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Research Article

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EFFECT OF CARTOON FILMS ON PAIN DURING VENIPUNCTURE AMONG CHILDREN

Dr. Sunil Moothedath*[1], Ms. Sneha Mary E.F.[2], Ms. Sophiya Thomas[3]

[1]Professor, Department of Child Health Nursing, Amrita College Of Nursing, Amrita Vishwa Vidyapeetham, Kochi, India.

[2,3]Fourth Year B.Sc Nursing, Amrita College of Nursing, Amrita Vishwa Vidyapeetham, Kochi, India.

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***Corresponding Author: Dr. Sunil Moothedath**

Professor, Department of Child Health Nursing, Amrita College Of Nursing, Amrita Vishwa Vidyapeetham, Kochi, India. **DOI:** https://doi.org/10.5281/zenodo.21026632

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ABSTRACT

Background: Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Perception of pain among children is complex and procedural pain is a significant issue for pediatric patients. Diversion therapy is one of the most commonly used techniques in the Paediatric department for the deviation of attention away from the painful procedures in order to reduce the pain. **Purpose:** To evaluate the effectiveness of cartoon films as a distraction method in decreasing pain among children undergoing venipuncture thereby enhancing the cooperation in children during venipuncture. **Objectives:** 1) To evaluate the effect of cartoon films on pain among children during venipuncture 2) To find out the association between pain perception and selected socio demographic variables. **Design:** This was a quasi-experimental posttest only design with control group among 80 children (40 in the experimental group and 40 in the control group) undergoing venipuncture in selected hospital, Kochi. The FLACC observational pain scale and Numerical rating scale were used for the pain assessment. Experimental group was given passive distraction in the form of cartoon movies during venipuncture whereas control group was not. Intervention was done 5 minutes before the initiation of procedure, during procedure and till 5 minutes of completion of procedure. **Results**: There was a significant decrease in pain level among experimental group in comparison to the control group. **Conclusion:** Cartoon films as a method of distraction are effective in reducing pain among children undergoing venipuncture.

KEYWORDS: Pain, Cartoon films, Venipuncture, Children, Diversion therapy.

INTRODUCTION

Pain threshold differ from person to person and among different age groups. Children report pain as the worst aspect of a healthcare encounter. In particular, needle stick pain is amongst the most stressful for children and studies revealed that a large number of children are not receiving adequate pain relieving measures during the procedures. Needle related procedures such as venipuncture and intravenous cannula insertion are considered as the most important sources of pain and distress in children.

There are different techniques adopted in the clinical area to tackle this situation and distraction techniques are widely used and found to be very effective.[1.2.3]

Jose J, conducted a study aimed to assess the effectiveness of cartoon animation show during venipuncture in reducing pain perception among toddlers in a selected hospital at Kanyakumari district.[4] The study design was quasi experimental post-test only design with control group. The investigator selected 60 samples. Measurement of pain experienced by the toddler was assessed with the help of FLACC (face, legs, activity, consolability, and cry) scale. Association of posttest level of pain in the control group with demographic variables was analyzed by using chi-square test. The findings concluded that out of 30 samples in the experimental group 15 (50%) had moderate pain and the rest (50%) had severe pain and in control group majority 27(90%) had severe pain and 3(10%) had moderate pain. The study concluded that the cartoon films were more

helpful and effective for reducing pain during venipuncture.

Gandhar S, et al conducted a study on effectiveness of cartoon movies as distracter on pain among children undergoing venipuncture in Maharashtra.[5] It was a quasi-experimental study among 60 children, 30 in the experimental group and 30 in the control group, undergoing venipuncture in selected hospitals of Pune city. Experimental group was given passive distraction in the form of cartoon movies and control group was not given this during venipuncture. The study showed that, in control group, majority i.e. 28 (93.3%) of the children undergone venipuncture had severe pain (Score 7-10) and 6.7% (2) of them had moderate pain (Score 4-6). Where as in the experimental group, majority of 70 %(21) of the children undergone venipuncture had moderate pain (Score 4-6), 23.3 %(7) of them had mild pain (Score 1-3) and only 6.7 %(2) of them had severe pain (Score 7-10). This was conclusive of the fact that distraction technique using cartoon films during venipuncture was effective in reducing pain during venipuncture.

Another Quasi-experimental study was conducted by Susan Maharjan et.al. among children of 4-6 years who were undergoing venipuncture in selected hospital at Lalitpur.[6] The study comprised of 60 children selected purposively- 30 in each experimental and control group. Animated cartoon was shown along with routine care for the experimental group and only routine care was provided to control group. The post venipuncture pain was assessed by using FLACC scale in both groups and the findings showed that in posttest, majority of the subjects (56.7%) in the experimental group had pain score between 4-6 (moderate pain) and 43.3% had score 7-10 (severe pain) and in control group all children had pain score 7-10 (severe pain). With regard to pain in experimental group, posttest pain mean±SD was 6.63 ± 0.80. In control group posttest pain mean±SD was 9.43±0.62. The findings showed that significantly less pain ($p<0.05$) felt by the children who viewed animated cartoon during venepuncture than those who did not receive it.

The present study is conducted to find out the efficacy of cartoon films which are easily accessible even through the mobile phones or tabs, in reducing the pain perception among children undergoing the commonest painful procedure in the paediatric clinical practice.

MATERIALS AND METHODS

The research approach adopted in this study was qualitative approach and research design adopted was Quasi experimental post-test only design with control group. The sample size was estimated based on the findings of the similar previous studies. In this study a total of 80 children in the age group of 05- 10 years were selected, 40 in control group and 40 in experimental group using convenience sampling technique. Ethical committee approval from the institutional ethics committee and informed consent from the parents were obtained prior to the data collection. The experimental group was given passive distraction in the form of cartoon movies during venipuncture whereas control group was not. Intervention was done 5 minutes before the initiation of procedure, during procedure and till 5 minutes of completion of procedure. Apart from the socio demographic profile, the tools used were FLACC pain scale[7] and the numerical pain scale.[8] FLACC scale is an observation technique for assessing the pain. It includes five categories of pain behavior - Facial expression, Leg movement, Activity, Cry and Consolability (FLACC). The minimum score for each category was 0 and maximum score was 2. The overall maximum score for all the criteria was 10. Scores 1 - 3 indicates mild pain, 4 - 6 indicates moderate pain and 7 – 10 indicates severe pain. The numerical pain scale has a rating between 0 -10. Score 0 indicates no pain, 1 – 3 mild pain, 4 – 6 moderate pain, 7 – 9 severe pain and score 10 – the worst pain imaginable.

The data was statically analyzed using IBM SPSS 20. For the effect of cartoon therapy in relation to pain, a P value of less than 0.05 was considered as significant.

RESULTS

A) The level of pain among children in the Control and Experimental Groups using FLACC Scale

N= 40

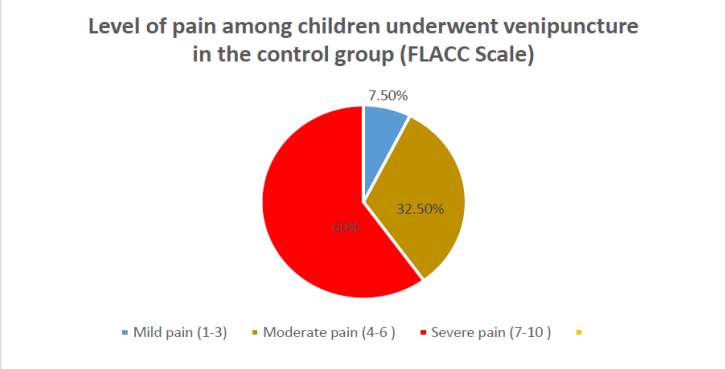

Figure 1: The level of pain among children underwent venipuncture in the control group (FLACC Scale).

The above figure shows that majority of the children 60 % (24) underwent venipuncture had severe pain (Score 7-10), 32.5% (13) of them had moderate pain (Score 4-6) and 7.5% (3) of them had mild pain (score 1-3)

N=40

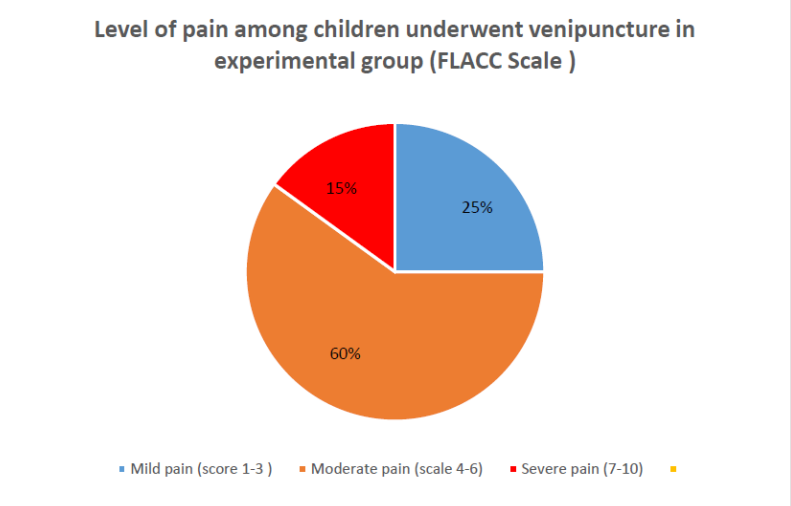

Figure 2: **The level of pain among children underwent venipuncture in the experimental group (FLACC Scale).**

In this figure it is seen that majority, 60 %(24) of the children underwent venipuncture in the experimental group had only moderate pain (Score 4-6), 25% (10) of them had mild pain (Score 1-3) and only 15% (6) of them had severe pain (score 7-10).

B) Comparison of the level of pain between children belonging to experimental and control group who underwent venipuncture using FLACC Scale.

Table 1: Comparison of the level of pain among children underwent venipuncture between experimental and control group (FLACC Scale).

N=80

Group	Level of pain (FLACC Scale)			P value
	Mild (%)	Moderate (%)	Severe (%)	
Experimental n=40	10 (25.0%)	24 (60.0%)	6 (15.0%)	<0.001
Control n=40	3 (7.5%)	13 (32.5%)	24 (60.0%)	

The above table shows that there was a significant reduction of pain among the experimental group in comparison with the control group substantiating that cartoon films were effective as a distraction technique thereby reducing pain during venepuncture.

N=80

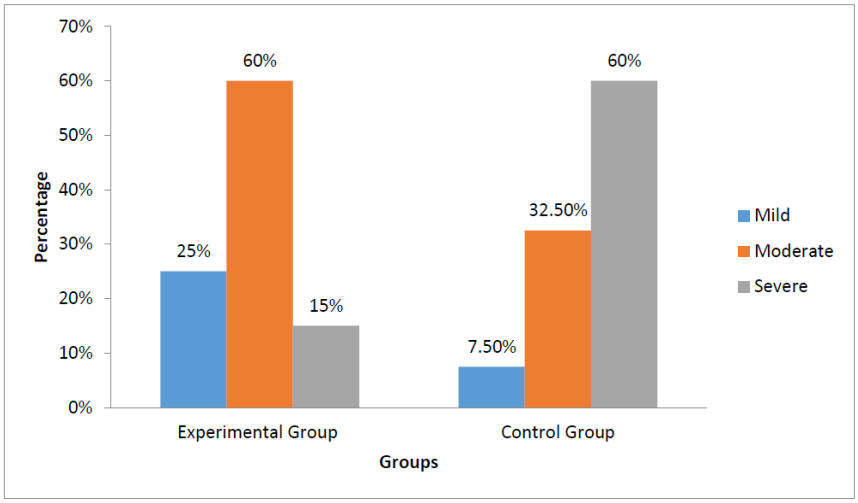

Figure 3: **Comparison of the level of pain among children underwent venipuncture between experimental and control group (FLACC Scale).**

Figure 2 shows the comparison of levels of pain between the experimental and control groups using FLACC Scale. Out of 40 children who were shown cartoon films during venipuncture, majority, 24 (60%) had experienced only moderate pain, 10(25%) had mild pain and only 6 (15%) had severe pain. Whereas in the control group, out of 40 children majority, 24 (60%) had severe pain, 13 (32.5%) had moderate pain and only 3 (7.5%) had mild pain. This association is statistically significant (p value<0.001) concluding that cartoon films were effective in reducing procedural pain.

C) The level of pain among children in the Control and Experimental groups using Numerical Rating Scale

N=40

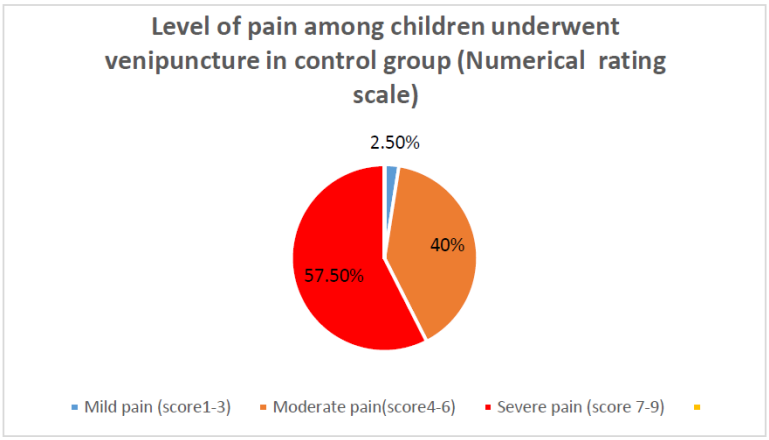

Figure 4: The level of pain among children underwent venipuncture in the control group (Numerical Rating Scale).

The above figure shows that, majority of children in the control group, 23(57.5 %) who underwent venipuncture had severe pain (Score 7-10), 16 (40%) of them had moderate pain (Score 4-6) and only 1(2.5%) of them had mild pain (score 1-3).

N=40

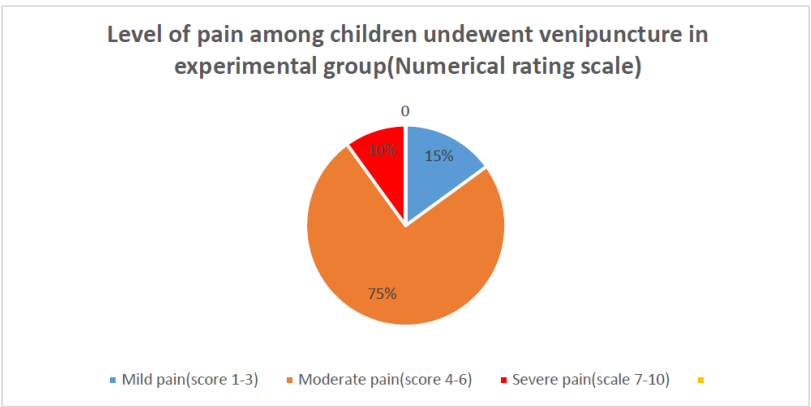

Figure 5: The level of pain among children underwent venipuncture in the experimental group (Numerical Rating Scale).

The above figure shows that, majority of children in the experimental group, 30 (75 %) had only moderate pain (Score 4-6), 6 (15%) of them had only mild pain (Score 1-3) and only 4 (10%) of them had severe pain (score 7-10).

D) Comparison of the level of pain between children belonging to experimental and control group who underwent venipuncture using Numerical Rating Scale.

Table 2: Comparison of the level of pain among children underwent venipuncture between experimental and control group (Numerical Rating Scale).

N=80

Group	Level of pain (Numerical Rating Scale)			P value
	Mild (%)	Moderate (%)	Severe (%)	
Experimental n=40	6(15%)	30(75%)	4(10%)	<0.001
Control n=40	1(2.5%)	16(40%)	23(57.5%)	

N=80

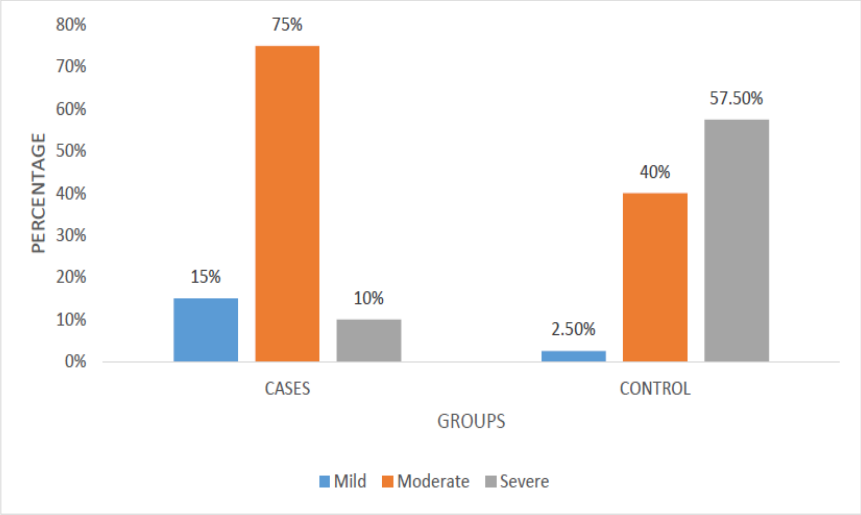

Figure 6: **Comparison of the level of pain among children underwent venipuncture between experimental and control group (Numerical Rating Scale).**

Table 2 and figure 6 show the comparison of levels of pain between the experimental and control groups using Numerical Rating Scale. Out of 40 children who were shown cartoon films during venipuncture, 30(75%) had experienced moderate pain, 6(15%) had mild and 4(10%) had severe pain. Whereas in the control group, out of 40 children 23(57.5%) had severe pain, 16(40%) had moderate pain and 1(2.5%) had mild pain. This association is statistically significant (p value<0.001) concluding that cartoon films as a distracter were effective in reducing procedural pain.

D) Association of the level of pain among children during venipuncture with selected socio demographic variables.

Table 3: Association of the level of pain (Numerical Rating Scale) among children during venipuncture with age and gender.

N=80

Demographic variables		Mild	Moderate	Severe	P – Values
Age	5-7 yrs	3 (42.9%)	31 (67.4%)	20 (74.1%)	0.291
	8-10 yrs	4 (57.1%)	15 (32.6%)	7 (25.9%)	
Gender	Male	6(85.7%)	20(43.5%)	17(63%)	0.056
	Female	1(14.3%)	26(56.5%)	10(37%)	

The above table shows that there were no statistically significant associations between level of pain perception and the age and gender of the child (p< 0.05). The pain perceptions were at the same level irrespective of the age and gender of the child.

DISCUSSION

The present study was conducted to evaluate the effect of cartoon films on pain among children during venipuncture. The study setting was the pediatric department of tertiary care hospital. A total of 80 subjects were included in the study, 40 each in the experimental and control groups. The pain score was assessed using FLACC scale and numerical pain scale. After administering the distraction technique during venipuncture using cartoon films, the pain score was first assessed using FLACC scale and it was found that among the experimental group, majority, 24 (60%) had experienced only moderate pain, 10(25%) had mild pain and only 6 (15%) had severe pain. Whereas in the control group, out of 40 children, majority, 24 (60%) had severe pain, 13 (32.5%) had moderate pain and only 3 (7.5%) had mild pain. The same when assessed using numerical pain scale, it was found that majority of children in the experimental group, 30 (75 %) had only moderate pain (Score 4-6), 6 (15%) of them had only mild pain (Score 1-3) and only 4 (10%) of them had severe pain (score 7-10) when the venipuncture was done by using cartoon films as a distraction technique. In contrary, in the control group, majority of them 23(57.5 %) who underwent venipuncture had severe pain (Score 7-10), 16 (40%) of them had moderate pain (Score 4-6) and only 1(2.5%) of them had mild pain (score 1-3). This shows that a significant decrease in pain level was there among experimental group in comparison with the control group. The results of the present study is congruent with the results of a study conducted in China by Fei Li et.al[9] where they used cartoon films as a distraction technique while administering vaccines to the children in the age group of 1-6 years. Children in the cartoon group exhibited significantly lower FLACC scores compared to the control group. The mean

FLACC score for the cartoon group was 2.40 ± 2.05, compared to 7.10 ± 2.35 for the control group, with a highly significant difference ($p < 0.001$; 95% confidence interval). This was also congruent with the results of another similar study conducted by C V Bellieni et.al[10] on the analgesic effect of T V watching during venipuncture among 69 children aged 3-7 years. It was found that the mean pain score rated by the children were 23.04 (SD 24.57) in the control group and 8.91 (SD 8.65) for the experimental group who used television as a distraction measure. It was also found that there were no associations between the pain scores and the age and gender of the children (p values 0.291 and 0.056). The results of the present study and the results of the above mentioned similar studies concludes that cartoon films can be used as an effective non pharmacological method for reducing the pain while carrying out painful procedures among children in the Pediatric units.

CONCLUSION

The findings of the study suggest that distraction techniques are effective in reducing pain among children which is helpful for the co-operation of children at the time of procedure in pediatric ward and procedure rooms. The nursing practices should also include other kinds of non-pharmacological methods for the pain management in children. On the basis of the findings of the present study, it can be concluded that cartoon movies can be effectively used as a distraction technique for small children while doing painful procedures like intravenous injections. This technique is easy to administer with less cost. This will help the nurses as well as the mothers /care givers of the children to handle the children easily while undergoing painful procedures in the hospital/clinics.

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Conflict of interest: None

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