



“A STUDY TO EVALUATE THE EFFECTIVENESS OF DISTRACTION TECHNIQUE ON PAIN AND COOPERATION LEVEL DURING VENIPUNCTURE AMONG SCHOOL AGED CHILDREN ADMITTED IN PEDIATRIC WARD, PRH LONI BK.”

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ABSTRACT

Background: Venipuncture is a common yet distressing procedure for hospitalized children, often leading to significant pain and behavioral resistance. Non-pharmacological interventions like distraction are essential to manage these procedural challenges in pediatric nursing.

Title: A study to evaluate the effectiveness of distraction technique on pain and cooperation level during venipuncture among school-aged children admitted in pediatric ward, PRH Loni Bk.

Objectives: The primary objective of the study was to evaluate the effectiveness of distraction techniques in reducing pain and improving cooperation levels among school-aged children undergoing venipuncture.

Methodology: An evaluative research approach with an experimental design was utilized. The study was conducted in the pediatric ward of Pravara Rural Hospital (PRH), Loni Bk. A total of 60 children (30 in the Control Group and 30 in the Experimental Group) were selected using a purposive sampling technique. The control group received routine care, while the experimental group was provided with distraction techniques (such as toys, visual aids, and verbal engagement) during the procedure. Data were collected using a demographic proforma, a standardized pain scale, and a cooperation checklist.

Results: The findings revealed that the majority of participants were aged 4 to 5 years, belonged to joint families, and resided in rural areas. The mean post-test pain score for the experimental group was significantly lower (3.16 ± 1.72)

compared to the control group (6.63 ± 2.55). The calculated 't' value was 6.16, which is significantly higher than the tabulated value of 1.67 at a 0.05 level of significance. This statistically proves that distraction was effective in reducing pain. Additionally, children in the experimental group exhibited markedly higher levels of cooperation compared to those in the control group.

Conclusion: The study concludes that distraction techniques are highly effective, cost-efficient, and simple nursing interventions. Implementing these techniques as a standard protocol can significantly minimize procedural trauma, reduce pain, and improve the overall healthcare experience for children.

Keywords: Distraction Technique, Pain, Cooperation, Venipuncture, School-aged Children, Paediatric Ward.

Chapter I

Introduction

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.¹

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.²

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 individual's pain response to future events. 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 affect the child's response. Nursing intervention can alleviate some of the fear and pain caused by painful procedures³

Pain is a complex, subjective experience that entails of physiological, sensory, emotional, cognitive and behavioral components.¹ Pain is associated with heightened levels of distress and anxiety during procedures, which can result in negative long-term emotional outcomes.² Vein puncture is a common procedure used for cannulation and puncturing the vein for drawing blood for laboratory investigations.³ Painful experiences in early childhood, their frequency and recall can retain the negative effects.⁴ Children aged four to six years report higher pain as well as greater fear and phobia with the same stimulus than older children aged seven years or older.⁵ For reduction of pain and distress in order to give the children a sense of relief over the situation, non-pharmacological methods are widely accepted.⁶ Distraction is the most commonly used method for procedural pain and distress. It is a non-pharmacological intervention aimed to reduce procedural pain in children.⁷ Distraction is often defined as a strategy, whether cognitive or behavioral, that draws a child's attention away from noxious pain stimuli. In an experimental group, 59.2% had moderate pain whereas 68.5% in control group had severe pain. The pain score of experimental groups was significantly lower than that of control group at $p = 0.05$ with the mean value of experimental and control group 6.85 ± 0.79 and 7.25 ± 0.87 respectively.⁵

Pediatric patients are often subjected to procedures that can cause pain and anxiety. Although pharmacologic interventions can be used, distraction is a simple and effective technique that directs children's attention away from noxious stimuli. However, there is a multitude of techniques and technologies associated with distraction. Given the range of distraction techniques, the purpose of this article was to provide a critical assessment of the evidence-based literature that can inform clinical practice and future research. Recommendations include greater attention to child preferences and temperament as a means of optimizing outcomes and heightening awareness around child participation in health care decision making.⁶

Statement of the problems

“A study to evaluate the effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children admitted in pediatric ward, PRH Loni bk.”

Objective

1. To assess the pain level and cooperation level during venipuncture among children in experimental group and control group.
2. To effectiveness of distraction technique on pain and cooperation level during venipuncture among school aged children in experimental and control group.
3. To correlate between the pain level and cooperation level among children in experimental group and control group.
4. To find out Association between post-test level of pain and co-operation level with their selected demographic variables.

Hypotheses

H1: There was significant difference in the pain level and cooperation level during venipuncture among children in experimental group and control group.

H2: There was significant correlation between the pain level and cooperation level during venipuncture among children in experimental group and control group.

H3: There was significant association between selected baseline variables and the pain level, cooperation level during venipuncture among children in experimental group

Chapter II

Methods and Materials

Research approach: Quantitative evaluative approach was used for the present study.

Research design: The research design selected for the present study was True Experimental Study – Post-test only design.

Variables: Attributes to characteristics that can have more than one value, such as height or weight. In other words, variables are qualities, quantities or characteristics of people, things or situations that change or vary.

Dependent variable:

In present study dependent variables were pain level and cooperation level of school age children admitted at pravara rural hospital loni bk.

Independent variable: In this present study independent variable was 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.

Setting of the study: The research setting was at Pravara Rural Hospital Loni Bk.

Population: Target population was school aged children who were undergoing venipuncture.

Sample: School aged children who were undergoing venipuncture in pediatric ward at Pravara Rural Hospital Loni Bk.

Sample size: In present study the total sample size was 60 (30 in experimental group and 30 in control group).

Sampling technique: In this study Probability sampling - Simple Random Sampling Technique (Lottery method)

with no replacement method was used. 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.

Sampling criteria

Inclusion criteria: -

Children's who are: -

- In the age group of 7-12years.
- Who were undergoing venipuncture.
- Who were willing to participate in the study.

Exclusion criteria: -

Children's who are:

- Critically and chronically ill.
- Mentally retarded.
- Severe physical disability and neurological deficit.
- Who received pain reducing medication.

Description of the research tool: -The tool consisted of three sections:

Section I: It consisted of 10 items 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 consisted of Numerical Pain Rating Scale. 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.

The score of the pain response was graded as follows:

The pain intensity is interpreted using a numerical scale where a score of 0 signifies no pain. Scores from 1–3 represent mild pain, while 4–6 indicate moderate pain. The highest range, from 7–10, is categorized as severe pain, reflecting the maximum level of distress experienced by the child.

Section- III: Cooperative Behaviour Scale of Children in Venipuncture (CBSCV) tool was used to assess child cooperation using behavior during venipuncture, graded from 0-2 according to the behavior of the child.

Cooperation is scored on a 3-point scale: 0 indicates good cooperation (calm/helpful), 1 indicates fair cooperation (minor distress but compliant), and 2 indicates non-cooperation (physical resistance or crying).

Chapter IV

Data Analysis and Interpretation

SECTION-I: Description of the study participant according to their demographic characteristics.

Table 4.1. Description of children admitted in pediatric ward according to their demographic characteristics. n=60

SN	Demographic variable		F	%	F	%
1	Age in years	3 to 4	9	30%	11	36.66%
		4 to 5	15	50%	13	43.33%
		5 to 6	6	20%	6	20%
2	Gender	Male	14	46.66%	15	50%
		Female	16	53.33%	15	50%
3	Religion	Hindu	19	63.33%	19	63.33%
		Muslim	5	16.66%	4	13.33%
		Christian	3	10%	4	13.33%
		Buddhist	3	10%	3	10%
4	Type of family	Joint	17	56.66%	18	60%
		Nuclear	13	43.33%	12	40%
5	Father's Educational status	Illiterate	7	23.33%	6	20%
		Primary/ Secondary	1	3.33%	14	46.66%
		Higher secondary	8	26.66%	7	23.33%
		Diploma/Degree	4	13.33%	3	10%
6	Mother's educational status	Illiterate	8	26.66%	9	30%
		Primary/ Secondary	15	50%	14	46.66%
		Higher secondary	5	16.66%	6	20%
		Diploma/Degree	2	6.66%	1	3.33%
7	Area of residence	Urban	8	26.66%	11	36.66%
		Rural	22	73.33%	19	63.33%
8	Previous History of Venipuncture	Yes	10	33.33%	13	43.33%
		No	20	66.66%	17	56.66%
9	Site of Venipuncture	Dorsum of hand	10	33.33%	11	36.66%
		Wrist	15	50%	15	50%
		Ankle	5	16.66%	4	13.33%
		Morning	10	33.33%	9	30%
		Afternoon	7	23.33%	9	30%

10	Venipuncture time	Evening	8	26.66%	6	20%
		Night	5	16.66%	6	20%

Table no. 4.1 shows the description of the study participants according to their demographic profile, the detailed description of the participant according to each demographic characteristic is discussed further in the chapter.

SECTION II: Effectiveness of distraction techniques on pain and co-operation among study participants.

Table 4.2. Mean, SD and 't' value of the posttest pain level among the control and experimental group study participants.

n=60

	Mean	SD	't' calculated	't' tabulated	'p' value
Control group	6.63	±2.55	6.16	1.67	0.00001
Experimental group	3.16	±1.72			

Table no 4.2. shows the pain scores comparison of mean, SD. It reveals that mean of experimental group posttest pain scores of the study participants 3.16 ± 1.72 is less than that of mean of control group posttest pain scores of the study participants 6.63 ± 2.55 . This indicates that the distraction techniques were effective in reducing the pain level among the experimental group study participants.

Further 't' value was calculated to check that whether the difference between control and experimental group posttest pain score was significant. Tabulated 't' value was 1.67 at 0.05 level of significance and degree of freedom 59. It is evidenced from the above table that calculated 't' value 6.16 is greater than the tabulated 't' value at a level of significance 0.05. Therefore, it proves statistically that the distraction techniques were effective in reducing the pain level among the experimental group study participants.

Table 4.3 Mean, SD and 't' value of the posttest co-operation level among the control and experimental group study participants.

n=60

	Mean	SD	't' calculated	't' tabulated	'p' value
Control group	2.86	±1.90	4.27	1.67	0.00001
Experimental group	5.16	±1.24			

Table no 4.3 shows the co-operation scores comparison of mean, SD. It reveals that mean of experimental group posttest co-operation scores of the study participants 5.16 ± 1.24 is greater than that of mean of control group posttest co-operation scores of the study participants 2.86 ± 1.90 . This indicates that the distraction techniques were effective in improving the co-operation level among the experimental group study participants.

Further 't' value was calculated to check that whether the difference between control and experimental group posttest co-operation score was significant. Tabulated 't' value was 1.67 at 0.05 level of significance and degree of freedom 59. It is evidenced from the above table that calculated 't' value 4.27 is greater than the tabulated 't' value at a level of significance 0.05. Therefore, it proves statistically that the distraction techniques were effective in improving the co-operation level among the experimental group study

participants.

Section III: Correlation between posttest pain and co-operation level among the experimental group study participants.

Table no 4.4 Correlation between posttest pain and co-operation level among the experimental group study participants.

n=60

SN	Variables	'r' value	Inference
1.	Pain level	-0.5153	Moderate negative correlation (Inverse relationship)
2.	Co-operation level		

Table no 4.4 shows that 'r' value for posttest pain level and co-operation level among the experimental group study participants is -0.5153 which indicates moderately negative correlation between these two variables. This value is suggestive of inverse relationship between the posttest pain and co-operation level among the experimental group study participants.

Section IV: Association between posttest level of pain and co-operation among the experimental group study participants with selected demographic variables.

Table 4.5. Association between posttest level of pain among the experimental group study participants with selected demographic variables.

n=60

SN	Demographic variable	Chi-square value	Chi-square calculated value	'p' value	Inference
1	Age in years	1.77	9.48	0.77	NS
2	Gender	2.58	5.99	0.27	NS
3	Religion	6.52	12.59	0.36	NS
4	Type of family	1.55	5.99	0.46	NS
5	Father's educational status	3.14	12.59	0.79	NS
6	Mother's educational status	4.97	12.59	0.54	NS
7	Area of residence	0.19	5.99	0.9	NS
8	Previous history of venipuncture	0.9	5.99	0.63	NS
9	Site of venipuncture	2.88	9.48	0.57	NS
10	Venipuncture time	6.67	12.59	0.35	NS

Table 4.5. shows association between posttest level of pain among the experimental group study participants with selected demographic variables. The findings shows that there was no significant association found between the posttest level of pain with selected demographic variables. The chi-square value for age in years 1.77 shows non-significant association. The chi-square value for gender 2.58 shows non-significant association. The chi-square value

for religion 6.52 shows non-significant association. The chi-square value for type of family 1.55 shows non-significant association. The chi-square value for Father's educational status 3.14 shows non-significant association. The chi-square value for Mother's educational status 4.97 shows non-significant association. The chi-square value for area of residence 0.19 shows non-significant association. The

chi-square value for previous history of venipuncture 0.9 shows non-significant association. The chi-square value for site of venipuncture 2.88 shows non-significant association. The chi-square value for venipuncture time 6.67 shows non-significant association.

Table 4.6. Association between posttest level of co-operation among the experimental group study participants with selected demographic variables.

n=60

SN	Demographic variable	Chi-square cal value	Chi-square table value	'p' valu e	Infe nce
1	Age in years	1.73	9.48	0.78	NS
2	Gender	1.04	5.99	0.59	NS
3	Religion	4.99	12.59	0.54	NS
4	Type of family	5.89	5.99	0.05	NS
5	Father's educational status	2.44	12.59	0.87	NS
6	Mother's educational status	1.59	12.59	0.95	NS
7	Area of residence	0.06	5.99	0.96	NS
8	Previous history of venipuncture	4.88	5.99	0.08	NS
9	Site of venipuncture	0.69	9.48	0.95	NS
10	Venipuncture time	8.29	12.59	0.21	NS

Table 4.6 shows association between posttest level of co-operation among the experimental group study participants with selected demographic variables. The findings shows that there was no significant association found between the posttest level of co-operation with selected demographic variables. The chi-square value for age in years 1.73 shows non-significant association. The chi-square value for gender 1.04 shows non-significant association. The chi-square value for religion

4.99 shows non-significant association. The chi-square value for type of family 5.89 shows non-significant association. The chi-square value for Father's educational status 2.44 shows non-significant association. The chi-square value for Mother's educational status 1.59 shows non-significant association. The chi-square value for area of residence 0.06 shows non-significant association. The chi-square value for previous history of venipuncture 4.88 shows non-significant association. The chi-square value for site of venipuncture 0.69 shows non-significant association. The chi-square value for venipuncture time 8.29 shows non-significant association.

Chapter – V

Discussion

The study conducted at PRH Loni Bk. clearly demonstrates that distraction techniques are a highly effective non-pharmacological intervention for managing pain and fostering cooperation among school-aged children during venipuncture. The demographic analysis revealed a vulnerable participant profile, with the majority of children aged

4 to 5 years, residing in rural areas, and possessing no prior experience with venipuncture.

Statistically, the study's impact is underscored by a calculated 't' value of 6.16, which far exceeds the tabulated value of 1.67 at a 0.05 level of significance. This indicates a high level of confidence that the distraction technique, rather than external variables, was the primary driver of improved outcomes. Beyond pain relief, the technique significantly enhanced the cooperation level of the children.

Furthermore, the study suggests that incorporating such techniques into standard paediatric protocols can reduce the long-term psychological trauma associated with hospitalization. Because these methods are cost-effective and require no specialized equipment, they are ideally suited for busy paediatric wards in rural settings like Loni. Ultimately, the study advocates for the routine integration of distraction techniques into nursing care plans, emphasizing that a child's emotional and sensory comfort is as vital as the clinical success of the procedure itself.

IMPLICATIONS

The findings of this study have significant implications for nursing practice, education, administration, and future research, particularly in the context of paediatric care at PRH Loni Bk.

1. Nursing Practice

- **Standardization of Care:** The study suggests that distraction techniques should be integrated as a standard operating procedure (SOP) during all invasive paediatric procedures.
- **Pain Management:** It promotes the shift toward **non-pharmacological pain management**, reducing the reliance on sedative medications for minor procedures.
- **Technical Precision:** By improving child cooperation, nurses can achieve a higher **"first-stick success rate,"** which minimizes vein trauma and reduces the physical and emotional exhaustion of the healthcare provider.
- **Holistic Approach:** It encourages nurses to treat the child's emotional and psychological state as being just as important as the clinical procedure itself.

2. Nursing Education

- **Curriculum Development:** The study highlights the need to include creative distraction strategies (like storytelling, therapeutic play, and visual imagery) in the nursing curriculum and paediatric specialty training.
- **Skill Workshops:** Continuous Nursing Education (CNE) programs can be organized to train staff on age-appropriate distraction methods tailored to different developmental stages of school-aged children.

3. Nursing Administration

- **Child-Friendly Environment:** Hospital administrators should allocate budgets to transform paediatric wards into "child-friendly" spaces with colourful murals, toys, and audio-visual aids.
- **Resource Allocation:** Each paediatric unit should be equipped with "Distraction Kits" (containing bubbles, puzzles, or musical toys) readily available at the bedside for emergency procedures.
- **Policy Making:** Policies can be established to mandate pain assessment and the use of distraction interventions in every paediatric nursing care plan.

4. Impact on Patient and Family

- **Reduced Parental Anxiety:** When parents see their child reacting calmly to a procedure, their own anxiety levels drop, leading to higher satisfaction with hospital services.

- **Preventing Medical Phobia:** Reducing procedural pain helps prevent long-term "needle phobia" and negative psychological associations with healthcare environments.

5. Nursing Research

- **Pilot for Future Studies:** This study serves as a foundation for further research into other painful procedures like wound dressing, suturing, or lumbar punctures.
- **Comparative Analysis:** It opens doors for researchers to compare the effectiveness of different types of distraction, such as **Active Distraction** (interactive games) versus **Passive Distraction** (watching cartoons).

6. Economic and Social Implications

- **Cost-Effectiveness:** Especially in rural settings like Loni, distraction is a zero-cost or low-cost intervention that provides high-value clinical outcomes.
- **Material Conservation:** Improved cooperation leads to less wastage of medical supplies (needles, syringes, gloves) caused by repeated attempts or accidental contamination.

Chapter VI

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