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Effectiveness of Cartoon Movies as Distracter on Pain among Children Undergoing Venipuncture

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Abstract: ***Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Thus it is important for health care providers to follow a child centered or individual approach in their assessment and management of pain and painful procedures. Distraction is the most frequent intervention used in the pediatric department to guide children's attention away from the painful stimuli and reduce pain. Purpose: to assess the effectiveness of cartoon movies as distracter on pain among children undergoing venipuncture , Pune, India. Objectives: To assess the level of pain among children undergoing venipuncture in the control group, to assess the level of pain among children undergoing venipuncture in the experimental group during intervention, to compare the level of pain among children undergoing venipuncture between experimental and control group, to determine association between level of pain and selected demographic variables among children undergoing venipuncture. Methods: This was a quasi experimental study of 60 children (30in experimental group and 30in control group) undergoing venipuncture in selected hospitals of Pune city. The FLACC observational pain scale was used to for pain assessment. Experimental group were given passive distraction in the form of cartoon movie and control group were not during venipuncture. Intervention done 5 minute before initiation of procedure (venipuncture) during procedure and till 5 minutes of completion of procedure. Results: -mean pain score in experimental group was lower (4.6) than that of the control group (7.7) with the mean difference of 3.1 which was significant as evident from "t" value of (10) at 0.05 level of significance. Conclusion: Cartoon movie as a distracter is effective on reducing pain of children undergoing venipuncture.***

Keywords: effectiveness, cartoon movie, pain, venipuncture.

1. Introduction

Perception of pain among children 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.[1][3]

Pain in infants and children can be difficult to assess which has led to the creation of numerous age-specific pain management tools and scores. Health care workers need to be able to detect the symptoms and signs of pain in different age groups and determine whether these symptoms are caused by pain or other factors.[2][3]

2. Review of literature

There are 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 pediatric offices use pain control for shots and only 2.1% of an estimated 18 million venipuncture are performed each year with pain control. Distraction for minor to moderate procedural pain is free or inexpensive, easy to perform, and an effective method of pain control. Untreated or undertreated pain can rob children's ability to function and can cause depression, irritability, and disruptions in sleeping, eating and mobility [3][6].

Talwar R, Yadav A, DeolR, Kaur J (2014) in Ludhiana, India also performed a study on the efficacy of distraction technique in reducing pain among children receiving vaccination. The study was to evaluate the efficacy of distraction technique in reducing level of pain among healthy children receiving vaccination at well baby clinic at selected hospitals of Ludhiana.[5][8].

Another study was conducted by Gold JI, Kim SH, Kant AJ, Joseph MH and Rizzo on effectiveness of virtual reality for pediatric pain distraction during I.V. placement. And results found there was a sufficient amount of evidence supporting the efficacy of street luge as a pediatric pain distraction tool during I.V. placement: an adequate level of presence, no simulator sickness, and significantly more child, parent, and nurse – reported satisfaction with pain management.[6][19]

Bellieni CV, cordelli DM, Raffaelli M, Ricci B, Morgese G and BuonocoreG conducted a study to assess the analgesic effect of watching TV during venipuncture. 69 children aged 7-12 years were randomly divided into three groups. Main pain levels rated by the children were 23.04 (standard deviation (SD) 24.57), 17.39 (SD 21.36), and 8.91 (SD 8.65) for the C, M, and TV groups, respectively. Main 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 [7][21]

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Biermeier AW, Sjoberg I, Dale JC, Eshelman D and Guzzetta CE conducted a study to evaluate the effect of self – selected distractors (i.e. bubbles, I Spy : super challenger book, music table, virtual reality glasses, or handheld video games) on pain, fear ,and distress in 50 children and adolescents with cancer, ages 5 to 18, with venipuncture. Intervention participants demonstrated significantly less fear ($p<0.001$) and distress ($P=0.03$) as rated by the nurse and approached significantly less fear ($p=0.07$) as related by the parent [8].[22]

Hasanpour M, Tootoonchi M, Aein F and Yadegerfar G conducted a study to evaluate the effect of local cold therapy and distraction in pain relief using penicillin intramuscular injection in children. 90 children with ages from 5 to 12 who had penicillin injection intramuscularly in a health centre were studied. The samples were divided into three groups: the first group received local cold therapy, the second group received distraction and the third group (the control group) received routine care. By using Oucher scale, average pain intensity in local cold therapy, distraction, and control groups was 26.3, 34.3, and 83.3 respectively. [9][23]

Several studies are beginning to take into consideration children's different responses to distraction interventions based on their developmental stage, maturity level, and age. The researcher in his clinical experience found that less or no intervention was done in reducing pain among children during painful invasive procedures in hospitals .In addition it was seen that pain can have long term consequences on children. Alternative method of non-pharmacological pain control can be used in reducing pain during painful invasive procedures. As distraction in the form of watching cartoon movie is a promising cost effective, non-pharmacological technique in reducing pain among children undergoing painful procedures. The researcher in this study intended to use cartoon movie as a method of distraction during venipuncture [11][9]

3. Materials and Method

In this study the research approach adopted was Quantitative approach and design adopted was post test only control group design. A total of 60 children from age group of 03-07 years were selected, 30 in control group and 30 in experimental group by using purposive sampling technique. The data were recorded in semi structured questionnaire divided in two parts. It consisted of demographic variables such as age and gender. And FLACC pain scale an observation technique of assessing pain. It included five categories of pain behavior - facial expression, leg movement, activity, cry, Consolability. Each category scores a maximum of 2 and minimum of 0.In which the score of 0 indicates NO PAIN.

1-3 indicates MILD PAIN,
4-6 indicates MODERATE PAIN and
7-10 indicates SEVERE PAIN

The data was statically analyzed using t paired test and fisher's test to evaluate the effectiveness of cartoon therapy in relation to pain, a P value of less than 0.05 is considered as significant.

4. Result

In experimental group - majority 53.3% (16) of them were females and almost 46.7% (14) were males.

In control group – majority 63.3 %(19) of them were males and almost 36.7% (11) of them were females.

The level of pain among children undergoing venipuncture in the control group, N=30

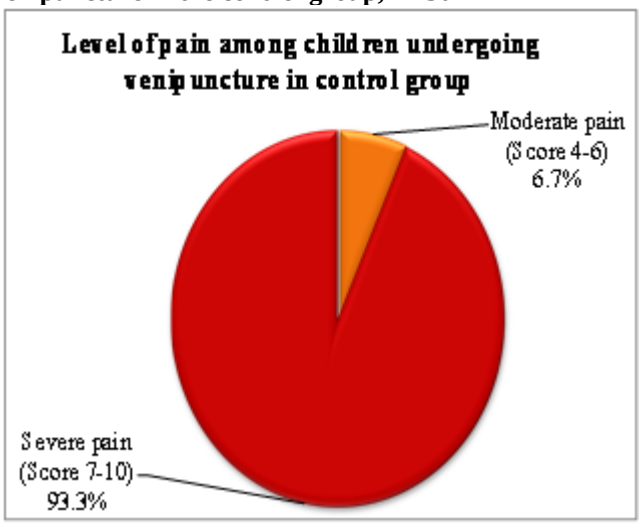


Figure 1: Level of pain among children undergoing venipuncture in the control group

In this figure control group, majority of 93.3 %(28) of the children undergoing venipuncture had severe pain (Score 7-10) and 6.7% (2) of them had moderate pain (Score 4-6).

The level of pain during intervention among children undergoing venipuncture in the experimental group

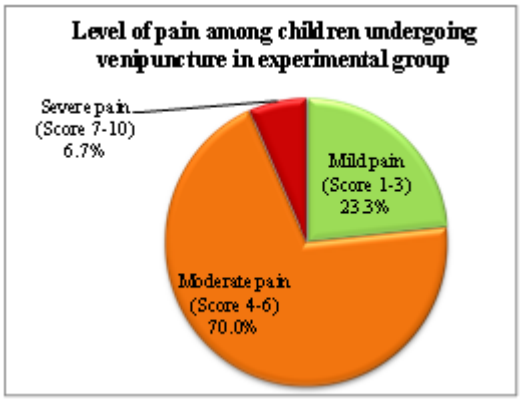


Figure 2: Level of pain during intervention among children undergoing venipuncture in the experimental group

The above data shows experimental group, majority of 70 %(21) of the children undergoing venipuncture had moderate pain (Score 4-6), 23.3 %(7) of them had mild pain (Score 1-3) and 6.7 %(2) of them had severe pain (Score 7-10).

Analysis of data related to the comparison of the level of pain among children undergoing venipuncture between experimental and control group.

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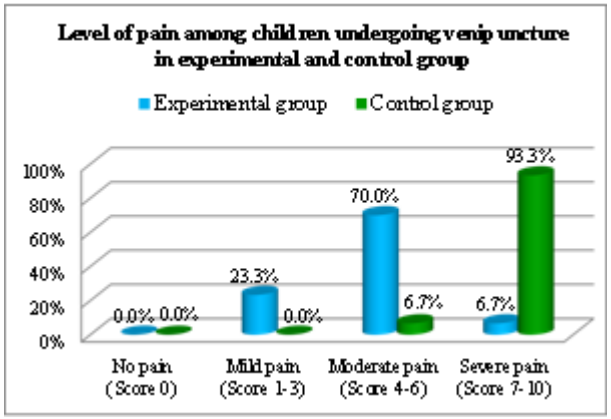


Figure 3: Comparison of the level of pain among children undergoing venipuncture between experimental and control group

The above data shows in control group, majority of 93.3 %(28) of the children undergoing venipuncture had severe pain (Score 7-10) and 6.7% (2) of them had moderate pain (Score 4-6). In experimental group, majority of 70% (21) of the children undergoing venipuncture had moderate pain (Score 4-6), 23.3% (7) of them had mild pain (Score 1-3) and 6.7% (2) of them had severe pain (Score 7-10). This indicates that the Cartoon Movies as Distracter reduce pain among children remarkably.

Table 1: Comparison of the level of pain among children undergoing venipuncture between experimental and control group N=30, 30

Group	Mean	SD	t	df	p-value
Experimental group	4.6	1.5	10.0	58	0.000
Control group	7.7	0.8			

In study two sample t-tests was used for comparison of average pain score in experimental and control group. Average pain score in experimental group was 4.6 with 1.5 SD and that for control group was 7.7 with 0.8 SD. T-value for this comparison was 10 with 58 degrees of freedom. Corresponding p-value was 0.000 which is small (less than 0.05), the null hypothesis was rejected. Cartoon Movie as Distracter was found to be significantly effective in improving the level of pain among children undergoing venipuncture.

Analysis of data related to association between level of pain and selected demographic variables among children undergoing venipuncture

Table 2: Association between level of pain and selected demographic variables among children undergoing venipuncture in control group, N=30

Demographic variable		Mild	Moderate	Severe	p-values
Age	3 years	0	5	1	0.156
	4 years	1	6	0	
	5 years	1	6	1	
	6 years	4	2	0	
	7 years	1	2	0	
Gender	Male	3	11	2	0.587
	Female	4	10	0	

Association between level of pain and selected demographic variables among children undergoing venipuncture was assessed by using **Fisher's exact test**. Since p-values were large (greater than 0.05), there is no evidence against null hypothesis. None of the demographic variable was found to have significant association with the level of pain among children undergoing venipuncture in control group.

Table 3: Association between level of pain and selected demographic variables among children undergoing venipuncture in experimental group, N=30

Demographic variable		Mild	Moderate	Severe	p-values
Age	3 years	0	5	1	0.156
	4 years	1	6	0	
	5 years	1	6	1	
	6 years	4	2	0	
	7 years	1	2	0	
Gender	Male	3	11	2	0.587
	Female	4	10	0	

Association between level of pain and selected demographic variables among children undergoing venipuncture in experimental group was assessed by using **Fisher's exact test**.

Since p-values are large (greater than 0.05), there is no evidence against null hypothesis. None of the demographic variable was found to have significant association with the level of pain among children undergoing venipuncture in experimental group.

5. Discussion

The present study show that the mean pain score in the experimental group was lower (4.6) than that of the control group (7.7) with the mean difference of 2.9 which was significant as evident from't' value of (10) at 0.05 level of significance. This is consistent with the study conducted by C V Bellieni, D M Cordellion the analgesic effect of T V watching during venipuncture on 69 children aged 3-7 years undergoing venipuncture. It was found that the main pain level rated by the children were 23.04 (SD 24.57) in the control group and 8.91 (SD 8.65) for the experimental group using television as a distraction [12][31]

In another study conducted at the GianninaGaslini Institute in Genoa, Italy, it was found that the mean score of pain in patients undergoing venipuncture with audio visual distracting technique (2.53 with SD 1.76)and the mean score obtained in those undergoing venipuncture without this technique (5,22 with SD 2.53).[13][32]

The finding of this study is also consistent with the study conducted in PGI, Chandigarh in the year 2010 by James J, Ghai S, Rao KLN, Sharma N in that the score in the experimental group was lower (6.24)than that of the control group (8.06) with the mean difference of 1.82 which was significant as evident from "t" value of (4.78) at 0.001 level of significance.[14][33]

6. Conclusion

On the basis of the findings of the present study, it can be concluded that the children undergoing venipuncture with

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cartoon movie as a distractor experience less pain than those without distraction. Hence, cartoon movie as distractor was found to be effective in reducing the pain among children undergoing venipuncture.

7. Scope of Study

The finding of this study suggest that this type of interventions will be helpful if practiced in procedure rooms of the hospitals and also the nursing curriculum should include learning experiences for the students to assess, plan, implement and evaluate nursing intervention based on cartoon movie as an effective non pharmacological management of pain. It can be practiced by the student nurse in their clinical posting especially in the pediatric units. The findings of the study shows cartoon movie can be used as a management of pain in pediatric unit.

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