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Surbhi Royna Kehari
Professor, Department of Child
Health Nursing (Pediatric
Nursing) Madhya Pradesh
Medical Science University,
Jabalpur, Madhya Pradesh,
India

Dr. Ramya K. Kannan
Professor, Department of Child
Health Nursing (Pediatric
Nursing) Madhya Pradesh
Medical Science University,
Jabalpur, Madhya Pradesh,
India

Corresponding Author:
Surbhi Royna Kehari
Professor, Department of Child
Health Nursing (Pediatric
Nursing) Madhya Pradesh
Medical Science University,
Jabalpur, Madhya Pradesh,
India

Assess the effectiveness of cartoon animation video on pain reduction during surgical dressing among children: A Pilot Study

Surbhi Royna Kehari and Dr. Ramya K Kannan

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Abstract

Children's 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. Being brought to the hospital causes fear and anxiety in 3 to 6 years old children. Quantitative research study Quasi experimental post-test only control group design was used. Total 40 Children was selected by using of purposive sampling method in which 20 Children for experimental group and 20 Children for control group from selected hospitals of Jabalpur city. The motive of this study was to assess the reduction of pain during surgical dressing of pre-school children. In this study cartoon animation video refers to a recording of moving pictures and sound that is made from a computer graphics such as Tom and Jerry, Shinchuan, Doraemon, and Chhota Bheem, which will be shown to children on 2nd and 3rd day of surgical dressing. In this study pain is an unpleasant sensory and emotional experience feel by children during surgical dressing which would be assessed by FLACC pain scale. The FLACC scale or Face, Legs, Activity, Cry, Consolability scale is a measurement used to assess pain for children between the ages of 2 months and 7 years or individuals that are unable to communicate their pain. The scale is scored in a range of 1–15. The scale has five criteria, which are each assigned a score of 1, 2, 3. Interpreting the pain score: Total score was 15, Minimum score-5, Maximum score-15, 1-5= Mild Pain, 6-10= Moderate pain, 11-15= severe Pain. Overall findings indicate that there is need to reduce pain during surgical dressing of preschool children in surgical wards of selected hospitals.

Keywords: Animation video, face, legs, activity, cry, consolability, preschool children, surgical dressing, pain etc.

Introduction

Dressing of any kind can hurt! Children know this pain is predictable. How they respond to a surgical dressing depends in part of their developmental age and their previous experience with shots. Surgical dressing should be given in such a manner that the children do not have time to build up their anxiety about the surgical dressing. Preschool children enjoy active play, during the injection the nurse can suggest diversional activities. According to parents, 83% of preschool or kindergarten-aged children suffer from different kinds of anxiety symptoms related to hospital fear even after a minor operation in a hospital. Pain relief is a human right, yet pain in children is an under-recognized problem around the world. Surgical dressing causes moderate or severe pain in a substantial number of children. In order to decrease the painful experience during surgical dressing diversional activities in the form of play, game, radio, video-cassette recorder and television can be used. Cartoon movies are successful diversion for a child who is hospitalized.

Background of the study

The word pain is derived from the Latin word "Poena" which means punishment, which in turn derived from the Sanskrit root "PU" meaning purification. The International Association for the Study of Pain defines, "pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, are described in terms of such damage". Many different things cause pain, injuries are the most common cause of pain in children. The impact of painful experience on the young nervous system is so significant that long-term effects can occur, including a lowered pain tolerance for months after a pain-producing event. Pain assessment, which is obviously the first step toward appropriate treatment, can, therefore, be more complex than just obtaining a single pain score; it is also essential to pay attention to changes in pain scores in response to treatment young children, and those with

Cognitive impairment can be assessed using the FLACC (Face, Legs, Activity, Crying and Consolability) scale. Experience of pain at dressing change can raise a child's anxiety levels about subsequent dressing changes. In addition to the psychological effects, stress and pain can actually impair the healing process, resulting in longer healing times and greater costs.

A simple, easily applicable, and low-cost distraction intervention such as presenting cartoon movies seems to be sufficiently powerful to measurably reduce burned children's distress during dressing changes. Findings of the study shows cartoon movie (mean effect was 0.33 ± 0.17) is more effective distractive for behavioral distress on wound debridement dressing change. Thus, a child experience during painful medical procedures likely plays a significant role in shaping that individuals pain response to future events (IASP, 2012).

Need of study

Diversional therapy has been used successfully as an intervention to decrease children's pain and behavioral responses during surgical dressing. However, diversional therapy protocols differ in various ways, most notably in the attention required by the participant to engage in the distraction. The theoretical explanation for the effectiveness of distraction lies in its ability to divert attention away from the painful stimulus. McCaul and Malott (1984) hypothesize that the brain has a limited capacity to focus attention on stimuli. Therefore, using up attentional resources while engaging in a distracting task leaves little capacity for attending to painful stimuli. The Gate Control Theory of Pain proposed by Melzack and Wall (1965, 1995) offers a physiological explanation of the effectiveness of attention diversion. In brief, the Gate Control Theory explains that pain perception can be affected by factors other than the stimulus itself. This theory suggests that pain perception is controlled by a neural mechanism or "gate" in the spinal cord. Depending on how the mechanism is activated, the gate can be opened or closed. When the gate is open, 8 pain signals are transmitted to the brain, and when the gate is closed, they are not. Melzack originally proposed this theory to explain why physically stimulating an area can lead to reduced pain perception, but later modified his theory to suggest that cognitive factors can also open or close the gate. Cognitive and behavioral processes, such as distraction, Lamaze, and self-hypnosis, cartoons can close the gate to subsequent pain perception by diverting attention away from the painful stimulus and toward focal points.

The investigator's personal experience when observing the children having increased pain and behavioral responses during surgical procedures in pediatric surgery wards motivated the researcher to conduct a study on using diversional technique to decrease the pain and modify the behavioral responses of pre-school children.

Goals

To reduce pain during surgical dressing among preschool children.

Assumptions

- Children may experience pain during surgical dressing and elicit behavioral changes.
- Distraction techniques in children may reduce pain during any painful situation.

Material and Methods

- **Research approach:** Quantitative research approach used for the study.
- **Research design:** Post-test only control group design used for the study.
- **Sampling technique:** Purposive sampling technique used for the study.
- **Sample:** The sample consisted 40 Children was selected by using of purposive sampling method in which 20 Children for experimental group and 20 Children for control group from selected hospitals of Jabalpur city.
- **Tools**
 - **Section A: Socio-Demographic Data**
Socio- demographic data contain 6 items included age, sex, education of child, presence of care giver, Area living, Types of Family.
 - **Section B: Clinical Variables** contain 5 items previous experience of surgery, Days of Dressing, Type of Surgery, Previous exposure of surgical dressing, Condition of stitches.
 - **Section C: FLACC modified pain scale**
This tool used by the investigator to observe the children pain response during surgical dressing, included 5 parameters – facial expression, leg, activity, cry, consolability.

Data collection procedure

Before collecting the data, consent was obtained from the care taker of the children. Confidentiality and privacy were assured to them. Formal permission letter had been obtained from the concerned administrative authorities of the selected hospitals. Before the administration of the tool, self-introduction given and purpose of data collection was explained to the caregiver of the samples. The researcher took 40 samples 20 for experimental group and 20 for control group according to inclusion criteria. The experimental group given cartoon animation video for 15-25 min alternatively to the preschooler children and Modified FLACC pain used for assessing pain during active phase, whereas the control group were not given any intervention. After seems the result by posttest only.

Ethical consideration

Informed consent was obtained from the caregiver of samples. The participants were assured of anonymity and confidentiality of the information was provided by them and assurance was given that the information obtained had been solely used for the study purpose.

Analysis and interpretation of data

Section-I

Baseline information among children were selected from Hospitals of Jabalpur. It was found that Control Group Finding of the demographic variables shows that 15 (75%) of children's are in the age group 4- 5 years, 12(60%) of children were male, 10 (50%) of Children were in Class I, 15 (75%) of children with mother was presence, 16(80%) of

children lived in rural area, 15 (75%) of children belongs to joints family. In Clinical variables 20 (100%) of preschooler children had no experience of surgical dressing, 12 (60%) of children were present in 2nd days of dressing, 15(75%) of preschooler children had genitourinary surgery, 20(100%) of preschooler children had no previous exposure of surgical dressing, 13 (65%) of children had redness present in stitch area. Experimental Group Finding of the variables shows that 16 (80%) of Children's are in the age group 5-6 years, 13 (65%) of preschooler children were male, 17 (85%) were in Class I, 15(75%) of children with mother was presence, 13 (65%) of children lived in rural area, 12 (60%) of children belongs to joints family. In Clinical variables 20(100%) of preschooler children had no experience of surgical dressing, 10(50%) of children were present in 1st

day of dressing, 15(75%)of preschooler children had genitourinary surgery, 20(100%)of preschooler children had no previous exposure of surgical dressing, 13(65%) of children had redness present in stitch area.

Section II: It deals with the analysis of data related to assess the intensity of pain among preschooler children in control group. N =20

Table 1: Assess the intensity of pain among preschooler children in control group.

S. No.	Pain scale	Frequency	Percentage	Mean	SD
a	Mild Pain	0	0	4.38	±1.09
b	Moderate Pain	7	35		
c	Severe	13	65		

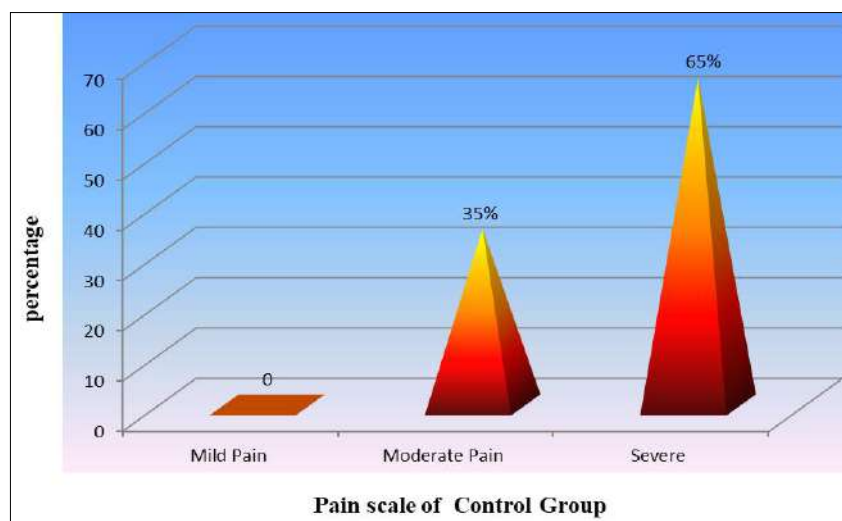


Fig 1: FLACC in control groups

The data in Table No.1 and Figure No.1.shows that out of 20 subjects in control group, the majority the preschooler children 13(65%) had severe pain, 7(35%) had moderate pain, none of them had mild pain.

Section B: It deals with the analysis of data related to Assess intensity of pain among preschooler children in experimental group. N=20.

Table 2: Assess intensity of pain among preschooler children in experimental group.

S. No.	Pain scale	Frequency	Percentage	Mean	SD
a	Mild Pain	15	75	3.5	±2.7
b	Moderate Pain	5	25		
c	Severe	0	0		

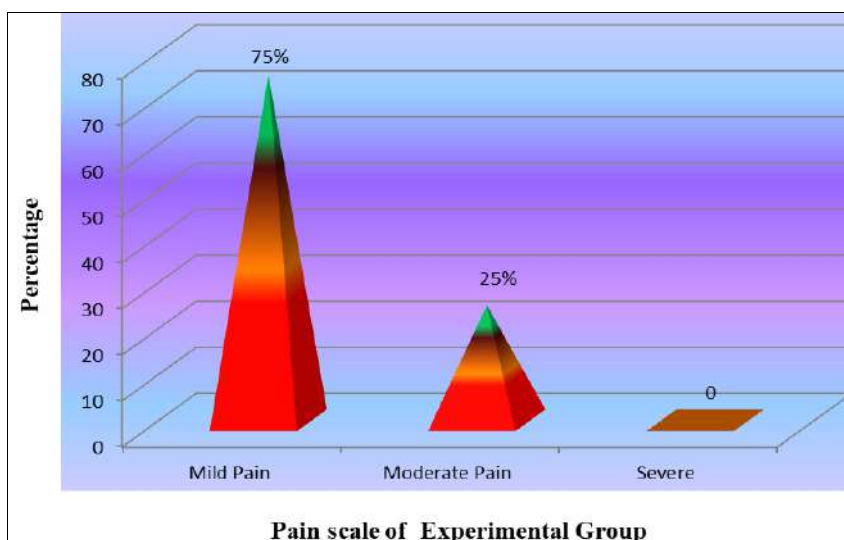


Fig 2: Pain scale of experimental group

The data in Table No.2.and Figure No. 2. Shows that out of 20 subjects, in experimental group, the majority of

preschooler children 15(75%) had mild pain and 5(25%) had moderate pain, and 0(0) of them had severe pain.

effectiveness of cartoon animation video in surgical dressing to reduce pain between control and experimental group (N=20)

Section C: It deals with the analysis of data related to the

Table 3: Effectiveness of cartoon animation video of the intensity of pain between control group and experimental groups

S. No.	FLACC Scale	Control Group (N=200)		experimental Group (n=200)	
		Frequency(n)	Percentage (%)	Frequency(n)	Percentage (%)
a	Mild pain	0	0	15	75
b	Moderate pain	7	35	5	25
c	Severe pain	13	65	0	0

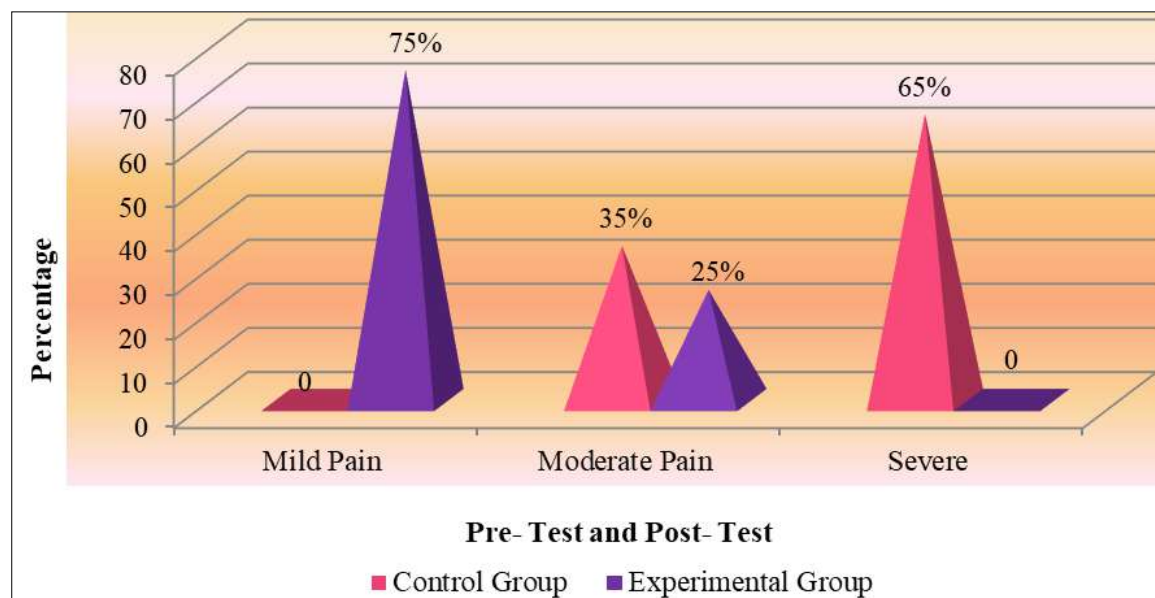


Fig 3: Effectiveness of cartoon animation video of control & experimental group

The data in Table No. 3 and Figure No. 3 shows that out of each subjects in experimental and control group. Experimental group intensity of pain of preschooler children shows that out of 20 subjects of preschooler children 15(75%) had mild pain and 5(25%) had moderate pain, and 0(0) of them had severe pain. Control group, the majority

the preschooler children 13(65%) had severe pain, 7(35%) had moderate pain, none of them had mild pain.

Section D: It deals with the analysis of data related to the Comparison of intensity of Pain between control group and experimental group. (N=20)

Table 4: Comparison of intensity of Pain between control group and experimental group.

S. No.	Group	Mean	Mean Difference	SD	SD Difference	t-value	Inf.
1	Control group	4.38	0.88	±1.09	1.61	3.14	S
2	Experimental group	3.5		2.7			

*S=Significant

The Control group and Experimental group was statistically tested by applying t-test method at the 0.05%. In the case the calculated value of t (3.14) was more than the table value (2.02), the difference between the two conditions was significant at 0.05 Level of Significance, showing effectiveness of cartoon animation video.

The data in Table No. 4 shows that out of 20 subjects in experimental and 20 subjects in control group, in experimental group intensity of pain score the mean score was 3.5 and standard deviation was ± 2.7 and. in control group intensity of pain score the mean score was 4.38 and standard deviation was ± 1.09 and the mean difference was 0.88 score and the standard difference was 1.61 score.

Conclusion

After detailed analysis, the study detailed following conclusion shows that cartoon animation video is very effective in reducing pain among preschooler children

during surgical dressing it is safe for the children. It is non pharmacological method so it doesn't have any side effect.

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