

## A Study to assess the Effectiveness of Cartoon Animated Video on Pain reduction during Parenteral Administration among Children at Selected Hospitals, Hyderabad, Telangana

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### Abstract:

Audio-visual distraction, like cartoons, effectively alleviates pain and distress in children during parenteral procedures, benefiting both children's and nurses. A Quasi-Experimental, Post test only design was adopted. The tool used for the data collection was FLACC Pain scale. Pilot study was conducted with 6 samples and findings revealed that the study was feasible and the tool was appropriate for the study. The main study was conducted on 60 samples. The collected data was planned to be analyzed using descriptive and inferential statistical analysis. The study revealed that there was a significant reduction in level of pain. In the experimental group mean pain score was 4.13 with SD 1.47 and in control group mean pain score was 6.06 with SD 1.88. Mean difference was 1.93. The paired "t" value for assessing the effectiveness of cartoon was 7.78 which is greater than tabulated value at degree of freedom 59, which is significant at the level of  $p < 0.05$ . Hence cartoon animated video was found effective in pain reduction during parenteral administration. Thus, research hypothesis  $H_1$  was accepted. In this study there was an association between Order of birth in the experimental group and Education of mother and Forms of parenteral administration in the control group respectively. Hence the research hypotheses  $H_2$  and  $H_3$  were also accepted.

**Keywords:** Effectiveness, Parenteral administration, Quasi-Experimental, FLACC pain scale, descriptive and inferential statistic

### Introduction:

Recognizing children's unique developmental needs, this study aims to implement "Tom and Jerry" as a simple, cost-effective distraction intervention to reduce pain and distress during painful medical procedures, leveraging its proven effectiveness in alleviating anxiety and discomfort in preschool children.<sup>6</sup>

### Need for the Study

Children's pain responses are significantly shaped by early experiences, especially during medical procedures, with younger children exhibiting more distress. Diversion therapy, like engaging with cartoons or music, effectively reduces pain in about 70% of cases.<sup>4</sup> Recognizing individual factors influencing pain responses is essential for tailored management. Thus, the researcher aims to investigate animated cartoons as a non-

pharmacological, cost-effective intervention to alleviate pain during parenteral administration in children, emphasizing its potential benefits.<sup>5</sup>

**Objectives of the Study**

- i. To develop and validate Cartoon Animated Video on Pain reduction during Parenteral Administration among Children
- ii. To assess the level of Pain during Parenteral Administration among Children in experimental and control group
- iii. To evaluate the Effectiveness of Cartoon Animated Video on reduction of Pain during Parenteral Administration among Children in the experimental group
- iv. To find out the association between Pain during Parenteral Administration among Children in experimental and control group with their selected demographic variables

**Hypothesis**

- H<sub>1</sub>: There is a significant reduction in Pain with the Effectiveness of Cartoon Animated Video among Children in experimental group at 0.05 level of significance
- H<sub>2</sub>: There is a significant association between Pain reduction by the Children in experimental group with their selected demographic variables at 0.05 level of significance
- H<sub>3</sub>: There is a significant association between Pain reduction by the Children in Control group with their selected demographic variables at 0.05 level of significance.

**Research Methodology**

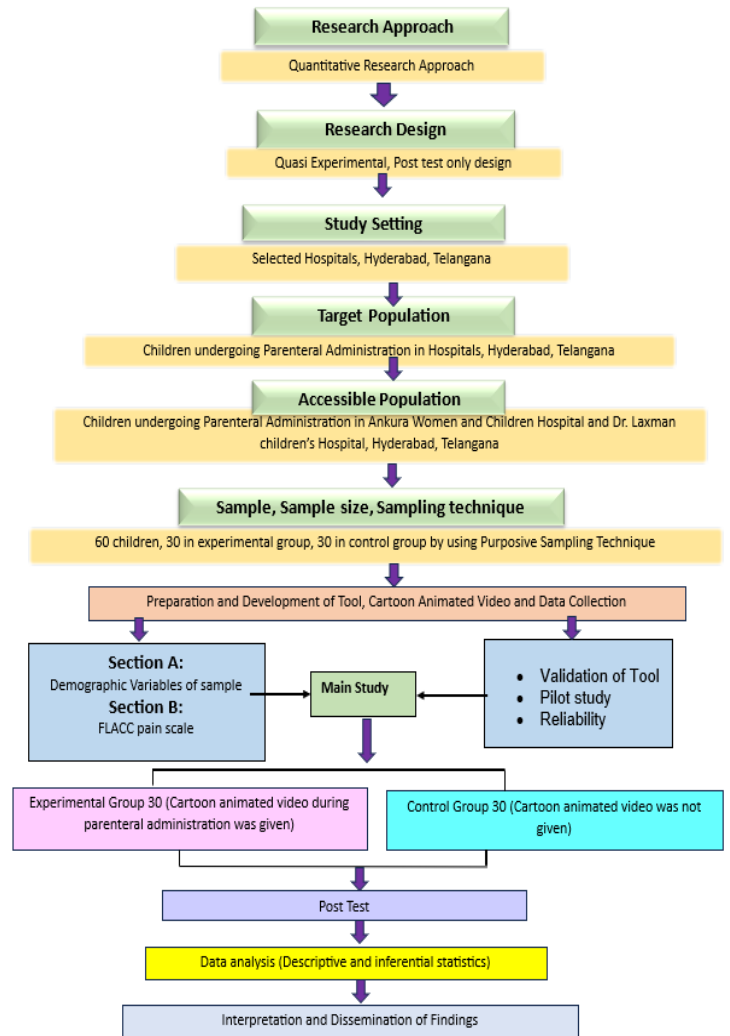


Fig No 1: Schematic Representation of the Study Design

**Research variable**  
**Demographic variable**

The demographic variables for the study were Age, Gender, Order of birth, Type of family, Education of mother, Body built, Child’s education, Forms of parenteral administration, Child accompanied with, Duration of stay in the hospital, Previous experience of undergoing Parenteral Administration.

**Independent Variable**

In this study the independent variable was Cartoon Animated Video

**Dependent Variable**

In this study the dependent variable was Pain during Parenteral Administration among children

**Inclusive Criteria**

- in the age group of 3-6 years
- undergoing Parenteral Administration
- willing to participate in the study

**Exclusive Criteria**

- with sensory deprivation
- mentally challenged
- in critical condition

**Development and Description of Tool**

- Section A: Consists of demographic data
- Section B: FLACC Pain Scale ( Face, Leg, Activity, Consolability, Cry)

**Reliability**

Assessed the reliability of tool by using Karl Pearson correlation coefficient formula, the reliability value was r 0.8.

**Procedure for Data Collection**

The tool consists of demographic variables and FLACC pain scale assessment. The data collection was done on 60 samples from 1<sup>st</sup> August 2023 to 20<sup>th</sup> August 2023.

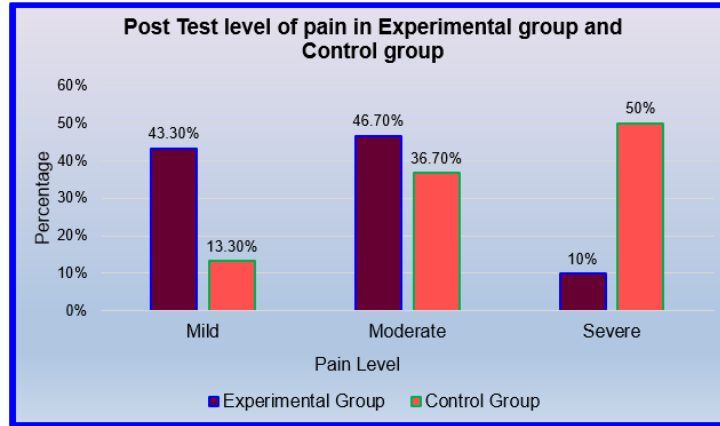
**Table No. 1: Frequency and Percentage distribution of Demographic Variables**

n = 60

Demographic variables	Experimental group		Control group	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1. Age (in years)				
a) 3 years	09	30	09	30
b) 4 years	07	23.3	10	33.3
c) 5 years	10	33.3	07	23.3
d) 6 years	04	13.4	04	13.4
2. Gender				
a) Male	09	30	15	50
b) Female	21	70	15	50
3. Order of birth				
a) First	16	53.3	15	50
b) Second	12	40	14	46.7
c) Third & above	02	6.7	01	3.3

4. Type of family	11	36.7	15	50
a) Nuclear	13	43.3	09	30
b) Joint	06	20	06	20
c) Extended				
5. Education of mother	00	00	02	06.7
a) No schooling	01	03.3	01	03.3
b) Primary school	10	33.3	07	23.3
c) High school	19	63.4	20	66.7
d) Higher secondary & above				
6. Body built	07	23.3	10	33.3
a) Thin	20	66.7	15	50
b) Moderate	03	10	05	16.7
c) Fat				
7. Child's education	07	23.3	04	13.3
a) Nursery	11	36.7	08	26.7
b) LKG	05	16.7	09	30
c) UKG	07	23.3	09	30
d) Not attending school				
8. Forms of parenteral administration	20	66.7	17	56.6
a) Intravenous	01	3.3	05	16.7
b) Intramuscular	04	13.3	05	16.7
c) Intradermal	05	16.7	03	10
d) Subcutaneous				
9. Child is accompanied with	27	90	28	93.3
a) Parents	03	10	02	6.7
b) Caregiver				
10. Duration of stay in the hospital	07	23.3	08	26.7
a) 0 day	14	46.7	15	50
b) 1 day	09	30	07	23.3
c) 2 days	00	00	00	00
d) 3 days & more				
11. Previous experience of undergoing parenteral administration	30	100	30	100
a) Yes	00	00	00	00
b) No				

**Fig No. 2: Frequency and Percentage distribution of Post Test level of pain**



**Table No. 2: Mean, Standard Deviation, Standard Error and Paired “t” test value on pain level** n = 60

Test	Mean	Standard Deviation	Standard Error	Paired “t” test		df	Inference
				Cal Value	Tab Value		
Experimental Group	4.13	1.47	0.26	7.78	3.46	59	***S
Control Group	6.06	1.88	0.35				

\*\*\*S= Significant at 0.001 level

**Table No. 3: Association between level of pain in Experimental group** n = 60

Demographic Variables	Pain			Cal Value	Tab Value	df	Inferences
	Mild	Moderate	Severe				
1. Order of birth							
a) First	3	10	3	10	9.4	4	*S
b) Second	9	3	0				
c) Third & above	1	1	0				

**Table No. 4: Association between level of pain reduction with selected Demographic variables among children in Control group** n = 60

Demographic Variables	Pain			Cal Value	Tab Value	df	Inferences
	Mild	Moderate	Severe				
1. Education of mother	0	1	2	10.25	9.49	4	*S
a) No schooling	0	0	0				
b) Primary school	2	10	5				
c) High school	2	0	8				
d) Higher secondary & above							
2. Forms of parenteral administration	2	9	6	13.6	12.59	6	*S
a) Intravenous	0	1	4				
b) Intramuscular	0	1	4				
c) Intradermal	2	0	1				
d) Subcutaneous							

**Discussion**

**To assess the level of Pain during Parenteral Administration among Children in experimental and control group**

In the experimental group, 46.7% experienced moderate pain, while in the control group, 50% reported severe pain during parenteral administration, highlighting varying pain levels between the two groups.

Alencar et al. (2020) found a pain management protocol significantly reduced pain levels in children receiving parenteral medication during treatment.<sup>1</sup>

**To evaluate the Effectiveness of Cartoon Animated Video on reduction of Pain during Parenteral Administration among Children in the experimental group**

The finding of paired t test (7.78) was found to be greater which was statistically significant at 0.001 level. Hence, the hypotheses H<sub>1</sub> was accepted.

Santos et al. (2021) found cartoon animated videos significantly reduced pain, anxiety, and irritability in children during parenteral administration procedures.<sup>2</sup>

**To find out the association between Pain during Parenteral Administration among Children in experimental and control group with their selected demographic variables**

The findings indicated a significant association between pain perception and demographic variables: Order of Birth in the experimental group, and Education of Mother and Forms of Administration in the control group.

Chen et al. (2018) found pain during parenteral administration was significantly associated with age, weight, and previous hospitalizations, not gender.

### Limitations

1. The sample size of patients for the experimental and control group was only 30 respectively hence, generalization not possible.
2. Extraneous variables were controlled to some extent only.

### Recommendations

1. The study may be replicated with randomization in selection of a larger sample.
2. Nurse researcher can do studies related to cartoon animated video in reducing the level of hospital anxiety.
3. Nurse researcher can do studies comparing the immediate and long-term effects of cartoon animated video in reducing the level of pain.

### Conclusion

The result of this study revealed that the children who underwent cartoon animation video during parenteral administration received less pain than compared to those who did not receive any intervention.

### References

1. Alencar B, Motta R, Barreto J, Parente R. Assessment of pain levels in children receiving parenteral medication before and after implementing a pain management protocol in a pediatric oncology unit. *J Pain Res.* 2020;13:365-72. doi: 10.2147/JPR.S236442.
2. Santos EP, Arce A, Galarza P, Bedoya V. Effectiveness of cartoon animated video on reduction of pain during parenteral administration among children: Experimental Group. *Investig Educ Enferm.* 2021;39(2):e15. doi: 10.17533/udea.iee.v39n2e15.
3. Chen H, Liu P, Zhang S, Huang L, Wang Q. Demographic factors associated with pain during parenteral administration in hospitalized children: A cross-sectional study. *J Pediatr Nurs.* 2018;41:12-6. doi: 10.1016/j.pedn.2018.05.007.
4. Tom L, Graham C. *Illustrated textbook of paediatrics.* 4th ed. London: Mosby Elsevier; 2012. p. 67-80.
5. Raja SN, Carr DB, et al. The revised International Association for the Study of Pain definition of pain: concepts, challenges, and compromises. *Pain.* 2020;161(9):1976-82.
6. Cosio D, Demyana. The sensory component of pain. *Mod Pain Manag.* 2012.