

COLOURFUL CURE: THE ROLE OF CARTOONS IN SOOTHING PAINFUL PROCEDURES FOR PRE-SCHOOL CHILDREN- A RANDOMIZED CONTROL TRIAL

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Abstract

Background The objective of this study was to assess the effectiveness of cartoon in reduction of pain among preschool children during venipuncture. **Materials and Methods:** This was an open labelled randomized control trial done All preschool children admitted in Pediatric ward, Government Headquarters Hospital, Kanchipuram in the month of July,2023 **Intervention:** Cartoon therapy during venipuncture. **Outcome:** Pain as assessed by Wong Baker's Pain scale. **Results:** The mean (SD), pain score in the experimental group was 3.22 (0.49) which was less than that noted in control group 3.67 (0.54) and this difference was found to be statistically significant (P <0.001). **Conclusion:** Cartoon therapy is effective in alleviating pain during venipuncture in children.

INTRODUCTION

Hospitalisation is inherently stressful for children, making it crucial for health care providers to adopt a child centered approach in assessing and managing pain during procedures. Medical interventions, especially needles, are a source of significant fear for children. Intravenous(iv) blood sampling or administering therapeutic agents through venipuncture is a common procedure for children. Despite approximately 83% of 3-6years old reporting distress during venipuncture, less than 10% of procedures incorporate age appropriate management strategies.^[1]Distraction techniques such as toys , pictorial books, kaleidoscopes, videogames and blowing bubbles are examples aimed at alleviating pain in young children Effective management of procedural pain is vital for improving treatment outcomes and overall patient satisfaction. Both pharmacological and non pharmacological methods play a role in achieving the goal.^[2]Preprocedural local analgesics, though widely used, havenot fully addressed the pain and stress experienced by children during venipunctures.^[3,4]Non pharmacological interventions including hypnosis, cognitive behavioral therapy and physical methods like hot and cold packs help reduce perceived pain severity. However, drawbacks such as their effect, time

consuming nature and the need for skilled manpower and financial resources limit their effectiveness.^[5,6]

Cartoon animations as a distraction strategy prove to be effective, affordable and easily administered as procedural pain therapy for children though results in the literature are inconsistent. Cartoon animations engage multiple senses, instill a sense of familiarity and quickly evoke enthusiasm among young children compared to other distraction methods.^[7]This study aimed to evaluate the effectiveness of cartoons in reducing pain in preschool children during venipuncture.

MATERIALS AND METHODS

This was an open labelled randomized control trial done in preschool children admitted in paediatric ward of a government headquarters hospitalin the month of July 1-31,2023.Preschoolers aged 3-5years undergoing venipuncture were included, excluding those with intellectual or behavioural disorders,deafness and those who are not accompanied by mothers,Sample size-72(36 per group) was calculated based on previous study with a mean pain score of 5.45(1.7) in the experimental group and 7.9(1.4) in the control group with an α error of 1% and β error of 5% with an allocation ratio of 1:1.^[8]

Consent was obtained and participant details were recorded in proforma. Computer generated block randomization with block size of 6 with allocation concealed in a sealed envelopes, The experimental group watched a 5 minutes cartoon video in the local language before and after venipuncture. The control group had not shown any video. Both groups were positioned near their mothers during the procedure.

Wong Baker pain rating scale (0-10) is used to assess the pain by observing facial expressions of the children. A score of 0 indicates no pain, 1-3 score as mild pain, 4-6 as moderate and 7-10 as severe pain.^[9] Data were analysed with SPSS software. Mean pain score in both groups were compared using student 't' test. Various categories of pain were compared between both groups by chi-square test considering p value < 0.05 as significant.



Figure 1

The above Fig consist of pain scores of 0 to 10 which the subject choosing from the faces showing level of pain.

WBF PAIN RATING SCALE SCORE

The scoring was assessed severity classified as No pain, Mild, Moderate, severe

- 0 - No Pain
- 1-3 - Mild
- 4-6 - Moderate
- 7-10 - Severe

RESULTS

Totally 72 patients were included in the study of whom 36 were shown cartoon during venepuncture and 36 were not. Patient flow is shown in figure 1. The mean (SD) age was 3.6(1.2). There were 40 (55.6%) females.

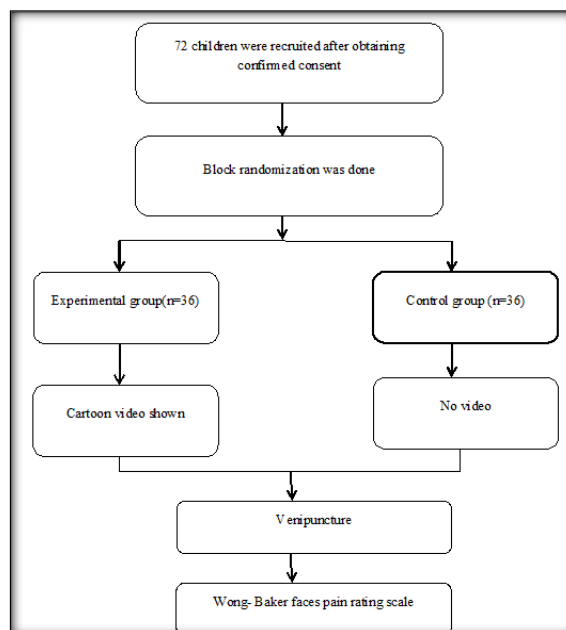


Figure 2

As many as 30 (41.1%) had previous experience of venepuncture. Out of the total study population 2 (2.8%) experienced mild pain, 36 (50%) experienced moderate pain and the rest 34 (47.2%) experienced severe pain.

The mean (SD), pain score in the experimental group was 3.22 (0.49%) which was less than that noted in control group 3.67 (0.54%) and this difference was found to be statistically significant (P < 0.001). [Table 1]

Children who were administered cartoon video experienced lesser degree of pain compared to the other group as given in table 2 and this was statistically significant (p < 0.001). [Table 2]

Comparison of pain categories between experimental and control group

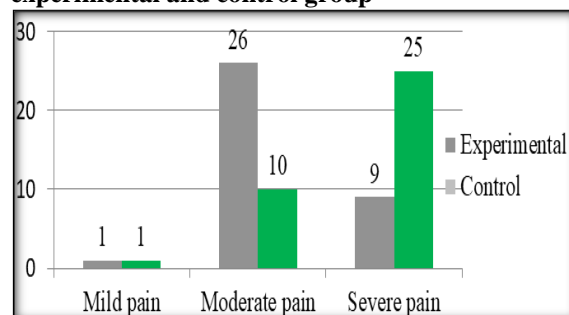


Figure 3

p value < 0.001

Table 1: Comparison of pain scores between experimental and control groups

Group	Number	Mean Pain scale	Standard deviation	p value
Experimental	36	3.22	0.49	<0.001
Control	36	3.67	0.54	

Table 2: Comparison of pain categories between both groups

WPF PAIN	GROUPS	p value

SCORE	Experimental	Control	
Mild pain	1	1	<0.001
Moderate pain	26	10	
Severe pain	9	25	

DISCUSSION

The study aimed to evaluate effectiveness of cartoon in reducing pain during venipuncture in preschool children. Findings revealed a significant impact on pain perception at initiation, at 5 minutes and at termination of intravenous injection administration. The study, though limited to a single center with a small sample size, was adequately powered for significant detection.

A related study using the Oucher scale on 69 children aged 7-12 years of age receiving intravenous injections found that watching TV (specifically, an age-appropriate cartoon on TV) was more helpful than their mothers' active distraction.^[10] Our results align with prior studies showing adult coaching and distraction benefit children in painful medical procedures.^[11] Audiovisual distractions were effective in another study in reducing pain as measured by mean pain scores at 5, 15, and 30 minutes.^[12]

Negative injection experiences can create a cycle of anxiety, fear and pain impacting future encounters. While some studies found no significant difference in pain reduction between the audiovisual distraction and control groups ($p = 0.064$), but noted an improved cooperation from 81% (control group) to 92% (for the audiovisual distraction group) which is clinically significant. This indicates that watching cartoons had a positive impact on children's behavior and attitude.^[13,14] In conclusion, cartoon therapy proves effective in distracting and reducing pain during venipuncture in preschool children.

CONCLUSION

Cartoon therapy is effective in alleviating pain during venipuncture in children.

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