

# A Study to Evaluate the Effectiveness of Buzzy Technique on Pain during Peripheral Intravenous Cannulation Among Hospitalized Children at A Selected Private Hospital, Coimbatore

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**Abstract** -The present study is as a part of Ph.D. programme under The Tamilnadu Dr. M.G.R Medical University, Chennai. Pre experimental was study aimed to evaluate the effectiveness of Buzzy technique on pain during peripheral IV cannulation among hospitalized children at Masonic Medical center for children, Coimbatore. non equivalent post test only with control group design was adopted. Totally 60 samples were selected (Experimental group (n =30), Control group (n = 30) by using Nonprobability convenience sampling technique. Wong Baker Faces Pain Rating Scale 1988) was used to assess the level of pain among samples. The level of pain among samples during peripheral IV cannulation, in Experimental group highest percentage 25(83.34%) of the samples had mild level of pain whereas majority of the samples had moderate 16 (53.34%) and severe 9 (30%) level of pain in Control group. The calculated Independent “t” test value (t= 13.3) on pain during peripheral IV cannulation was highly significant at  $p \leq 0.01$ . It shows that Buzzy technique was effective in reducing pain during IV cannulation among samples. Buzzy is a inexpensive, drug free multiuse reusable breakthrough personal pain device that provides natural pain relief.

**Keywords:** Hospitalization, Pain, Buzzy technique, Peripheral intravenous cannulation.

## INTRODUCTION

“The fifth vital sign is pain”. Pain is a universal experience. Pain affects adults and children of all ages, even preterm infants. Pain can result from numerous causes including disease processes, injuries, procedures, and surgical interventions. The American Pain Society’s goal was to encourage health care professionals to assess pain every time that temperature, pulse, respiration, and blood pressure are assessed and to institute measures to manage the pain. (The American Pain

Society,1995). Pain is the most common reason people present for health care, pain costs to society and exorbitant and pain can have a wide spread impact on all aspect of life. children often experience many painful situations such as Immunization, and collection of blood sample in which, venipuncture are also one among them. Children are capable of developing a physiological memory of pain and it may be manifested for months in exaggerated form or activity. Many pharmacological and non- pharmacological interventions have been proved effective in pain reduction during immunization and IV cannulation. Despite the proven benefits of the these procedure, the pain associated with the IV cannulation is a source of great anxiety and distress for the children as well as the parents.

## NEED FOR THE STUDY

Pain perception in children is complex and children frequently undergo medical procedure that are applied using a needle, such as venipuncture that considered as one of the important sources of pain for children causes considerable stress and anxiety for children and their parents venipuncture is one of the most widely used diagnostic and therapeutic procedure in pediatric patient. Pediatric intravenous (IV) cannulation is an integral part of modern medicine and is practiced in virtually every healthcare setting. Venous access allows the sampling of blood, as well as administration of fluids, medications, parenteral nutrition, chemotherapy, and blood products. In recent years several studies showed the effectiveness of a specific tool named Buzzy in relieving pain and distress in children. Buzzy combines distraction and

physical analgesia (vibration and cold) and it was positively tested during, intravenous cannulation and painful injections in children.

Practitioners recognize the need to mitigate or decrease pediatric IV cannulation pain and distress among children. WHO and several pediatric societies advocate improving the approach to pain and anxiety in children in a medical environment. In addition, nurses should be aware of the harmful effects of procedural pain and anxiety in children, use of distraction methods and have knowledge about different non pharmacological methods that may reduce their impact. So the present study aims to evaluate the effectiveness of Buzzy technique on pain during peripheral intravenous cannulation among hospitalized Children at a selected private Hospital, Coimbatore.

#### STATEMENT OF THE PROBLEM

“A Study to Evaluate the Effectiveness of Buzzy Technique On Pain During Peripheral Intravenous Cannulation Among Hospitalized Children At A Selected Private Hospital, Coimbatore.”

#### Objectives

1. To assess the level of pain during peripheral IV cannulation among hospitalized children.
2. To evaluate the effectiveness of Buzzy Technique on pain during peripheral IV cannulation among hospitalized children.
3. To find out the association between the level of pain during peripheral IV cannulation among hospitalized children and their selected demographic variables.

#### Assumptions

1. Hospitalized children undergoing Peripheral IV cannulation have some level of pain.
2. Pediatric nurses have a vital role in reducing the pain during peripheral IV cannulation
3. Buzzy technique is a effective distraction technique used to reduce pain during peripheral I V cannulation.
4. The level of pain among children undergoing peripheral IV cannulation will be influenced by selected demographic variables.

#### Hypotheses

H<sub>1</sub>: There is a significant difference in mean pain score during Peripheral IV cannulation among

Hospitalized children between Experimental and Control group.

H<sub>2</sub>: There is a significant association between the level of pain during Peripheral IV cannulation among Hospitalized children and their Selected demographic variables.

#### Delimitation

The study is delimited to.

- The children who are undergoing peripheral IV cannulation.
- Children who are admitted in pediatric wards between the age group of 7-12years
- Data collection period is 5 weeks.

#### Projected Out Comes

1. The present study helps to identify the effectiveness of Buzzy technique in reducing the pain during peripheral IV cannulation among school children.
2. The findings of the study will help to promote comfort and reduce the pain and distress, reduce negative feeling of pain tolerance in future among school children receiving peripheral intravenous cannulation.
3. It emphasizes that the nurse should assess the level of pain and implement Buzzy technique which are non-invasive method, to alleviate pain perception during peripheral intravenous cannulation in all the age group of children.

#### MATERIALS AND METHODS

Pre experimental (non equivalent post test only with control group design) research design was adopted to conduct the study. By using nonprobability convenience sampling technique 60 school aged children (30 experimental, 30 control group) between the age group of 7-12 years who underwent peripheral i.v cannulation were selected as a sample. The inclusion criteria were; children who were between the age group of 7-12 years. admitted in Pediatrics wards, willing to participate, present at the time of data collection and underwent peripheral IV cannulation. The exclusion criteria were: children who had skin infections, scars, psoriasis and eczema at the site of peripheral IV cannulation, mentally challenged, had sickle cell anaemia, had butterfly IV cannulation, were unconscious and haemodynamically unstable and had a known chronic condition and developmentally delayed for their age. Wong – Baker Faces Pain Rating

Scale(1988) was used to assess the level of pain during peripheral IV cannulation among Hospitalized children. Wong Baker faces pain rating Scale(1988) consists of 6 cartoon faces such as (face 0 ) No hurt, (face 2),hurts little bit (face 4), hurts a little more (face 6) hurts even more (face 8) hurts whole lot ,( face 10 ) hurts worst which rated as no pain , mild, moderate, severe, worst pain and scored as 0,1-3,4-6,7-9 and 10 respectively to assess the level of pain during peripheral IV cannulation. The tool was also validated by four Experts from the

field of Child Health Nursing, one expert from Pediatric medicine.

Ethical consideration

The present study was approved by ethical committee members, after that Prior written permission was obtained from the Managing Trustee of Masonic Medical Centre for Children. Verbal consent was obtained from the samples and their Parents to conduct the study and assurance was given for the confidentiality of the data given by the samples.

Table 1: Frequency and percentage distribution of samples according to their demographic variables

n = 60

S.No	Demographic Variables	Experimental Group (n = 30)		Control Group (n = 30)	
		(n)	%	(n)	%
1.	Age				
	1.1) 7-8yrs	17	56.7	19	63.34
	1.2) 9-10 yrs	7	23.33	7	23.33
	1.3) 11-12 yrs	6	20	4	13.33
2.	Sex				
	2.1) Male	21	70	19	63.34
	2.2) Female	9	30	11	36.66
3.	Birth order				
	3.1) First child	22	73.34	21	70
	3.2) Second child	8	26.66	9	30
	3.3) Third child	0	0	0	0
4.	Place of residence				
	4.1) Rural	15	50	10	33.34
	4.2) Urban	15	50	20	66.66
5.	Educational status of the child				
	5.1)2 <sup>nd</sup> and 3 <sup>rd</sup> std	20	66.66	20	66.66
	5.2)4 <sup>th</sup> and 5 <sup>th</sup> std	5	16.67	9	30
	5.3)6 <sup>th</sup> and 7 <sup>th</sup> std	5	16.67	1	3.34
6.	Types of family				
	6.1)Joint family	11	36.66	21	70
	6.2)Nuclear family	19	63.34	9	30
	6.3) Extended family.	0	--	0	--
7.	Family monthly income				
	7.1) ≤ 10,000	11	36.67	9	30
	7.2) 10,001-20,000	16	53.33	16	53.34
	7.3) ≥20,000	3	10	5	16.66
8.	Previous history of peripheral IV cannulation for the past 3 months.				
	8.1) no history	20	66.66	22	73.34
	8.2)1 time	2	6.67	5	16.66
	8.3) 2-5 times	8	26.67	3	10
	8.4)more than 5 times.	0	--	0	--
9.	Body Mass Index				
	9.1) < 5%	8	26.67	6	20
	9.2) 5% - 85%	19	63.34	23	76.66
	9.3) 85% - 95%	1	3.34	0	0
	9.4) > 95%	2	6.66	1	3.34

Table 2: frequency and percentage distribution on level of pain during peripheral Intravenous cannulation among children in experimental group and control group.

n= 60

Effectiveness of Buzzy technique on pain during peripheral IV cannulation among samples.

Level of pain	Experimental group n=30		Control group n =30	
	f	%	f	%
No pain	0	0	0	0
Mild	25	83.34%	0	0
Moderate	5	16.66%	16	53.34%
Severe	0	0	9	30%
Worst pain	0	0	5	16.66%
Total	30	100%	30	100%

Table 3:Mean, Standard deviation, Mean percentage, Mean difference and Independent ‘t’ test value on mean pain score among samples in Experimental and control group

Groups	Mean	Standard Deviation	Mean percentage	Mean difference	Independent ‘t’ test Value
Experimental group (n = 30)	2.2	1.07	22%	4.93	**13.3
Control group (n = 30)	7.13	1.67	71.3%		

Table 4:Association between the level of pain during peripheral IV cannulation among children and their selected demographic variables

n = 60

S.No	Demographic Variables	Experimental group n = 30		Control group n =30	
		df	$\chi^2$	df	$\chi^2$
1	Age	2	1.784	4	4.34
2	Gender	1	0.284	2	0.98
3	Birth order	1	0.134	2	0.37
4	Place of residence	1	2.16	2	0.73
5	Educational status of the child	2	1.19	2	9.58
6	Type of family	1	0.717	2	0.50
7	Family monthly income	2	3.605	4	0.53
8	Previous history of peripheral IV cannulation	2	0.657	4	5.70
9	Body mass index	3	0.956	4	6.58

### CONCLUSION

The study was conducted to evaluate the effectiveness of Buzzy technique on pain during peripheral IV cannulation among hospitalized children at Masonic Medical center for children, Coimbatore. The result of this study showed that in control group most of the samples had moderate to worst level of pain whereas Experimental group had mild to moderate level of pain during peripheral IV cannulation. Therefore Buzzy technique was effective in reducing level of pain among hospitalized children during peripheral intravenous cannulation. There was no significant association found between the level of pain among samples and their selected demographic variables.

### Implications

The findings of the study have the following implications in the various areas of Nursing practice, Nursing Education, Nursing Administration and Nursing Research.

### Nursing Practice:

- Buzzy technique can be utilized as a distraction method by pediatric nurses, as one of the pain control measures among children undergoing painful procedure.
- The nurse can implement these technique with low cost without any special training
- The community health nurse can carry these devices simply and implement in various levels of health care.

### Nursing Education:

- Nursing students can be trained to implement Buzzy technique during painful procedures to gain adequate knowledge and skill.
- Nursing curriculum needs to be updated to identify the aspects of nursing care that are lacking to provide supportive education to Buzzy technique methods.
- Nursing care guide can be developed for future references.

### Nursing Administration:

- Nurse Administrator should encourage the nurses practicing in various health care settings to implement Buzzy technique during their daily routine care.
- Nurse administrator can ensure the adequate supply of device for quality care.

#### Nursing Research

- The findings of the study can be utilized for conducting further research on assessing various aspects in different population.
- There is need for extensive research in this area regarding Buzzy technique to copeup with painful procedures among children.

#### RECOMMENDATIONS

- A similar study can be conducted with large number of samples to generalize the findings.
- A similar study can be conducted in various settings to identify the level of pain during other painful procedure.
- A comparative study can be done to evaluate the effectiveness of Buzzy technique method and other distraction methods.
- The true Experimental study can be conducted to evaluate the effectiveness of Buzzy technique.
- Similar study can be conducted among other populations such as preschool and adolescents.

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