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The effectiveness of animated cartoon video as a distraction strategy on pain perception during venipuncture among children

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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. This was a quasi-experimental study of 60 children (30 in experimental group and 30 in control group) undergoing venipuncture in selected hospitals of Gurugram. The FACES pain scale uses to for pain assessment. Experimental group were given passive distraction in the form of cartoon movie but the control group were not during venipuncture. The intervention was done 2 minutes before initiation of procedure (venipuncture) during procedure and till 5 minutes of completion of procedure. Mean pain score in experimental group was lower (4.47) than that of the control group (8.40) with the mean difference of 3.93 which was significant as evident from "t" value of (10.2279) at 0.05 level of significance. Cartoon movie as a distracter is effective on reducing pain of children undergoing venipuncture.

Keywords: Effectiveness, cartoon movie, pain, venipuncture

Introduction

Children are constantly on the moving, exploring their world with exuberance, curiosity and a seemingly endless source of energy. A child's capacity for learning in this stage is enormous. Children learn and develop from every experience, relationship and adventure they encounter. Pain in children and adolescents with acute and chronic diseases is a major public health problem that has been increasing over the last 20 years. Studies confirm that pain can negatively affect the life of children as well as that of their parents. Health care practices can have an impact both on pain onset and its relief. Venipuncture is one of the invasive procedures most frequently carried out during the day in chronic patients. Before and during this procedure most children are fearful and suffer from pain and anxiety. Anxiety and fear are found to be inversely proportional to the age of children. Children cry, are scared and refuse to collaborate, whereas parents are often worried and unable to provide any support. Negative reactions, including phobia linked to previous procedures, may exacerbate the situation and reduce the likelihood to successfully carry out venipuncture. Studies suggest that even painful experiences during neonatal age can be associated with excessive responses to pain during childhood and adulthood. Many sources report that pain relief is both an ethical imperative and a child's right requiring an accurate planning focused on the needs and characteristics of children and their families. This requires a multidisciplinary approach that is simple, safe, effective and inexpensive capable of reducing suffering and improving the outcomes of clinical procedures in children.

Material and Methods

Quantitative research approach with quasi experimental posttest only one design with control group was used and 60 children undergoing venipuncture by non-probability sampling techniques in selected Hospital at Gurugram. The tool was standardized Wong Bakers face pain rating scale pain rating scale developed by Connie M Baker MS 1983 in order to assess the pain experienced by children. Standardized FACES pain scale was used to depict pain perception in children. The scale shows a series of faces ranging from a happy face at 0, "No hurt" to a crying face at 10 "Hurts worst" with maximum score as 10 and minimum as 0 categorized as 0-No Hurts, 2-Hurts Little Bit, 4-Hurts Little More, 6-Hurts Even More, 8

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-Hurts Whole Lot and 10-Hurts Worst

Data Collection Procedures

During the procedure of venipuncture, the investigator showed animated cartoon video Tom and Jerry with the help of laptop until the venipuncture procedure has been completed for experimental group children. No intervention were given to the control group children. The investigator were assessed the level of pain by using the Wong Bakers face rating Scale in both experimental and control group children simultaneously.

Result and Discussion

The result of current study that the children in the experimental group had reduction in the level of pain when compared with control group. Hence the cartoon animation show was response to reduce the venipuncture pain among children. Similarly the findings of current study was consistent with the study conducted by James J, Ghai S, Rao KLN, (2012) [18] conducted a quasi-experimental study was conducted in PGIMER, Chandigarh, on 50 children of three to six years age who were undergoing venipuncture to see the effectiveness of "Animated Cartoons" as a distraction strategy to reduce the perception of pain. During the first venipuncture children were assessed at pre, during and post venipuncture for perception of pain with routine care only and during the second venipuncture with routine care and animated cartoon. The tools used for the study included a baseline proforma and FLACC (Face, Legs, Activity, Cry and Consolability) behaviour pain scale. The mean pain score was significantly less, i.e., almost half with animated cartoon (2.26±2.18) as compared to routine care (4.76±2.08) at pre-venipuncture. Similarly, the mean pain score during

venipuncture was significantly less with animated cartoon (6.24±2.09) as compared to routine care (8.06±1.70). During post-venipuncture also the mean pain score was significantly less, i.e., almost half with animated cartoon (2.94±1.71) as compared to routine care (5.94±1.61). The results revealed that there was significantly (p<0.001) less pain related behavioural responses with the use of animated cartoons as a distraction strategy at pre-, during and post-venipuncture. It was concluded that animated cartoon is an effective distraction strategy to reduce pain among the children undergoing venipuncture. Thus animated cartoons can be used for effective handling of behavioural responses in children during invasive procedures.

The result of current study showed that In the experimental group, the posttest level of mean pain score was 4.47 with S.D 77.47 and in the control group the posttest mean score was 8.40 with S.D 51.2. The calculated 't' value of 10.22 was statistically significant at p<0.05 level indicating that there was significant difference in the post test level of pain between the experimental and control group. Hence the hypothesis H1 is accepted and stated that there is significant difference of pain level during venipuncture between Experimental and control group.

Tables and Figures

Out of 60 the age majority i.e. 43.3% (13) children were under the age category of 4 to 6 years in experimental group and where as in control group 46.6% (14) were in the age group of 4 to 6 years of age. Regarding the gender in experimental group majority of the sample i.e. 53.3% (16) children were male and 46.7% (14) patients were female, whereas in control group majority i.e. 56.7% (17) were male and 43.3% (13) were female.

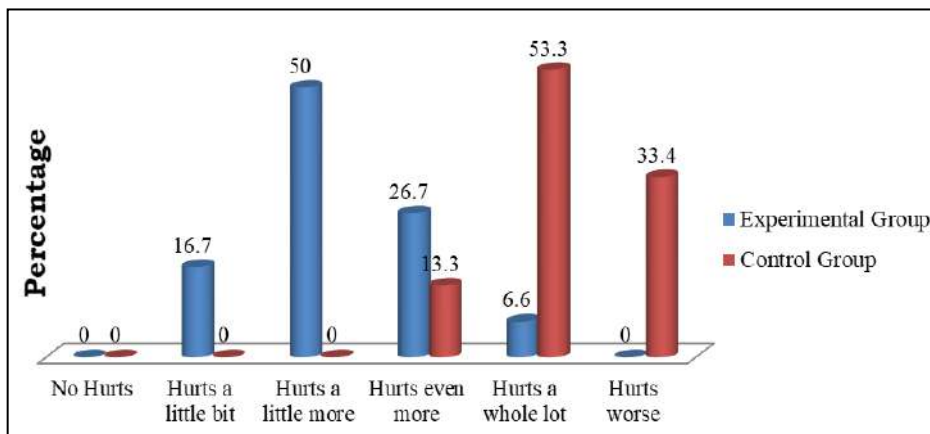


Fig 1: Bar diagram shows the percentage distribution of pain level after venipuncture among children in experimental and control group

Table 1: Comparison of mean post-test pain score of experimental and control group

Group	Mean	SD	Mean Difference	't' Value
Experimental	4.47	77.47	3.93	10.2279*
Control	8.4	51.2		

*Significant at 0.05 level of significance
t (58) = 2.000 at 0.05 level of significance.

It was revealed that the mean scores on level pain in experimental and control group regarding venipuncture were 4.47 and 8.40 respectively with a mean difference 3.93. The computed 't' value was found to be significant at 0.05 level of significance, as it is higher than the tabulated value. So it can be concluded that animated cartoon video as a distraction strategy is effective in reducing pain during venipuncture.

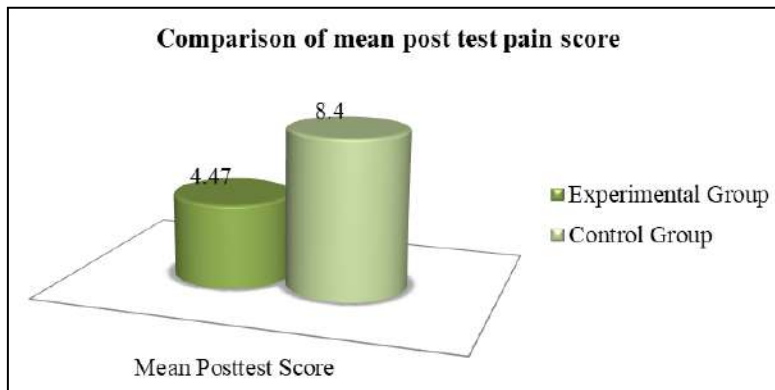


Fig 2: Bar diagram showing the mean posttest pain score after venipuncture among children in experimental and control group

Table 2: Chi square values showing association between posttest pain score of experimental group with demographic variables

N=30

Demographic Variables	Below Mean	Above Mean	Control Group		df
			CHI Square Value	Table Value	
Age in years					
a. 4 to 6	5	8	8.42	5.99	2 ^S
b. 7 to 9	12	2			
c. 10 to 12	3	0			
Gender					
a. Male	11	5	0.067		1 ^{NS}
b. Female	9	5			
Order of birth					
a. First	7	7	3.57	5.99	2 ^{NS}
b. Second	12	3			
c. Third and above	1	0			
Education of child					
a. Not yet started	3	6	6.75	5.99	2 ^S
b. Regular School	15	3			
c. Drop out	2	1			
Previous experience of venipuncture					
a. No	13	7	0.983	7.81	3 ^{NS}
b. Within a week	5	2			
c. A week back	1	1			
d. Two week back	1	0			
Site of venipuncture					
a. Radial	12	7	0.955	5.99	2 ^{NS}
b. Brachial	5	1			
c. Others	3	2			

Table 2 depicts the chi square value obtained to find out the association between posttest pain score of children in experimental group with demographic variables: There was a positive significant association between the

posttest pain score of the children in experimental group with demographic variables like age and education of the children.

Table 3: Chi square values showing association between posttest pain score of experimental group with demographic variables

Demographic Variables	Below Mean	Above Mean	Control Group		df
			CHI Square Value	Table Value	
Age in years					
a. 4 to 6	4	10	17.26	5.99	2 ^S
b. 7 to 9	8	0			
c. 10 to 12	8	0			
Gender					
a. Male	13	5	0.625		1 ^{NS}
b. Female	7	5			
Order of birth					
a. First	5	8	7.62	5.99	2 ^{NS}
b. Second	11	2			
c. Third and above	4	0			
Education of child					
			6.46	5.99	2 ^S

a. Not yet started	2	5			
b. Regular School	16	5			
c. Drop out	2	0			
Previous experience of venipuncture					
a. No	14	8	3.47	7.81	3 ^{NS}
b. Within a week	1	1			
c. A week back	0	1			
d. Two week back	5	0			
Site of venipuncture					
a. Radial	14	5	2.83	5.99	2 ^{NS}
b. Brachial	6	4			
c. Others	3	1			

Table 3 There was a positive significant association between the posttest pain score of the children in control group with demographic variables like age, order of birth and education of the children. On computation it was found that there was no significant association between posttest pain score of children in control group with demographic variable like gender, previous experience and site of venipuncture

Conclusion

The study finally concluded that showing cartoon animation show during venipuncture, has a positive effect on reducing pain for the children. This conclusion was made based on the 't' test value which was found to be highly significant. With regard to the level of venipuncture pain among children, most of them were found to have severe and moderate pain in the group B, as measured by FLACC scale and group A exhibited only moderate and severe. It revealed that the pain during venipuncture which denotes that the reduction of pain was due to showing cartoon animation show.

Recommendation

A similar study can be replicated on a large sample size. A similar study can be conducted in different settings such as newborn care units or infant care units. The mothers of children undergoing venipuncture can be encouraged to carry out this method if nurses are occupied by venipuncture procedure. Cartoon animation show alleviates the anxiety and discomfort with in the mother who may feel very much comfortable and happy due to pain reduction in the child and the child is calm. The cartoon animation show can be effectively instituted in the pediatric ward as the children are temporarily separated from mother.

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