

# A Randomized Control Trial to Evaluate the Effectiveness of Cartoon Distraction on Behavior Distress during I.V Cannulation among Hospitalized Children (4-7yrs) in Rajindra Hospital of District Patiala, Punjab

Ravneet Bajwa<sup>1</sup>, Sukhvir Kaur<sup>2</sup>, Tejinder Kaur<sup>3</sup>

<sup>1</sup>M.Sc – Child Health Nursing

<sup>2</sup>Associate Professor, Child Health Nursing

<sup>3</sup>Associate Professor, Child Health Nursing

**Abstract:** ***Introduction:** Behavior Distress is common in hospitalized children due to the environment and fear of unknown people and routine procedures which hinders the growth and development in them. Distraction has been shown to minimize children's fear, anxiety, and pain associated with acute painful medical procedures like Cannulation. **Aim:** The aim of the study is to evaluate the effectiveness of cartoon distraction on behavior distress among hospitalized children (4-7yrs) during I.V Cannulation. **Method:** A randomized control trial was conducted on 80 hospitalized children (40 each in experimental and control group) of age group 4-7yrs selected by Purposive Sampling Technique through random assignment of subjects by using single blind method. **Results:** The results revealed that there is significant ( $p < 0.05$ ) decrease in level of behavior distress in hospitalized children with cartoon distraction during I.V Cannulation.*

**Keywords:** Cartoon distraction, I.V Cannulation, behavior distress, hospitalized children

## 1. Introduction

Children are constantly on the move, exploring their world with exuberance, curiosity, and a seemingly endless source of energy. A child's capacity for learning in this stage is enormous. Preschool-age children learn and develop from every experience, relationship, and adventure they encounter. Having the space and opportunity to explore objects and play environments helps preschool children develop their imagination and master the motor, cognitive, language, and social skills that are essential for future development. Being brought to the hospital causes fear and behavior distress in 4 to 7-year-old children. Few simple techniques can make a difference in a child's hospital experience. Considering areas such as distraction, environment, positioning, and language may help a child have a positive hospital experience.

## 2. Background of the study

Evidence from several studies suggests that cartoon distraction is an effective source of distraction for children undergoing painful procedure like I.V Cannulation. Kaur B (2014) conducted a study which revealed that there is significantly ( $p < 0.005$ ) less pain and distress in children with cartoon distraction at initiation, at five minutes and at termination of administration of intravenous injection.<sup>1</sup> Goudarzian AH et al (2015) conducted a study on the effect of distraction technique (video computer game) on the pain of dressing change and concluded that distraction intervention has a significant positive effect on the pain of dressing change in children.<sup>2</sup> Windich – Biermeier A et al

(2007) conducted a study to evaluate the effect of self-selected distracters (i.e. bubbles, Spy: super challenges book, music table, virtual reality glasses, or handheld video games) on pain, fear and distress in children with port access or venipuncture.. and concluded that distraction has the potential to reduce fear and distress during port access and venipuncture.<sup>3</sup>

## 3. Material and Methods

This was a randomized control trial to evaluate the effectiveness of cartoon distraction on behavior distress among hospitalized children (4-7yrs) during I.V Cannulation .The study was conducted on 80 hospitalized children(40 in experimental and 40 in control group) admitted in Rajindra hospital of district Patiala (Punjab) selected by Purposive sampling. The research design selected was Post-test-only control group design. Post-test was conducted in both experimental and control group while treatment i.e. cartoon distraction was shown to children in experimental group whereas control group received normal routine care. Tool used for assessing behavior distress was FLACC Scale which includes parameters like Face, Leg, Arms, Cry and Consol ability. Further, the data was based on statistical analysis including descriptive and inferential statistics.

## 4. Results

**Section A:** Description of sample characteristics

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**Table 1:** Frequency, percentage distribution and homogeneity of sample characteristics, N=80

S.No	Characteristics	Experimental group	Control group	$\chi^2$	df (p)
		f (%)	f (%)		
1.	<b>Age (in years)</b>				
	4-5	20 (50)	17 (42.5)	0.487	2(0.78) <sup>NS</sup>
	5-6	11 (27.5)	12 (30)		
2.	<b>Gender</b>				
	Male	23 (57.5)	25 (62.5)	0.208	1(0.64) <sup>NS</sup>
	Female	17 (42.5)	15 (37.5)		
3.	<b>Education</b>				
	K.G	08 (20)	10 (25)	2.048	3(0.56) <sup>NS</sup>
	1 <sup>st</sup> class	17 (42.5)	11 (27.5)		
	2 <sup>nd</sup> class	08 (20)	11 (27.5)		
4.	<b>Birth Order</b>				
	First child	13 (32.5)	08 (20)	1.77	2(5.99) <sup>NS</sup>
	Second child	19 (47.5)	24 (60)		
	Third child	8 (20)	08 (20)		
5.	<b>Attempts of previous Cannulation</b>				
	Yes	07 (17.5)	03 (7.5)	1.82	2(0.17) <sup>NS</sup>
6.	<b>Times</b>				
	One	04 (57.2)	02 (66.7)	0.07	1(0.77) <sup>NS</sup>
7.	<b>Site of Cannulation</b>				
	Metacarpal	30 (75)	27 (67.5)	1.34	2(0.51) <sup>NS</sup>
	Brachial	10 (25)	12 (30)		
	Median	0 (0)	01 (2.5)		
8.	<b>Presence of caregiver</b>				
	Yes	32 (80)	36 (90)	0.45	1(0.49) <sup>NS</sup>
	No	8 (20)	04 (10)		

\*= Non-significant

Table 1 reveals the socio demographic profile of hospitalized children of the sample, their frequency and percentage distribution. This table shows that half of the children 20 (50%) in experimental group and 17 (42.5%) in control group were of 4-5 yrs while 11(27.5%) in experimental group and 12(30%) in control group were of 5-6 years and only 9(22.5%) in experimental group and 11(27.5%) in control group were of 6-7 yrs. Regarding the gender of children 23(57.5%) and 25 (62.5%) were male from experimental and control group respectively and 17(42.5%) and 15(37.5%) were females in experimental and control group. With regard to education of the children 8(20%) and 10(25%) were studying in K.G from experimental and control group while most in experimental 17(42.5%) and control group 11(27.5%) were studying in 1<sup>st</sup> class, 8(20%) in experimental and 11(27.5%) in control group were studying in 2<sup>nd</sup> class and only 7(17.5%) and 8(20%) were studying in 3<sup>rd</sup> class in experimental and control group. With reference to birth order of children 13(32.5%) in experimental and 8(20%) in control group were first child ,19(47.5%)in experimental and 24(60%) in control group were second child and only 8(20%) in both experimental and control group were third child .In relation to attempts of previous cannulations majority of children 33(82.5%) in experimental group and 37(92.5%) in control group had no previous attempts whereas only 7(17.5%) and 3(7.5%) had previous attempts of cannulations in experimental and control group. Out of those who had

previous attempts 4(57.2%) in experimental and 2(66.7%) in control group had only one attempt and 3(42.8%) in experimental group and 1(33.3%) in control group had two previous attempts of cannulation. In regard to site of cannulation maximum of children 30(75%) in experimental and 27 (67.5%) in control group had metacarpal site of cannulation and only 10(25%) and 12(30%) in experimental and control group respectively had brachial site of cannulation and only 1(2.5%) had median site of Cannulation in control group. With respect to presence of caregiver during cannulations 32(80%) in experimental group and 36(90%) in control group had the presence of caregiver during cannulation whereas 8(20%) in experimental group and 4(10%) in control group had no caregiver during cannulation.

The experimental and control group were also checked for homogeneity and no variable was found significant. Hence the two groups were homogenous.

**Section B: Frequency & percentage distribution of behavior distress score of children**

**Table 1:** Frequency & Percentage distribution of Behavior distress score of children, N=80

S. No.	Levels	Experimental group	Control group
		f (%)	f (%)
1.	Mild	17 (42.5)	--
2.	Moderate	23 (57.5)	15 (37.5)
3.	Severe	--	25 (62.5)

Table 2 reveals the level of behavior distress and its percentage in experimental and control group during I.V Cannulation. In this table it is shown that in experimental group 17 (42.5%) had mild behavior distress while 23(57.5%) had moderate behavior distress and no child had severe distress. Whereas in control group 15(37.5%) had moderate distress and 25(62.5%) had severe distress and no child had mild behavior distress.

**Section C: Comparison of mean behavior distress score of experimental and control group**

**H<sub>1</sub>:** There is significant decrease in behavior distress score after providing cartoon distraction in experimental group during I.V Cannulation.

**Table 3:** Comparison of mean behavior distress score in experimental and control group, N=80

S. No.	Group	Mean $\pm$ SD	t value	P value	df
1.	Experimental group	3.68 $\pm$ 0.944	10.734	0.05*	78
2.	Control group	7.13 $\pm$ 1.80			

t (78) = 1.99,\*= Significant

Table 3 reveals the comparison of mean behavior distress scores in experimental and control group during I.V Cannulation. In this table mean behavior distress during I.V Cannulation was higher (7.13 $\pm$ 1.80) in control group as compared to experimental group (3.68 $\pm$ 0.944).Therefore it can be inferred that there was significant difference in level of behavior distress in experimental and control group during I.V cannulation as a result of cartoon distraction.

## 5. Discussion

### Findings related to post-test behavior distress during I.V Cannulation

The result of this study suggested that 42.5% had mild behavior distress and 57.5% had moderate behavior distress and no severe distress during I.V Cannulation in experimental group with a mean of **3.68**. The findings were supported by the study conducted by **Kohli Neha** (2005) to assess the effectiveness of cartoon animation movie on pain during Intravenous Cannulation (22gauge) in children 5-12 yrs in paediatric ward. Results of this study shows that children in experimental group had **2.96** mean behavior distress which was less than control group during Intravenous Cannulation.<sup>4</sup>

### Findings regarding effectiveness of cartoon distraction on behavior distress during I.V Cannulation

The mean post test score of the experimental group 3.68 is lesser than the mean post test score 7.13 of the control group. The 't' value computed between the pain score of children in experimental and control group was statistically significant at 0.05 level of significance. The calculated 't' value (t =10.73) was greater than the table value (1.99). This indicates that the cartoon distraction was effective on behavior distress during I.V Cannulation in children.

Findings were supported by a study conducted by **Kuttner (1999)** regarding children receiving venipuncture who were randomly assigned to one of three treatment conditions- interactive toy distraction, passive movie distraction or standard care and revealed that there was significant differences between and that children in the passive distraction were more distracted than in the interactive condition.<sup>5</sup>

## 6. Conclusion

The findings show that Behavior distress during I.V Cannulation is lower in experimental group due to cartoon distraction as compared to control group. The conclusion of the study is that cartoon distraction significantly reduces the level of behavior distress in hospitalized children during I.V Cannulation when compared to control group ( $p < 0.05$ ).

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