the experimental group and in the control group were 68. The difference in mean % of the pain level between experimental and control group was 53.

The mean cooperation level was 0.3 in the experimental group and in the control group was 1.7 whereas the standard deviation in the experimental group was 0.47 and in the control group was also 0.47. The mean percentage of cooperation level in the experimental group was 15 and in the control group was 85. The difference in mean % of the cooperation level between experimental and control group was 70.

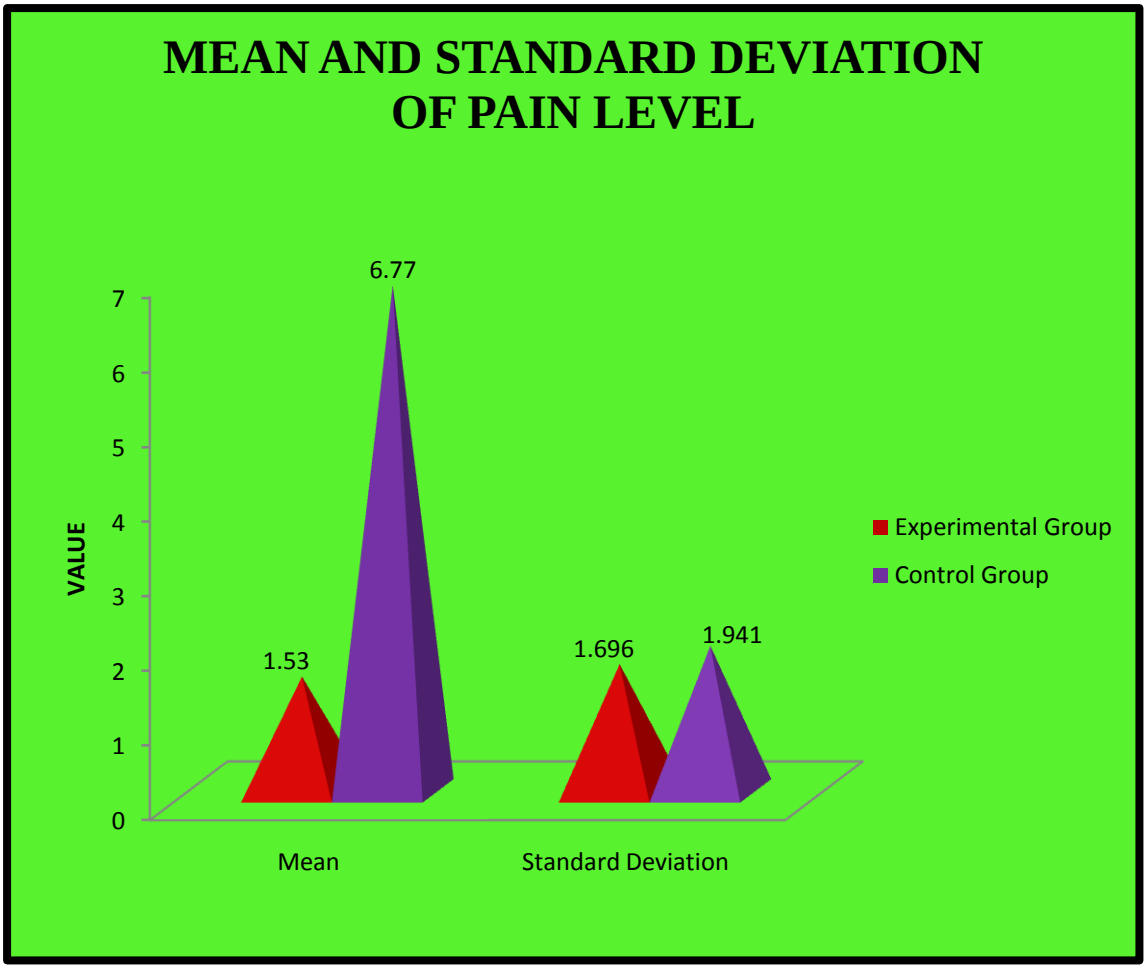


Fig.14. Mean and standard deviation of pain level during venipuncture among children in experimental and control group.

The above graph shows that, the mean pain level in the experimental group was 1.53 whereas in the control group was 6.77. And the standard deviation in the experimental group was 1.696 and in the control group was 1.941.

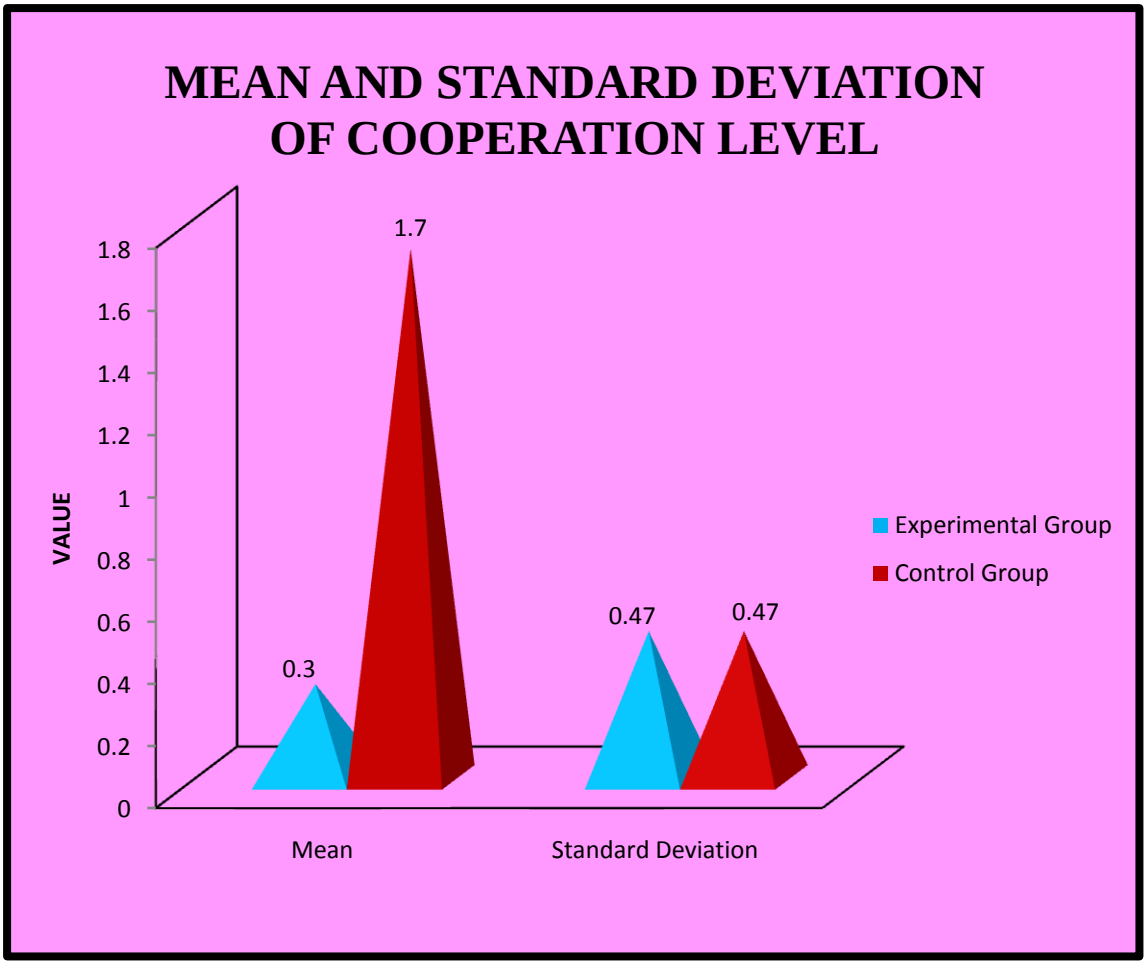


Fig.15. Mean and standard deviation of cooperation level during venipuncture among children in experimental and control group

The above graph shows that, the mean cooperation level was 0.3 in the experimental group and 1.7 in the control group. And the standard deviation in the experimental group was 0.47 and in the control group was also 0.47.

SECTION: C

COMPARISON OF THE PAIN LEVEL AND COOPERATION LEVEL DURING VENIPUNCTURE BETWEEN CHILDREN IN EXPERIMENTAL AND CONTROL GROUP.

TABLE - 5

Unpaired "t"- test to compare the pain level during venipuncture between children in experimental and control group.

n= 60

Group	Total score			df	"t" value	P value
	Mean	SD	Mean %			
Experimental group	1.53	1.696	15	58	12.07***	P<0.001
Control group	6.77	1.941	68			

*** Very highly significant at P<0.001

The above table shows that the mean pain score was 1.53 in the experimental group and in the control group was 6.77 whereas the standard deviation in the experimental group was 1.696 and in the control group was 1.941. The obtained "t" value was 12.07.

There is a statistically very high significance in the pain level between the experimental group and the control group at p<0.001 level.

This concludes that the experimental group experienced less pain than the control group. Hence, the distraction technique had effect on reducing the pain level during venipuncture.

TABLE - 6

Unpaired "t"- test to compare the cooperation level during venipuncture between children in experimental and control group.

n= 60

Group	Total score			df	"t" value	P value
	Mean	SD	Mean %			
Experimental group	0.3	0.47	15	58	11.67***	P<0.001
Control group	1.7	0.47	85			

*** Very highly significant at P<0.001

The above table shows that the mean cooperation score of children in the experimental group was 0.3 and in the control group was 1.7, whereas the standard deviation in the experimental group was 0.47 and in the control group was also 0.47. The obtained "t" value was 11.67.

There is a statistically very high significance in the cooperation level between the experimental group and the control group at p<0.001 level.

This concludes that the experimental group had good cooperation than the control group. Hence, the distraction technique had effect on improving the cooperation level during venipuncture.

SECTION: D

CORRELATION BETWEEN PAIN LEVEL AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG CHILDREN IN EXPERIMENTAL AND CONTROL GROUP.

TABLE - 7

Karl Pearson's correlation between pain level and cooperation level among children in experimental group

n= 30

	Total score		**'r' value**	**P value**
	Mean	**SD**		
Pain level	1.53	1.696	0.62***	P<0.001
Cooperation level	0.3	0.47		

*** Very highly significant at P<0.001

With regard to pain level and cooperation level in experimental group, the calculated 'r' value was 0.62

There is a statistically high positive correlation between pain level and cooperation level during venipuncture in the experimental group at P<0.001 level.

TABLE - 8

Karl Pearson's correlation between pain level and cooperation level among children in control group

n= 30

	Total score		'r' value	P value
	Mean	**SD**		
Pain level	6.77	1.941	0.57***	P<0.001
Cooperation level	1.7	0.47		

*** Very highly significant at P<0.001

With regard to pain level and cooperation level in control group, the calculated 'r' value was 0.57

There is a statistically high positive correlation between pain level and cooperation level during venipuncture in the control group at P<0.001 level.

SECTION: E

ASSOCIATION OF SELECTED BASELINE VARIABLES WITH PAIN LEVEL AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG CHILDREN IN EXPERIMENTAL GROUP.

TABLE -9

Association of pain level with selected baseline variable among children in experimental group

n= 30

Baseline variables	No pain		Mild pain		Moderate pain		χ2	P Value
	f	%	f	%	f	%		
Age								
a) 7 years	5	17	4	13	2	7	0.472 NS	0.991
b) 8 years	3	10	4	13	1	3		
c) 9 years	5	17	4	13	2	7		
Gender								
a) Male	7	23	8	27	3	10	0.41 NS	0.812
b) Female	6	20	4	13	2	7		
Birth order								
a) 1	4	13	4	13	1	3	0.344 NS	0.998
b) 2	7	23	6	20	3	10		
c) 3	2	7	2	7	1	3		
d) 4 and so on	-	-	-	-	-	-		
Nutritional status								
a) Normal (above 90%)	3	10	1	3	1	3	3.309 NS	0.723
b) I degree (90- 75%)	3	10	4	13	1	3		
c) II degree (75- 60%)	5	17	7	23	3	10		
d) III degree (below 60%)	2	7	-	-	-	-		
Number of previous hospitalization								
a) Nil	3	10	7	23	3	10	6.233 NS	0.432
b) 1-2 times	4	13	2	7	2	7		
c) 3-4 times	6	20	2	7	-	-		
d) 5 times and above	-	-	1	3	-	-		
Number of previous venipuncture								
a) Nil	10	34	-	-	-	-	**30.719 *** **	**0.001**
b) 1-2 times	3	10	5	17	-	-		
c) 3-4 times	-	-	6	20	-	-		
d) 5 times and above	-	-	1	3	5	17		

Duration of present hospitalization								
a) 1-3 days	3	10	5	17	3	10	2.238	0.687
b) 4-6 days	5	17	4	13	2	7	NS	
c) More than 6 days	5	17	3	10	-	-		
Size of venflon								
a) 24 gauge	3	10	3	10	-	-	0.638	0.964
b) 22 gauge	10	34	8	26	5	17	NS	
c) 20 gauge	-	-	1	3	-	-		
Site of insertion								
a) Veins of the upper arm	-	-	-	-	-	-	2.355	0.332
b) Veins of the forearm	9	30	5	17	2	7	NS	
c) Veins of the hand	4	13	7	23	3	10		
Caregiver along with the child								
a) Father	-	-	2	7	1	3	2.72	0.261
b) Mother	9	30	9	30	3	10	NS	
c) Grandparent	4	13	1	3	1	3		

*** Very highly significant at P<0.001, NS - Not significant

The above table depicts the association of pain level with selected baseline variable like their age, gender, birth order, nutritional status, number of previous hospitalization, number of previous venipuncture, duration of hospitalization, size of venflon, site of insertion, care giver present with the child.

With regard to number of previous venipuncture the calculated $\chi 2$ **value was 30.72** at **p<0.001** which showed that there was statistically high significant association between the number of previous venipuncture with pain level.

It further revealed that there was no significant association of pain level with other baseline variables.

TABLE -10

Association of cooperation level with selected base line variable among children in experimental group

n= 30

Baseline variables	Good Cooperation		Fair Cooperation		$\chi 2$	P value
	f	%	f	%		
Age						
a) 7 years	6	20	5	17	2.078	0.321
b) 8 years	6	20	2	7	NS	
c) 9 years	9	30	2	7		
Gender					1.296	
a) Male	14	47	4	13	NS	0.26
b) Female	7	23	5	17		
Birth order						
a) 1	6	20	3	10	0.296 NS	0.863
b) 2	11	37	5	17		
c) 3	4	13	1	3		
d) 4 and so on	-	-	-	-		
Nutritional status						
a) Normal (above 90%)	4	13	1	3	0.789 NS	0.851
b) I degree (90- 75%)	5	17	3	10		
c) II degree (75- 60%)	10	34	5	17		
d) III degree (below 60%)	2	7	-	-		
Number of previous hospitalization						
a) Nil	7	23	6	20	3.008 NS	0.284
b) 1-2 times	6	20	2	7		
c) 3-4 times	7	23	1	3		
d) 5 times and above	1	3	-	-		
Number of previous venipuncture						
a) Nil	10	34	-	-	**10.14**	
b) 1-2 times	7	23	1	3	*****	**0.05**
c) 3-4 times	2	7	4	13		
d) 5 times and above	2	7	4	13		

Duration of present hospitalization						
a) 1-3 days	7	23	4	13	0.347	0.857
b) 4-6 days	8	27	3	10	NS	
c) More than 6 days	6	20	2	7		
Size of venflon						
a) 24 gauge	3	10	3	10	1.935	0.411
b) 22 gauge	17	57	6	20	NS	
c) 20 gauge	1	3	-	-		
Site of insertion						
a) Veins of the upper arm	-	-	-	-	0.407	0.486
b) Veins of the fore arm	12	40	4	13	NS	
c) Veins of the hand	9	30	5	17		
Caregiver along with the child						
a) Father	1	3	2	7	2.799	0.273
b) Mother	14	47	7	23	NS	
c) Grandparent	6	20	-	-		

*Significant at P<0.05, NS - Not significant

The above table depicts the association of cooperation level with selected base line variable like their age, gender, birth order, nutritional status, number of previous hospitalization, number of previous venipuncture, duration of hospitalization, size of venflon, site of insertion, care giver present with the child.

With regard to number of previous venipuncture the calculated $\chi 2$ **value was 10.14** at **p<0.05** which showed that there was statistically significant association between number of previous venipuncture with cooperation level.

It further revealed that there was no significant association of cooperation level with other demographic variables.

CHAPTER - V

DISCUSSION

"Discussion is an exchange of knowledge; an argument an exchange of ignorance."

-Robert Quillen

This chapter discusses in detail the findings of analysis in relation to the objectives of the study.

Venipuncture is commonly seen as one of the most painful and most frequently performed invasive procedures in hospital. In the paediatric population, it can be one of the most distressing events associated with medical encounters. Because of a natural fear of needles, almost all children have fear, pain, and distress before and during the procedure. They are frightened and often refuse to cooperate. Negative response and psychological suffering may lead to more difficulty and lower success rates in venipuncture. Therefore, it is necessary to develop a safe, effective and easy to administer approach to minimize suffering and to facilitate the success of medical interventions.

Distraction is a simple, cognitive behavioural intervention that diverts attention from a stressful stimulus and focuses it onto a more pleasant one. Animated cartoons on pleasant topics have been demonstrated to be an effective, safe and easy to administer stimulus for distraction. Therefore, cartoon movie was chosen as the distraction technique and was shown on the laptop to the subjects during venipuncture in this study.

The focus of this study is to evaluate the effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in paediatric ward, Government Rajaji Hospital, Madurai. 60 samples (30 in experimental group and 30 in control group) were selected using simple random sampling technique (Lottery Method) for this study. Numerical pain rating scale was used to assess the pain level and Cooperative Behaviour Scale of Children in Venipuncture (CBSCV) was used to assess the cooperation level.

BASELINE CHARACTERISTIC OF EXPERIMENTAL AND CONTROL GROUP

With the view of age group, in experimental group 11 (37%) were in the age group of 7 years, 8 (26%) were in the age group of 8 years and 11 (37%) were in the age group of 9 years. In control group 17 (57%) were in the age group of 7 years, 6 (20%) were in the age group of 8 years and 7 (23%) were in the age group of 9 years.

With regard to gender, in experimental group 18(60%) were males and 12 (40%) were females. In control group 16 (53%) were males and 14 (47%) were females.

With the aspect of birth order, in experimental group 9 (30%) were first child, 16 (53%) were the second child and 5 (17%) were the third child of the family. In the control group 8 (27%) were the first child, 13 (43%) were the second child of the family, 7 (23%) were the third child of the family and 2 (7%) were the fourth child and so on of the family.

Based on the nutritional status 5 (17%) were in normal status, 8 (26 %) were in Degree I, 15(50 %) were in Degree II and 2 (7 %) were in Degree III in

experimental group. In control group 6 (20%) were in normal nutritional status, 9 (30%) were in Degree I, 14 (47%) were in Degree II and 1 (3 %) were in Degree III.

With regard to number of previous hospitalization, in experimental group 13(43%) were not hospitalized previously, 8 (27%) were hospitalized 1-2 times, 8 (27%) were hospitalized 3-4 times and 1 (3%) were hospitalized 5 times and above. In control group 16(53%) were not hospitalized previously, 10 (34%) were hospitalized 1-2 times, 3 (10%) were hospitalized 3-4 times and 1 (3%) were hospitalized 5 times and above.

With regard to number of previous venipuncture, in experimental group 10 (34%) were not previously venipunctured, 8 (26%) were venipunctured 1-2 times, 6 (20%) were venipunctured 3-4 times and 6 (20%) were venipunctured 5 times and above. In control group 9 (30%) were not previously venipunctured, 9 (30%) were venipunctured 1-2 times, 6 (20%) were venipunctured 3-4 times and 6 (20%) were venipunctured 5 times and above.

With aspect of duration of hospitalization, in experimental group 11(37%) were hospitalized for 1- 3 days, 11(37%) were hospitalized for 4-6days, 8 (26%) were hospitalized for more than 6 days. In control group 16(53%) were hospitalized for 1-3 days, 4(13%) were hospitalized for 4-6days, 10 (34%) were hospitalized for more than 6 days.

With regard to size of venflon, in experimental group 6(20%) were inserted 24 gauge venflon, 23 (77%) were inserted 22 gauge venflon and 1 (3%) were inserted 20 gauge venflon. In control group 10(34%) were inserted 24 gauge venflon and 20 (66%) were inserted 22 gauge venflon.

With regard to site of insertion, in experimental group 16 (53%) were inserted in veins of forearm and 14 (47%) were inserted in veins of hand. In control group 1 (3%) were inserted in veins of upper arm, 12 (40%) were inserted in veins of forearm and 17 (57%) were inserted in veins of hand.

With aspect of the caregiver present with the child during venipuncture, in experimental group 3 (10%) were with father, 21 (70%) were with mother and 6 (20%) were with grandparent. In control group 8 (27%) were with father, 16 (53%) were with mother and 6 (20%) were with grandparent.

FINDINGS BASED ON THE OBJECTIVES

THE FIRST OBJECTIVE WAS TO ASSESS THE PAIN LEVEL AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG CHILDREN IN CONTROL GROUP AND EXPERIMENTAL GROUP.

The results revealed that, in experimental group 13 (43%) of the children had no pain, 12 (40%) had mild pain and 5 (17%) had moderate pain during venipuncture. And in control group 14 (47%) had moderate pain and 16 (53%) had severe pain. The mean pain level in the experimental group was 1.53 and in the control group was 6.77. The standard deviation in the experimental group was 1.696 and in the control group is 1.941.

With regard to the cooperation level, 21 (70%) children had good cooperation and 9 (30%) had fair cooperation during venipuncture in experimental group. And 9 (30%) had fair cooperation and 21 (70%) were non cooperative during venipuncture in control group. The mean cooperation level in the experimental group was 0.3 and in the control group was 1.7. The standard deviation in the experimental group was 0.47 and in the control group was also 0.47.

The present study findings was consistent with the study done by **Bagnasco, A., Pezzi, E., Rosa, F., Fornoni, L. and Sasso. L. (2012)** to assess the effectiveness of Distraction techniques in children during venipuncture. This study was an observational study conducted among 203 patients aged at Genoa. The study result showed that significant differences between the mean score of pain in patients undergoing venipuncture with audiovisual distracting technique (2.53 ± 1.76) and the mean score obtained in those undergoing venipuncture without this technique (5.22 ± 2.53). In the group with audio-video distraction, the mean level of cooperation was 0.38 (SD = 0.63) compared to 0.20 (SD = 0.54) in the control group.

These findings were also consistent with the study done by **Belleni, C.V and Cordelli, D.M. (2006)** in Siena, to assess the analgesic effect of passive or active distraction during venipuncture in children. Purposively selected samples of 69 children were randomly divided into three groups: a control group (C) without any distraction procedure, a group (M) in which mothers performed active distraction, and a TV group (TV) in which passive distraction (a TV cartoon) was given. The pain was scored with visual analogue scale by mother and children. Pain levels rated by the children were 23.04 (SD 24.57), 17.39 (SD 21.36), and 8.91 (SD 8.65) for the C, M, and TV groups, respectively. Pain levels rated by mothers were 21.30 (SD 19.9), 23.04 (SD 18.39), and 12.17 (SD 12.14) for the C, M, and TV groups, respectively. Scores assigned by mothers and children indicated that procedures performed during TV watching were less painful ($p<0.05$) than control or procedures performed during active distraction. The researcher concluded that TV watching was more effective than active distraction.

THE SECOND OBJECTIVE WAS TO COMPARE THE PAIN LEVEL AND COOPERATION LEVEL DURING VENIPUNCTURE BETWEEN CHILDREN IN CONTROL GROUP AND EXPERIMENTAL GROUP.

The study results revealed that the mean pain score in the experimental group was 1.53 and in the control group was 6.77. The obtained "t" value 12.07 was highly significant at $p<0.001$ level. This concluded that the experimental group experienced less pain than the control group. Hence, the distraction technique had effect on reducing the pain level during venipuncture.

The mean cooperation score of children in the experimental group was 0.3 and in the control group was 1.7. The obtained "t" value 11.67 was highly significant at $p<0.001$ level. This concluded that experimental group had good cooperation than control group. Hence, the distraction technique had effect on improving the cooperation level during venipuncture.

These findings was consistent with the study done by **Wanga, Z., Sunb, L.H. and Chena, A.P. (2008)** in China to assess the efficacy of non-pharmacological methods of pain management in school age children receiving venipuncture. VAS scores indicated that procedures were more painful in the control group than in the audiovisual distraction or the intervention group (VAS score: 4.55 ± 2.26 and 4.38 ± 2.32 in the audiovisual distraction and intervention groups respectively, P <0.05). The audiovisual distraction was demonstrated to be effective in reducing self-reported pain, improving patient cooperation and increasing success rate in venipuncture procedures.

Thus the H_1: There will be significant difference in the pain level and cooperation level during venipuncture among children in control and experimental group was detained in this study.

THE THIRD OBJECTIVE OF THE STUDY WAS TO CORRELATE BETWEEN THE PAIN LEVEL AND COOPERATION LEVEL AMONG CHILDREN IN CONTROL GROUP AND EXPERIMENTAL GROUP.

With regard to pain level and cooperation level in experimental group, the calculated 'r' value = 0.62, at $p<0.001$ showed that there was a high positive correlation between pain level and cooperation level during venipuncture in experimental group.

With regard to pain level and cooperation level in control group, the calculated 'r' value= 0.57 at $p<0.001$ showed that there was a high positive correlation between pain level and cooperation level during venipuncture in control group.

This study was consistent with the study done by **Bagnasco, A., Pezzi, E., Rosa, F., Fornoni, L. and Sasso. L. (2012)** to assess the effectiveness of distraction techniques in children during venipuncture. The result showed that significant differences between the mean score of pain in patients undergoing venipuncture with audiovisual distracting technique (2.53 ± 1.76) and the mean score obtained in those undergoing venipuncture without this technique (5.22 ± 2.53). In the group with audio-video distraction, the mean level of cooperation was 0.38 (SD = 0.63) compared to 0.20 (SD = 0.54) in the control group. In relation to the presence of parents, no significant differences were found in the mean pain scores ($P = 0.5 > 0.05$), whereas the mean scores of cooperation were significantly different ($P = 0.0076 < 0.05$).

Thus the H_2: There will be significant correlation between the pain level and cooperation level during venipuncture among children in control group and experimental group was detained in this study.

THE FOURTH OBJECTIVE OF THE STUDY WAS TO ASSOCIATE BETWEEN THE SELECTED BASELINE VARIABLES AND THE PAIN LEVEL, COOPERATION LEVEL AMONG CHILDREN IN EXPERIMENTAL GROUP.

The study results depicted that the number of previous venipuncture **($\chi 2$ = 30.72)** at **p<0.001** was significantly associated with the pain level of the children in the experimental group.

The study results also depicted that the number of previous venipuncture **($\chi 2$ = 10.14)** at **p<0.05** was significantly associated with the cooperation level of the children in the experimental group.

These findings was consistent with the study done by **James, J., Ghai, S., Rao, K.L.N. and Sharma, N. (2012)** to determine the effectiveness of animated cartoons as a distraction strategy on behavioural response to pain perception among children undergoing venipuncture in Chandigarh. The study comprised of 50 children (3 to 6 years) selected through purposive sampling method. The results revealed that there was significantly (p <0.001) less pain related behavioural responses with use of animated cartoons as a distraction strategy at pre, during and post venipuncture. The findings also revealed that there is no influence of gender on perception of pain but there was an inverse relation of behaviour pain response with age of the child.

Thus the H_3: There will be significant association between selected baseline variables and the pain level, cooperation level during venipuncture among children in experimental group was detained in this study.

CHAPTER- VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

"When you do the common things in life in an uncommon way, you will command the attention of the world."

— George Washington Carver

This chapter deals about the summary of the study findings, conclusion, implication, and recommendation**.**

6.1 SUMMARY OF THE STUDY

Pain is one of the most frequent complaints presented in paediatric settings. Relief of pain is a basic need and right of all children. Nurses are in a unique position to improve the management of children's pain; because children and parents will often tell them things they do not tell physicians and they are often the professionals who have the most contact with an ill child in and out of the hospital.

The investigator conducted the study to evaluate the effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in paediatric ward, Government Rajaji Hospital, Madurai.

The objectives of the study were,

- To assess the pain level and cooperation level during venipuncture among children in experimental group and control group.
- To compare the pain level and cooperation level during venipuncture between children in experimental group and control group.

- ❖ To correlate between the pain level and cooperation level among children in experimental group and control group.
- ❖ To associate between the selected baseline variables and the pain level, cooperation level among children in experimental group.

The following hypotheses were tested:

H_1: There will be significant difference in the pain level and cooperation level during venipuncture among children in experimental group and control group.

H_2: There will be significant correlation between the pain level and cooperation level during venipuncture among children in experimental group and control group.

H_3: There will be significant association between selected baseline variables and the pain level, cooperation level during venipuncture among children in experimental group.

The setting of the study was paediatric ward, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai. The research approach used in the study was a quantitative approach and design was True experimental - Post test only design. The sampling technique was Simple random sampling technique. The total sample size was 60 (30 in experimental group and 30 in control group). Standardized Numerical Pain Rating Scale was used for measurement of pain level and Cooperative Behaviour Scale of Children in Venipuncture (CBSCV) was used to assess the cooperation level. The content validity and reliability was obtained prior to the study. Subsequently pilot study was conducted and it found that the study was

feasible and practicable. A modified Widenbach's prescriptive theory (1964) was formulated which provided a useful means in assessing the pain level and cooperation level during venipuncture among children. The data collection was done for a period of six weeks from 01.10.2013 to 15.11.2013. The usual standard technique was given for the children in control group. Children in the experimental group were given a choice of ten appropriate cartoon videos. The cartoon movie was displayed on the laptop during the whole duration of the venipuncture. Venipuncture was started 3 minutes after the beginning of the movie, chosen by the child according to own personal tastes. At the end the child was asked to give a score to the pain level in the numerical pain rating scale. Furthermore, the child's cooperation was assessed using Cooperative Behaviour Scale of Children in Venipuncture (CBSCV). The data were analyzed by descriptive and inferential statistics.

6.2 MAJOR FINDINGS OF THE STUDY

- In experimental group majority of children37% were in the age group of 7 years and 9 years, in control group majority of them 57% were in the age group of 7 years and 23% were in the age group of 9 years.
- With regard to gender, in experimental group majority of them 60% were males and 40% were females. Where as in control group 53% were males and 47% were females.
- Most of the children in the experimental group 53% and in control group 43% were second child.
- In both groups, majority of the children (50 % - experimental group; 47% - control group) were in Degree II nutritional status.

- With regard to number of previous hospitalization, in experimental group 43% were not hospitalized previously and in control group 53% were not hospitalized previously.
- Majority of the children in experimental group 34% were not previously venipunctured and in control group 30% were not previously venipunctured and 30% were venipunctured 1-2 times.
- Most of the children, in experimental group 37% were hospitalized for 1- 3 days and 37% were hospitalized for 4-6days and in control group 53% were hospitalized for 1- 3 days.
- In both groups, majority of the children, in experimental group 77% and in control group 66% were inserted 22 gauge venflon.
- With regard to site of insertion, in experimental group 53% were inserted in veins of forearm and in control group 57% were inserted in veins of hand.
- Most of the children in the experimental group 70% and in control group 53% were present along with mother during venipuncture.
- Regarding the pain level, in the experimental group majority of the children 43% had no pain and 40% had mild pain during venipuncture. In control group 53% of the children had severe pain and 47% of children had moderate pain during venipuncture.
- Regarding the cooperation level, majority of the children in the experimental group 70% had good cooperation and in control group 70% had no cooperation during venipuncture.
- The pain level of the children revealed that the control group mean (6.77) was higher than the experimental group mean (1.53). The cooperation level of the

children revealed that the control group mean (1.7) was higher than the experimental group mean (0.3).

- The obtained 't' value for pain level was 12.07, at $p<0.001$ level. Similarly the obtained 't' value for cooperation level was 11.67, at $p<0.001$ level. These findings concluded that the children in experimental group had experienced less pain and was more cooperative than the children in control group. So, the distraction technique had effect on reducing the pain level and improving the cooperation level during venipuncture.
- The correlation between the pain level and cooperation level, in experimental group was 'r'= 0.62 at $p<0.001$ level and in control group was 'r'= 0.57 at $p<0.001$ level. So, there was highly positive correlation between the pain level and the cooperation level during venipuncture.
- The study results depicted that the number of previous venipuncture **($\chi 2$ = 30.72)** at **$p<0.001$** was significantly associated with the pain level of the children in the experimental group.
- The study results also depicted that the number of previous venipuncture **($\chi 2$ = 10.14)** at **$p<0.05$** was significantly associated with the cooperation level of the children in the experimental group.

6.3 CONCLUSION

The results of this study revealed that the children who received distraction technique during venipuncture had a statistically significant reduction in pain and improved cooperation. Distraction technique was demonstrated to be effective in reducing the pain and promoting the cooperation of school aged children during venipuncture. This distracting technique is highly recommended because it is effective, easy to carry out and inexpensive.

6.4 IMPLICATIONS OF THE STUDY

The study has implications in nursing practice, nursing education, nursing research and nursing administration.

6.4.1 NURSING PRACTICE

- The role of nurse in the health care team is undergoing a rapid change. Nurses play a major role in the assessment and management of pain among children of all age groups.
- Pain assessment is a basis to pain reduction. The nurses must be trained to assess the pain level of children according to their age and developmental level using standardized pain assessment tool.
- Nurses should practice the non pharmacological measures like distraction techniques, guided imaginary and hypnosis to reduce the pain level during venipuncture.
- Physical and psychological interventions that minimize pain during venipuncture offer an advantage over other techniques because they can be easily incorporated into clinical practice without added cost and time.
- Distraction technique during venipuncture is to be implemented in day to day practice. It is cost effective and easy to perform.
- Nurses may have a variety of distracters available on hand since children may pay more attention to one particular device than the other.

6.4.2 NURSING EDUCATION

- Education helps nursing students to develop more insight on newer concepts, which enable them to render effective care.

- Pain is the fifth vital sign. So pain assessment scales and non pharmacological measures for the reduction of pain should be included in the nursing curriculum.
- Nurse educators should formulate procedures regarding non pharmacologic measures on pain reduction.
- Nurse educators should provide knowledge and information to the students to help them understand the importance of non pharmacological management of pain by using distraction technique.
- Orientation programmes for the nurses as regards the importance of non pharmacological measures on pain reduction.
- Updating the knowledge of the staff by proper and relevant in-service education programs to emphasize distraction as an intervention during venipuncture.

6.4.3 NURSING ADMINISTRATION

- Nursing administrators can develop nursing practice standards, protocols and manuals of pain assessment and pain management in children of various ages, in which distraction technique can be included as an important strategy to relieve the pain for children.
- The nurse administrator should plan for continuing in service education regarding non pharmacologic strategies for pain relief during injection procedure. Nurse administrators should make the nurses aware of simple and effective distraction technique.
- Update the nurse's knowledge about current practice and treatment of pain through workshops and conferences. This will enable

6.4.4 NURSING RESEARCH

- ❖ The nurse researcher should motivate the clinical nurses to apply the research findings in practice. And follow the evidence based practice in order to bring a quality nursing care.
- ❖ Further research should be carried out on other pain reduction measurements like guided imaginary and other psychological interventions.
- ❖ Large scale studies can be conducted in consideration of other contributing variables.

6.5 RECOMMENDATIONS

- ➢ The study can be replicated with large samples in different settings to validate and generalize the findings.
- ➢ The study can be conducted on the other age groups and can be compared with other interventions.
- ➢ Studies can be conducted regarding the knowledge and practice of distraction technique among health team members.
- ➢ Studies can be conducted to assess the parental emotional response during children's painful procedures.
- ➢ Studies can be conducted to search for any differences between acute and chronic patients.
- ➢ Similar studies can be conducted with adult and old age people.

BIBLIOGRAPHY

BOOK REFERENCE

1. Anna Sidey, David Widds. (2005). *Text book of Community Children's Nursing.* (2nd ed.). London : Elsevier publications.
2. Abdellah,J. (1978). *Patient care through nursing research*. (3rd ed.). New York: Mac Millan.
3. Basavanthappa, B.T. (1998). *Nursing research* (3rd ed.). New Delhi: Jaypee Brothers.
4. Berman, Audrey, Snyder, Shirlee, J., Kozier, Barbara, et al. (2008). *Fundamentals of nursing: Concepts, process and practice.* (8th ed.). India: Pearson education.
5. Brunner and Suddarth. (1992).*Textbook of Medical Surgical Nursing*. (7th ed). Philadelphia: Lippincott company.
6. Carol Taylor, Carol Lillis & Pricilla Lemone. (2005). *Fundamentals of Nursing*. New Delhi: Wolters Kluwer Health, Pvt. Ltd
7. Copper and Laddy. (1990).*Conceptual Bases For Professional Nursing*. (3rd ed). Philadelphia :J.B. Lippincott Company ,
8. Denise F. Polit, & Cheryl Tetano Beck. (2004). *Nursing Research Principles and Methods*. (7th ed.). Philadelphia: Lippincott.
9. Dorothy R. Marlow., & Barbara C. Redding. (1998). *Textbook of pediatric Nursing,* (6th ed.). Philadelphia: Saunders.
10. Eleanor,D., Thompson., (1999). *Introduction to Maternity and Pediatric Nursing*. (2nd ed). Philadelphia: Saunders publishers.
11. Fawcett Jacquiline. (1989). *Analysis and evaluation of conceptual Model of Nursing*. Philadelphia: F.A. Davis.

12. Geri Lobiondo- Wood., & Judith Haber. (2006). *Nursing Research*. **(**6th ed.). St. Louis: Mosby Publications.
13. Ghai, O.P. (2004). *Essential pediatrics*. (6th ed.). New Delhi: CBS publisher.
14. Gupta, S.P. (1991). *Statistical Methods*. (3rd ed.). New Delhi: Sultan Chand.
15. Hockenberry.,Wilson. Winkelstien., Klive.,(2006). *Wong's Nursing Care of Infants and Children*. (7th ed.). Newdelhi: Elsevier publishers.
16. Inamdav, M., (2003). *Textbook of Fundamental Nursing.* (1st ed). Mumbai: Vora Medical publications.
17. Julia A Mc Millan., (2010). *Oski's Pediatrics*. (4th ed). Philadelphia: Lippincott publishers.
18. Kleigman., Behrman., Jenson., Stenton., (1999). *Nelson's Text Book of Pediatrics*. (Volume 2). Newdelhi: Elsevier publishers.
19. Kothari, C.R. (1988). *Research Methodology Methods and Techniques*. New Delhi: Whiey Eastern Ltd.
20. Marilyn J Hockenberry., Wilson., Winkelstien.,(2006).*Wong's Essentials of pediatric nursing.* (7th ed). Newdelhi: Elsevier publishers.
21. Martha. Douglas., Lourdes.,Maria., Barbara., Thomas., Megselene., (1999). *Pediatric Nursing*. (1st ed). Newdelhi: McGraw-Hill publishers.
22. McMillan, J.H., & Schumacher. (1989). *Research in education conceptual introduction*. (1st ed.). New York: Harper collies.
23. Meharban Singh., (2004). Care of the Newborn. (6th ed). Newdelhi: Sagar printers and publishers.
24. Nancy Burns., & Susan K Grove. (2007). *Understanding Nursing Research***. (**4th ed.). St.Louis: Saunders Publications.

25. Nicki L.Potts. (2009). *Text book of Paediatrics*. (11th ed.). New Delhi: Jaypee publications.
26. Parthasarathy, A. Menon.,Nair.M,K,C.,(2002). *IAP Text Book of Pediatrics*. (2nd ed.). Newdelhi: Jaypee publishers.
27. Parul Datta. (2009). *Paediatric Nursing.* (2nd ed.). New Delhi: Jaypee publications.
28. Polit., Beck., & Hungler, P. (2001). *Essentials of Nursing Research*. (4th ed.). Philadelphia: Lippincott Raven Publishers.
29. Potter, P.A., Perry, A.G. (2009). *Fundamentals of nursing* (7th ed.). Mosby Elsevier.
30. Richard E Betrman., Robert M Kliegman., (2002). *Nelson's Essentials of pediatrics*. (4th ed). Philadelphia: W.B Saunders company publishers.
31. Rose Marie Linda. (2008). *Foundations of Nursing Research.* (5th ed.). New Delhi: Pearson Prentice Hall.
32. Sachdev, H.P.S.,Panna Choudary., Arvind Bagga., Krishnan Chugh., Siddarth Ramji., Ramesh K Puri., (2004). *Principles of pediatric and neonatal emergencies*. (2nd ed.). Newdelhi. Jaypee Publishers.
33. Sally Huband, Ethel Trigg. (2000). *Practices in children's nursing*. (1st ed.). Edinburgh: Churchill Livingstone.
34. Sembulingam,K., Prema Sembulingam., (2006). Essentials of medical physiology. (4th ed). NewDelhi: Jaypee publishers.
35. Sodashy., and Yalfe, B.J. (1993). *Nursing theory analysis application and evaluation*, (2nd ed.). Boston: Little Brown.
36. Suraj Gupte. (2009). *Text book of Paediatrics.* (11th ed.). New Delhi: Jaypee publications.

37. Susan Rowen James., Jean weiler Ashwill., Susan Colvert Dorske., (2002). *Nursing care of children Principles and practice.* (2nd ed). Philadelphia: W.B Saunders company publishers.
38. Tortora,G.J. Grabowsk ,S.P. (1996). *Principles of Anatomy and Physiology.* Hasper Collins: College Publishers.
39. Viswanathan .J. Desai. (2006). *Achar's Text book of Paediatrics.* (3rd ed.). New Delhi: Orient Longman Publications.

JOURNAL REFERENCE

1. Alhani, F., Shad, H. and Anoosheh, M. (2009). The effect of programmed distraction on the pain caused by venipuncture among adolescents on haemodialysis. *Nursing Journal, 4,* 84-88.
2. Anurani, A., Augustine and Umarani, J. (2013). Effect of music therapy in reducing invasive procedural pain. *International Journal of Recent Scientific Research, 4(5),* 553- 556.
3. Bagnasco, A., Pezzi, E., Rosa, F., Fornoni, L., Sasso L., and Gaslini, G. (2012). Pain and collaboration assessment in children during venipuncture. *The nurses' point of view, 53,* 44-48.
4. Balan, R. (2009). Can Indian classical instrumental music reduce pain felt during venipuncture? *Indian Journal of Paediatrics, 76(5),* 38- 43.
5. Baxter, A. L., Cohen, L.L., McElvery, H.L., Lawson, M.L., and Baeyer, C.L. (2011). An integration of vibration and cold relieves venipuncture pain in a pediatric emergency department. *Pediatric Emergency Care, 27 (12),* 1151-1156.
6. Bellieni, C.V., et al. (2006). Analgesic effect of watching TV during venipuncture. *Archives of Disease in Childhood, 91(12),* 1015-1017.

7. Biermeier, A. W., Sjoberg, I., Dale, J.C., Eshelman, D. and Guzzetta, C.E. (2007). Effects of distraction on pain, fear, and distress during venous port access and venipuncture in children and adolescents with cancer. *Journal of Pediatric Oncology Nursing, 24(1),* 8-19.
8. Blount, R. L., Piira, T. and Cohen, L. L. (2003). Management of pediatric pain and distress due to painful medical procedures. *Handbook of paediatric psychology, 3,* 216-233.
9. Boivin, J.M. (2008). Effectiveness of multifactorial strategy of pain management in reducing pain. *International Journal of Paediatrics, 6,* 247-251.
10. Bournaki, M.C. (1997). Correlates of pain-related responses to venipuncture in school age children. *Nursing Research, 46,* 147–154.
11. Caprilli, S., Vagnoli, L., Bastiani, C., and Messeri, A. (2012). Pain and distress in children undergoing blood sampling: Effectiveness of distraction with soap bubbles. *Giornale Italiano di Scienze Infermieristiche Pediatriche, 4 (1),* 15- 18.
12. Cassidy, K.L., Reid, G. J., McGrath, P.J., Finley,G., Smith, D.J., Morley, C., et al. (2002). Watch needle, Watch TV: Audiovisual distraction in preschool immunization. *Pain Medicine, 3(2),* 108–118.
13. Cavender, K. et al. (2004). Parents' positioning and distracting children during venipuncture: effects on children's pain, fear and distress. *Journal of Holistic Nursing, 22(1),* 32-56.
14. *Cohen, L. L. (2002). Reducing infant immunization distress through distraction. Health Psychology, 21,* 207*–211.*
15. Cohen, L.L., Blount, R.L., Cohen, R.J., Schaen, E.R. and Zaff, J.F. (1999). Comparative study of distraction versus topical anesthesia for pediatric pain management during immunizations. *Health Psychology,* 18,591–598.

16. Dahlquist, L. M., Weiss, K. E., Clendaniel, L. D., Law, E. K., Ackerman, C. S., & McKenna, K. D. (2009). Effects of videogame distraction using a virtual reality type head-mounted display helmet on cold pressor pain in children. *Journal of Pediatric Psychology, 34,* 574–584.
17. Duff, A. J. A. (2003). Incorporating psychological approaches into routine paediatric venipuncture. *Archives of Disease in Childhood, 88,* 931-937.
18. Fetzer and Jane, S. (2002). Reducing venipuncture and intravenous insertion pain with Eutectic Mixture of Local Anesthetic: A Meta-Analysis. *Nursing Research, 51(2),* 119-124.
19. Gedam, D.S., Verma, M., Patil, U. and Gedam, S. (2013). Effect of distraction technique during immunization to reduce behaviour response score to pain in toddlers. *Journal of Nepal Paediatrics, 33(1),* 25-30.
20. Gold, J.I., Kim, S.H., Kant, A.J., Joseph, M.H. and Rizzo, A. (2006). Effectiveness of virtual reality for pediatric pain distraction during I.V placement. *Cyber psychological behaviour, 9(2),* 207-212.
21. James, J., Ghai, S., Rao, K.L.N. and Sharma, N. (2012). Effectiveness of animated cartoons as a distraction strategy on behavioural response to pain perception among children undergoing venipuncture. *Nursing and Midwifery Research Journal, 8(3),* 198- 208.
22. Kleiber, C. and Harper, D.C. (1999). Effects of distraction on children's pain and distress during medical procedures: A meta-analysis. *Nursing Research.* 48, 44–49.
23. Lobo, M.R. and Umarani, J. (2013). Cartoon Distraction Reduces Venipuncture Pain Among Preschoolers. *Research Paper Medical Science, 2(6),* 566- 573.

24. MacLaren, J. and Cohen, L. (2005). A comparison of distraction strategies for venipuncture distress in children, *Journal of Pediatric Psychology, 30(5),* 387-396.
25. MacLaren, J. E., & Cohen, L. L. (2007). Interventions for paediatric procedure - related pain in primary care. *Paediatric Child Health, 12(2),* 111-116.
26. Melzack, R. and Wall, P. D. (1965). Pain mechanisms: A new theory. *Science, 150,* 971-979.
27. Movahedi, A.F. (2006). Effectiveness and feasibility of distraction in reducing behavioural distress, pain, and fear. *Australian Journal of Advanced Nursing, 4(2),* 234-239.
28. Ranjit, S.J.M. and Manias, E. (2010). Pain assessment and management practices in children following surgery of the lower limb. *Journal of Clinical Nursing, 19(1-2),* 118-128.
29. Rasha, S., Ratnabalan, S. and Susan, S. (2010). Pain in children: Assessment and Non-pharmacological Management. *International Journal of Pediatrics, 11,* 411-416.
30. Sikorovaa, L. and Hrazdilovab, P. (2011). The effect of psychological intervention on perceived pain in children undergoing venipuncture. *Biomed Pap Med, 35,* 155-159.
31. Slifer, K. J., DeMore, M., Messersmith,N.V., Vetter, V. P., Beck,M., Dalhquist, L. et al. (2009). Comparison of Two Brief Parent-Training Interventions for Child Distress During Parent-Administered Needle Procedures. *Child Health Care, 38(1),* 23–48.

32. Tu¨ fekci, F. C., Ayda, C. and Sibel, K. (2009). Turkish children loved distraction: using kaleidoscope to reduce perceived pain during venipuncture. *Journal of Clinical Nursing, 18(15),* 2180-2186.
33. Uman, L.S. et al. (2006). Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database of Systematic Reviews, Journal of Pediatric Psychology, 33,* 842–854.
34. Vangronsveld, K. L. H., Hout, J.H.C. and Vlaeyen, J.W.S. (2007). The influence of distraction on pain and anxiety during venipuncture in children aged between 8 and 11 years**.** *Netherlands journal of psychology, 63 (1),* 18-24.
35. Wang, Z.X., Sun, L.H. and Chen, A.P. (2008). The efficacy of non-pharmacological methods of pain management in school age children receiving venipuncture in a paediatric department. *Swiss Medicine Weekly,* 138(39–40), 579–584.
36. Weiss, K. E., Dahlquist, L. M. and Wohlheiter, K. (2011). The effects of interactive and passive distraction on cold pressor pain in preschool-aged children. *Journal of Pediatric Psychology, 36(7),* 816-826.
37. Yoo, H., Kim, S., Hur, H.K. and Kim, H.S. (2011). The effects of an animation distraction intervention on pain response of preschool children during venipuncture. *Applied Nursing Research.* 24(2), 94–100.

NET REFERENCES

1. http://jhn.sagepub.com
2. http://jpepsy.oxfordjournals.org
3. http://link.springer.com
4. http://medind.nic.in
5. http://online.liebertpub.com
6. http://onlinelibrary.wiley.com
7. http://psycnet.apa.org
8. http://theglobaljournals.com
9. http://www.hindawi.com
10. http://www.medscape.org
11. http://www.ncbi.nlm.nih.gov/pmc
12. http://www.ncbi.nlm.nih.gov/pubmed
13. http://www.nepjol.info
14. http://www.nursingtimes.net/managing-childrens-pain
15. http://www.sciencedirect.com

APPENDIX – A

TOOL

SECTION-I

BASELINE VARIABLES

1. Age of the child
    a) 7 years
    b) 8 years
    c) 9 years

2. Gender
    a. Male
    b. Female

3. Birth order
    a. 1
    b. 2
    c. 3
    d. 4 and so on.

4. Nutritional status
    a. Normal (above 90%)
    b. Grade I (90-75%)
    c. Grade II (75- 60%)
    d. Grade III (below 60%)

5. Number of previous hospitalization
    a. Nil
    b. 1-2 times
    c. 3-4 times
    d. 5 times and above

6. Number of previous venipuncture
    a. Nil
    b. 1-2 times
    c. 3-4 times
    d. 5 times and above

7. Duration of present hospitalization
    a. 1- 3 days
    b. 4- 6 days
    c. More than 6 days

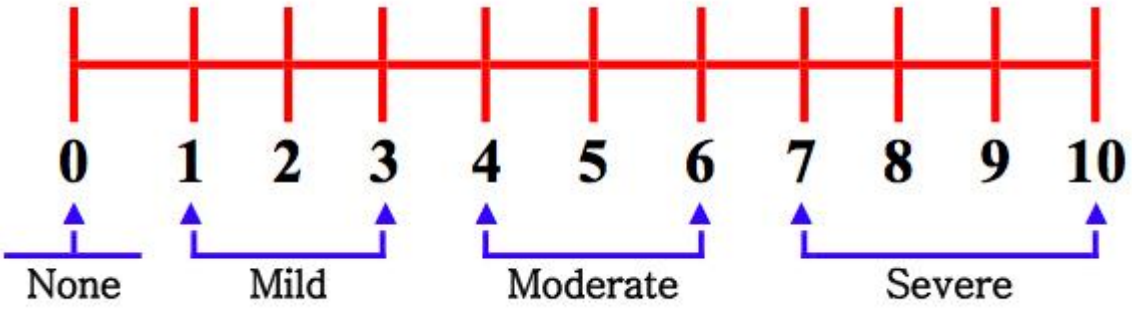
8. Size of venflon
    a. 24 Gauge
    b. 22 Gauge
    c. 20 Gauge

9. Site of insertion
    a. Veins of the upper arm
    b. Veins of the forearm
    c. Veins of the wrist

10. Caregiver present with the child during venipuncture
    a. Father
    b. Mother
    c. Grandparents

SECTION- II

NUMERICAL PAIN RATING SCALE



SCORE INTERPRETATION:

Based on the score the pain response is graded as follows:

SCORE	INTERPRETATION
0	No pain
1-3	Mild pain
4-6	Moderate pain
7-10	Severe pain

SECTION- III

COOPERATIVE BEHAVIOUR SCALE OF CHILDREN IN VENIPUNCTURE (CBSCV)

GRADE	BEHAVIOUR
0	Holds out the hand on his/her own initiative and cooperates with the nurse in procedure
1	Holds out the hand and has no crying during the procedure
2	Refuses to cooperate with the nurse and cries

SCORE INTERPRETATION:

i. - Good cooperation

ii. - Fair cooperation

iii. - Non cooperation

பகுதி - அ

தன்னிலை விபரக்குறிப்பு

கீழ்க்கண்டவற்றை நன்றாக படித்து சரியானவற்றை (✓) டிக் மார்க் செய்யவும்.

1. வயது

    அ. 7 வயது

    ஆ.8 வயது

    இ. 9 வயது

2. பாலினம்

    அ. ஆண்

    ஆ. பெண்

3. பிறப்பு வரிசை

    அ. 1

    ஆ. 2

    இ. 3

    ஈ. 4 மற்றும் அதற்கு மேல்

4. ஊட்டச்சத்து நிலை

    அ. சாதாரண நிலை (90% மேல்)

    ஆ. தரநிலை I (70% -90%)

    இ. தரநிலை II (60% - 70%)

    ஈ. தரநிலை III (60% கீழ்)

5. இதற்கு முந்திய மருத்துவச் சேர்க்கையின் எண்ணிக்கை

    அ. இல்லை

    ஆ.1-2 முறைகள்

    இ. 3-4 முறைகள்

    ஈ. 5 முறைகள் மற்றும் அதற்கு மேல்

6. இதற்கு முன்பு இரத்தக் குழாயில் ஊசி துளைக்கப்பட்ட எண்ணிக்கை

அ. இல்லை

ஆ. 1-2 முறைகள்

இ. 3-4 முறைகள்

ஈ. 5 முறைகள் மற்றும் அதற்கு மேல்

7. தற்போதைய மருத்துவச் சேர்க்கையின் காலஅளவு

அ. 1-3 நாட்கள்

ஆ. 4-6 நாட்கள்

இ. 6 நாட்களுக்கு மேல்

8. இரத்தக் குழாய் ஊசியின் அளவு

அ. 24 காஜ்

ஆ. 22 காஜ்

இ. 20 காஜ்

9. ஊசி போடப்பட்ட இடம்

அ. மேல் கையில் உள்ள சிரை

ஆ. முன்கையில் உள்ள சிரை

இ. கையில் உள்ள சிரை

10. இரத்தக் குழாயில் ஊசி துளைக்கப்படும் போது குழந்தையுடன் இருப்பவர்

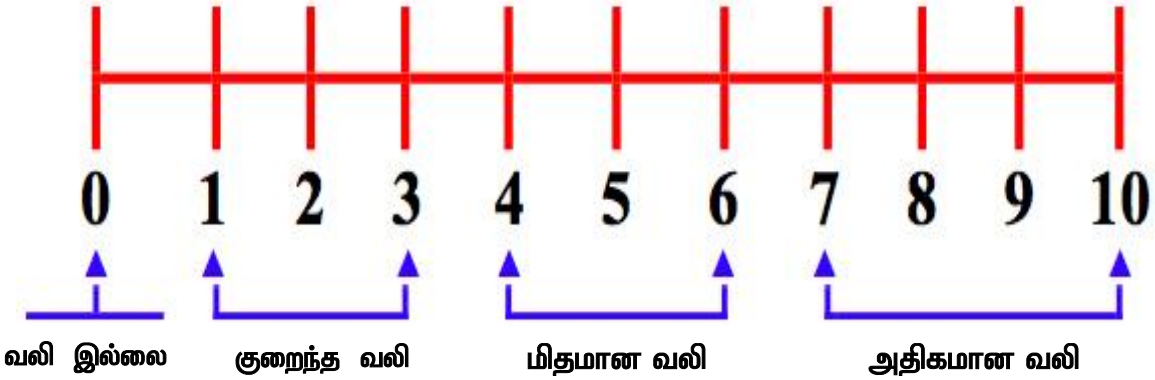
அ. தந்தை

ஆ. தாய்

இ. வயதுவந்த பெற்றோர்

பகுதி - ஆ

எண் வலி மதிப்பு அளவீடு



பகுதி - இ

இரத்தக் குழாயில் ஊசி துளைக்கப்படும் போது குழந்தையின் ஒத்துழைப்பு நடவடிக்கை பற்றிய அளவுகோல்

புடி	நடவடிக்கை
0	தானாகவே முன்வந்து கைகளை நீட்டி, செய்முறைக்கு செவிலியருடன், ஒத்துழைத்தல்
1	கைகளை நீட்டி, செய்முறையின் போது அழாமல் இருத்தல்
2	செவிலியருக்கு ஒத்துழைக்காமல் அழுதல்

APPENDIX - B

Ref. No. 9101/E4/3/2013 **Govt Rajaji Hospital,**
Madurai-20. Dated: 20.09.2013

Institutional Review Board I independent Ethics Committee,
Dr. N. Mohan, MS., F.LC.S F.A.I.S.,
Dean, Madurai Medical College &
Govt Rajaji Hospital, Madurai 625020. **Convener.**

Sub: Establishment-Govt. Rajaji Hospital. Madurai-20-
Ethics committee-Meeting Minutes- for August 2013
Approved list -regarding.

The Ethics Committee meeting of the Govt. Rajaji Hospital, Madurai was held on 08.08,2013, Wednesday at 10.00 am to 12.00.pm at the Anesthesia Seminar Hail, Govt. Rajaji Hospital, Madurai. The following members of the committee have attended the meeting.

I Dr. V, Nagarajan, M.D., D.M (Neuro) Ph: 0452-2629629 Cell.No 9843052029	Professor of Neurology (Retired) D.No.72, Vakkil New Street, Simmakkal, Madurai -1	Chairman
2. Dr.Mohan Prasad. MS M.Ch Cell,No.9843050822 (Oncology)	Professor & H.O.D of Surgical Oncology(Retired) D.No.72, West Avani Moola Street. Madurai -1	Member Secretary
3. Dr. I. Jeyaraj, M.S... (Anatomy) Cell.No 9566211947	Director & Professor Institute of Anatomy /V,P Madurai Medical College	Member
4. Dr. Parameswari M.D (Pharmacology) Cell.No.9994026056	Director of Pharmacology Madurai Medical College	Member
5. Dr.S. Vadivel Murugan, MD., (Gen.Medicine) Cell.No 9566543048	Professor of Medicine Madurai Medical College	Member
6. Dr.S. Meenakshi Sundaram, MS (Gen.Surgery) Cell.No 9842138031	Professor & H.O.D of Surgery i/c Madurai Medical College	Member
7. Miss, Mercy Immaculate Rubalatha, MA., Med,, Cell. No. 9367792650	50/5, Corporation Officer's quarters, Gandhi Museum Road, Thamukam, Madurai-20	Member
8. Thiru. .Pala. .Ramasamy , BA.,B.L.,Cell.No 9842165127	Advocate, D.No,72.Palam Station Road, Sellur, Madurai -2	Member
9. Thiru. P.K.M. Chelliah,B.A Cell.No 9894349599	Businessman, 21 Jawahar Street. Gandhi Nagar, Madurai-20	Member

The following Projects were approved by the committee

S.No	Name of P.G	Course	Name of the Project	Remarks
1.	Muthu Meenakshi. N	M.Sc Nursing, College of Nursing, Madurai Medical College	A study to assess the effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in pediatric ward, Government Rajaji Hospital, Madurai.	Approved

Please note that the investigator should adhere the following: She / He should get a detailed informed consent from the patients/participants and maintain it confidentially.

1.She / he should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution or to Government,

2. She/he should inform the institution Ethical Committee, in case of any change of study procedure, site and investigation or guide.

3. She / He should not deviate the area of the work for which applied for Ethical clearance, She / He should inform the JEC immediately, in case of any adverse events or Serious adverse reactions.

4, She / He should abide to the rules and regulations of the institution,

5. She / He should complete the work within the specific period and if any Extension of time is required He / She should apply for permission again and do the work,

6. She / He should submit the summary of the work to the Ethical Committee on Completion of the work.

7. She / He should not claim any funds from the institution while doing the work or on completion.

8. She / He should understand that the members of IEC have the right to monitor the work with prior intimation.

Member Secretary **Chairman**
Ethical Committee

DEAN/Convenor
Govt. Rajaji Hospital,
Madurai- 20.

20/9/13

To
The above Applicants
-thro. Head of the Department concerned

APPENDIX – C

LETTER SEEKING PERMISSION FOR CONDUCTING THE STUDY

From,

Muthu Meenakshi. N
II Year M.Sc., (Nursing)
College of Nursing,
Madurai Medical College, Madurai-20.

To,

The Director,
Institute of Child Health and Research Centre,
Government Rajaji Hospital,
Madurai Medical College,
Madurai.

Through The proper channel

Respected Sir,

Sub: College of Nursing, Madurai Medical College, Madurai-M.Sc. (N) I year Child Health Nursing Student- Permission for conduct dissertation study - Institute of Child Health and Research Centre, GRH- request- regarding.

****

As per the Indian Nursing Council and The Tamilnadu Dr. MGR Medical University curriculum requirement, all branches of M.Sc Nursing candidates are required to conduct a dissertation study for the partial fulfillment of the P.G Degree course in their respective departments.

I have selected a study topic "Effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in pediatric ward, Government Rajaji Hospital, Madurai." for my dissertation study; I would like to select patients from the above department.

I assure that I will not interfere with the routine activitites of the department.

Hence I kindly request you to consider my requisition and permit me to conduct the study.

Thanking you.

Yours obediently,

DATE : 07/5/13
Madurai

R. JEYASUNDARI M.Sc., (N) M.Phil., PGDHA., M.A., (Pub. Admin) (Socio) M.A., (JMC)
Clinical Lecturer / Tutior in Nursing
COLLEGE OF NURSING
MADURAI MEDICAL COLLEGE
Madurai-625 020.

(Muthu Meenakshi.N)

DIRECTOR
INSTITUTE OF CHILD HEALTH &
RESEARCH CENTRE
GOVT RAJAJI HOSPITAL
MADURAI 625020

APPENDIX – D

CERTIFICATE OF VALIDATION

This is to certify that the tool developed for data collection by **Muthu Meenakshi. N,** II year M.Sc (N) Student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on Dissertation entitled "**EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI"** is relevant, valid and fulfill the study objectives and has been validated by me.

Place:

Date:

Signature of the Expert

DIRECTOR I/C
INSTITUTE OF CHILD HEALTH &
RESEARCH CENTRE
GOVT. RAJAJI HOSPITAL
MADURAI - 625 020

Designation and Address

CERTIFICATE OF VALIDATION

This is to certify that the tool developed for data collection by **Muthu Meenakshi. N,** II year M.Sc (N) Student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on Dissertation entitled "**EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI"** is relevant, valid and fulfill the study objectives and has been validated by me.

Place: Madurai

Date: 11.9.13.

11/9/13

Signature of the Expert

DR. N. KARUPPASAMY
M.S. (GEN) : D.L.O., M.Ch., (Paed)
Assistant Professor
Govt. Rajaji Hospital,
Madurai Medical College /
Regd. No : 43434.

Designation and Address

CERTIFICATE OF VALIDATION

This is to certify that the tool developed for data collection by **Muthu Meenakshi. N,** II year M.Sc (N) Student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on Dissertation entitled "**EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI"** is relevant, valid and fulfill the study objectives and has been validated by me.

Place: Madurai

Date: 30.08.2013

30/8/13

Signature of the Expert

Designation and Address

Dr. A. HELEN. M. PERDITA.
PRINCIPAL.
MADURAI APOLLO CON.
Eliyarpathy Village.
Madurai South Taluk.
Madurai-22.
perditamary@yahoo.co.in
maduraiacon@gmail.com

CERTIFICATE OF VALIDATION

This is to certify that the tool developed for data collection by **Muthu Meenakshi. N,** II year M.Sc (N) Student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on Dissertation entitled "**EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI"** is relevant, valid and fulfill the study objectives and has been validated by me.

Place: Mana madurai

Date: 12/9/13

Signature of the Expert

Designation and Address

Associate Professor
Maha College of Nursing
Vaan puram
Mana madurai

CERTIFICATE OF VALIDATION

This is to certify that the tool developed for data collection by **Muthu Meenakshi. N,** II year M.Sc (N) Student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on Dissertation entitled "**EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI"** is relevant, valid and fulfill the study objectives and has been validated by me.

Place: madurai

Date: 13/9/13.

R. Jothilakshmi

Signature of the Expert

Reader.

Sacred Heart nursing college.

Designation and Address madurai.

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation by **Muthu Meenakshi. N,** II year M.Sc(N) student, college of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on Dissertation entitled "**EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI"** has been edited for English language appropriateness.

SIGNATURE: R. Saroj 2/2/14

NAME: R. SAROJINI

DESIGNATION: Headmistress

INSTITUTION: E.R.R.S.M. Govt. Hr. Secondary School. Alangulam – 626144

M.A. English.
B.Ed, M.Ed, M.Phil.

HEADMISTRESS
E.R.R.S.M. Govt. Hr. Sec School
ALANGULAM-626144.
Virudhunagar Dt.

CERTIFICATE OF TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation by **Muthu Meenakshi. N,** II year M.Sc(N) student, college of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on Dissertation entitled "**EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI"** has been edited for Tamil language appropriateness.

SIGNATURE:

NAME: K. AYYAMMAL.

DESIGNATION: P.G. Asst in Tamil.

INSTITUTION: Govt. Hr, Sec, School.
Alangulam.
VNR. (Dt)

APPENDIX – E

ஒப்புதல் அறிக்கை

எனக்கு இந்த ஆய்வைப்பற்றிய முழு விவரம் விளக்கமாக எடுத்துரைக்கப்பட்டது. இந்த ஆய்வில் பங்குபெறுவதில் உள்ள நன்மைகள் மற்றும் தீமைகள் பற்றி நான் புரிந்துக்கொண்டேன். நான் இந்த ஆய்வில் தானாகவே முன்வந்து பங்கு பெறுகிறேன். மேலும் எனக்கு இந்த ஆய்வில் இருந்து எந்த நேரமும் விலகிக்கொள்ள முழு அனுமதி வழங்கபட்டுள்ளது. என் குழந்தையின் சிகிச்சை ஆவணங்களைப் பார்வையிட்டு அதில் உள்ள விவரங்களை ஆய்வில் பயன்படுத்திக் கொள்ள அனுமதி அளிக்கிறேன். என்னுடைய பெயர் மற்றும் அடையாளங்கள் ரகசியமாக வைத்துக்கொள்ளபடும் என்றும் எனக்கு உறுதியாளிக்கப்பட்டுள்ளது.

இப்படிக்கு,

APPENDIX – F

PHOTOGRAPHS

Investigator collecting the baseline variables

Investigator performing venipuncture for the subject in experimental group using distraction technique

Investigator performing venipuncture for subject in control group using usual standard technique

Investigator assessing post test pain level