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Effect of kaleidoscope on pain among children during intravenous canulation

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Abstract

When admitting children to hospitals, it's crucial to consider their comfort. Pain during IV cannulation can be distressing. According to a global estimate of the child population, children make up 30.2% of the entire population, and by 2050, that percentage will rise to 50%.Children with a variety of medical issues are being admitted. In developing nations, infectious diseases, malnutrition, and limited access to healthcare contribute significantly to child admission rates. IV Cannulation procedures are very a much painful memory for the children which they end up associating with medical encounters. The purpose of the study is to determine the effectiveness of kaleidoscope on pain among children during IV Cannulation. Study objectives were to compare the level of pain during IV cannulation with use of kaleidoscope in experimental and control group. A quantitative approach with a quasi experimental research design was used for the study with a Non probability purposive sampling technique. The sample comprised of Total 100 children's each 50 in experimental and control group. Data collection was done using FLACC pain scale. Reliability of the tool done by interrater method. Result showed that there is use of kaleidoscope during IV cannulation is effective to reduce level of pain in experimental group and It was concluded from the statistical tests.

Keywords: Kaleidoscope, Children, Effect, Assess.

INTRODUCTION:

Medical procedures that are performed on children as part of their healthcare management during hospitalisation or nursery may cause them discomfort or stress. Paediatric procedures using a syringe and needle are the most frequent cause of discomfort, with venipuncture or IV cannulation rated as the most unpleasant treatments frequently given to kids. The insertion of an IV cannula, which has been particularly unpleasant for paediatric children and difficult for patients, is said to be one of the most frequent invasive nursing procedures.[1] Nurses and doctors may employ a variety of diversionary strategies to help patients feel more comfortable during IV cannulation by lessening their pain and suffering. The patient's basic demand and right is to have pain relief. Pain management without the use of drugs has proven to be successful with distraction. Effective diversion results in a decrease in pain intensity through its diversion mechanism.[2,3] Children between the ages of 4 and 10 are said to have more egocentric, concrete, and magical thinking, which restricts their capacity to comprehend painful events since they interpret everything from their own, fully formed perspective. The prevalence of needle phobia among children is estimated to be between 4.9% and 9%.[4]

An important source of childhood pain with long-lasting effects on the body and psyche is discomfort from IV cannulation or venipuncture, according to a growing corpus of research. Research on nurses' use of non-pharmacological methods for reducing children's pain during IV cannulation has increased in recent years. Of the pharmacological and non-pharmacological methods, non-pharmacological methods have been regarded as the best strategies for pain management. Distraction is a proven non-pharmacological technique that works.[5,6]

MATERIALS AND METHODS:

Present study was conducted by using quantitative approach with a quasi-experimental research design with a Non probability purposive sampling technique. Sample size were calculated by using power analysis. The sample comprised of Total 100 children's each 50 in experimental and 50 in control group aged between 3-5 years were taken for the study. Children who are on ventilator, Skin Problem at the IV cannulation site, getting sedation and the mentally subnormal were excluded from the study.[7] Ethical committee permission and consent from the samples and parent were taken before conducting the study. Data collection tool had two sections 1 : Demographic Variables: It was used to collect the baseline

information of child like Age and Sex. and section 2: FLACC scale for assessing pain. In this study investigator measure the level of pain in children during IV cannulation procedure, by using FLACC pain scale .The scale is scored on a range of 0-10. The scale has five criteria, that is Face , Legs, Activity, Cry and Consolability which are each assigned a score of 0,1or 2. Reliability of the tool was done by interrater method.[8]

RESULT AND DISCUSSION:

Collected data was analyzed by using statistical method, Frequency and percentage were Calculated for demographic variables, Comparison of data was done by calculating mean, standard deviation and p value and pair t-test was applied to check effectiveness of Kaleidoscope for pain scores.

Table No 1: Frequency and percentages distribution of Demographic Variables

N=50+50

Demographical Variables		**Control Group**		**Experimental Group**	
		Frequency	**Percentage**	**Frequency**	**Percentage**
Age of children	3Yrs	13	26%	18	36%
	4Yrs	22	44%	20	40%
	5Yrs	15	30%	12	24%
Sex of children	Male	31	62%	29	58%
	Femae	19	38%	21	42%

Table number 1 shows that maximum number of children from of the groups were 4 years in both the groups. In terms of gender 62% were male in control group and 58% male in experimental group. 38% Females in control group and 42% females were in experimental group.

Table No 2: Pain assessment according to FLACC scale criteria

N=50+50

Categories		**Control group**		**Experimental group**	
		Frequency	**Percentage %**	**Frequency**	**Percentage%**
Face	No Particular Expression (0)	2	4%	16	32%
	Occasional grimace(1)	17	34%	29	58%
	clenched jaw (2)	31	62%	5	10%
Legs	Normal position (0)	4	8%	19	38%
	Uneasy, restless, tense (1)	9	18%	27	54%
	Kicking or legs drawn up (2)	37	74%	4	8%

Above table shows that in the criteria of face and legs compared to control group experimental group had low pain score. 32% had no particular expression in experimental group, 58% had occasional grimace in experimental group 10% had clenched jaw in experimental group. 8% had legs drown up in experimental group compared to 74 % in control group.

Table No 3: Pain assessment according to FLACC scale criteria

Categories		Control group		Experimental group	
		Frequency	**Percentage %**	**Frequency**	**Percentage%**
Activity	Normal position(0)	2	4%	20	40%
	Squirming, shifting , tense (1)	14	28%	25	50%
	Arched, rigid or jerking (2)	34	68%	5	10%
Cry	No cry (0)	0	0%	21	42%
	Moans, occasional complaint (1)	8	16%	27	54%
	Crying steadily, frequent complaint (2)	42	84%	2	4%
Consolability	Relaxed (0)	5	10%	5	10%
	Reassured by occasional touching, distractible (1)	44	88%	43	86%
	Difficult to console or comfort (2)	1	2%	2	4%

Table number 3 shows that in activity only 10% were arched or rigid in experimental group. 42 % children's didn't cry in experimental group as compared to control group. 84% Children's steadily cried in control group whereas only 4% were steadily crying in experimental group. In comparison of consolability there was not much difference in both the groups.

Table No 4: Frequency and percentages distribution for Grading of pain

N=50+50

Grade		**Control Group**		**Experimental Group**	
		Frequency	**Percentage %**	**Frequency**	**Percentage %**
Mild	1 – 3	0	0%	20	40%
Moderate	4 – 6	1	2%	30	60%
Severe	7 – 10	49	98%	0	0%

Table number 4 shows that in control group 98% children were in severe pain whereas no children had severe pain in experimental group. This shows that severe pain is less in experimental group as compared to control group.

Table No 5: Comparison of pain in control and experimental group

N=50+50

Criteria	**Control Group**		**Experimental Group**		**Unpaired t- test**	**p- value**
	Mean	**S.D.**	**Mean**	**S.D**		
Face	1.58	0.5746	0.78	0.6157	6.7163	0.00001
Legs	1.66	0.6262	0.7	0.6144	7.7369	0.00001
Activity	1.64	0.5627	0.7	0.6468	7.7524	0.00001
Cry	1.84	0.3703	0.62	0.5674	12.7306	0.00001
Consolability	0.92	0.3404	0.94	0.3730	-0.2605	0.3974
Total	7.64	2.4742	3.74	2.8173	4.6674	0.001

Table number 5 shows that in comparison of pain there was highly significant difference in Face, Legs, Cry And Activity except Consolability. Total mean of control group was 7.64 and mean of experimental group was 3.74 with t values 4.6674 and **P value of 0.001**

which is significantly higher because it is less than 0.05. This shows that severe pain is less in experimental group compared to control group. According to the tested values Null hypothesis is rejected. Means there is significant change in level of pain with use of kaleidoscope in experimental group during Iv cannulation.

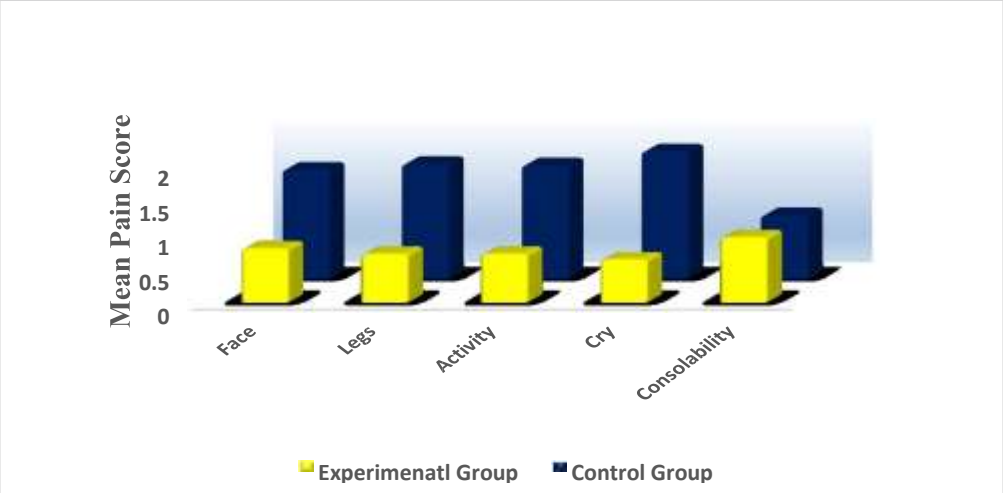

Figure No 1: Comparison of pain in control and experimental group.

Discussion

Present Study has shown that the effectiveness of kaleidoscope on reducing level of pain during IV cannulation is supported by Mr. Hitesh tailor studies as it acts as diversion therapy for children and they gets distracted from the IV cannulation pain by seeing and observing different colourful shapes of kaleidoscope.[9] In this study pain was assessed using FLACC scale, FLACC score was low in experimental group than the control group. This shows that severe pain during IV cannulation is less in experimental group than control group. In present study total mean of control group was 7.64 and mean of experimental group was 3.74 with t value of 4.7764 and a P value of 0.001 which is significantly high because it was less than 0.05. This shows that severe level of pain during IV cannulation is less in experimental group as compared to control group.According to the tested values Null hypothesis is rejected and research hypothesis is accepted Means there is significant change in level of pain during IV cannulation with use of kaleidoscope in experimental group. In comparison of pain there were highly significant differences in Face, Legs, Cry, and Activity except Consolability.

Conclusion:

In the present study effectiveness of a kaleidoscope on the level of pain during Iv cannulation was assessed. In experimental group kaleidoscope was given to the children's during IV cannulation procedure and pain was assessed using FLACC pain scale. Finding of the study clearly indicates that intensity of pain is significantly less in experimental group than in the control group. Hence the null hypothesis is rejected at 0.05 level of significance.

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Conflict of Interest:

No conflict of interest involved.

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References:

1. Nlerum Promise A., Eleje Chinwendu B.A Study to Assess the Effectiveness of Kaleidoscope on Pain during Intravenous Cannulation among Children between 4-10 Years in Selected Hospitals in Malappuram District WWJMRD 2020; 6(4): 5-7International Journal E-ISSN: 2454-6615
2. Kunjumon, D., 2018. Effect of Kaleidoscope on Pain Perception of Children Aged 4-6 Years During Intravenous Cannulation. American Journal of Nursing Science, 7(4), p.137.
3. Varsha Rawat, Praveen Kumar Sharma, Bijayata Sharma A quasi experimental study to assess the effectiveness of kaleidoscope on the pain and behavioural responses of children (4-10yrs) during intravenous cannulation in paediatric unit of Shri Mahant Indresh hospital, Dehradun Volume - 7, Issue - 10, Oct – 2021
4. Archana shivashankar, K. B. Nalini, prapti rath (dec 2022) the role of non- pharmacological methods in attenuation of pain due to peripheral venous cannulation: A randomized controlled study IP: 248.130.21.123

5. R. Gayathri A Study to Assess the Effect of Distraction Using Rattle on Pain among Infants during IV Cannulation at Upasana Hospital, Kollam, July (2022)http://innovationalpublishers.com/Journal/ijns
6. Shirgaokar SN, Dani P. A Study to Assess the Effectiveness of Eucalyptus Oil on Knee Pain among Osteoarthritis Patients in Selected Areas of Sangli, Miraj and Kupwad Corporation. Indian Journal of Public Health. 2019 Jul;10(7):277.
7. Satchi Nesa Sathya, M. Helen Perdita, Sankar Janani A Descriptive correlational Study to Assess the Pain Perception of Children Undergoing Venipuncture at Selected Hospitals, Chennai.(2017)ISSN: 2454-132X(Volume 3, Issue 6)www.IJARIIT.com
8. Dani R, Kale A, Dani P. Effect of Ice Pack Application on Pain During Venipuncture among the Children Admitted in Selected Pediatric Units of Sangli, Miraj, Kupwad Corporation Area. Indian Journal of Public Health. 2019 Aug;10(8).
9. Mr.Hitesh tailor, Dr.Yogeshwarpuri Goswami Effectiveness of kaleidoscope in reducing pain during venipuncture procedure among hospitalized pre-school children at Udaipur (Raj).Volume 9, Issue 4 Ser. II (Jul. – Aug. 2020), PP 09-12 IOSR Journal of Nursing and Health Science www.iosrjournals.org
10. Kunjumon, D., 2018. Effect of Kaleidoscope on Pain Perception of Children Aged 4-6 Years During Intravenous Cannulation. American Journal of Nursing Science, 7(4), p.137