

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

¹Varsha Rawat, ² Praveen Kumar Sharma, ³ Bijayata Sharma

¹ Msc. Nursing, Child Health Nursing, Shri Guru Ram Rai College of Nursing, Dehradun, India

² Professor, Child Health Nursing, Shri Guru Ram Rai College of Nursing, Dehradun, India

³ Professor, Medical-Surgical Nursing, Shri Guru Ram Rai College of Nursing, Dehradun, India

Email – ¹ varsharawat149@gmail.com, ² pravubiju@gmail.com, ³ Biju00@live.com

Abstract : A study to assess the effectiveness of kaleidoscope on the pain and behavioral responses of children (4- 10yrs) during intravenous cannulation in pediatrics unit of shri mahant indresh hospital, dehradun. **Objectives of the study:** To assess the effectiveness of kaleidoscope on pain and behavioural responses during IV cannulation in experimental group . To assess the pain and behavioural responses during IV cannulation in control group. To associate the effect of kaleidoscope on pain among children (4-10 yrs) during IV cannulation with selected demographic variables. To associate the effect of kaleidoscope on behavioural responses among children (4-10 yrs) going through IV cannulation with selected demographic variables. To find out the correlation between pain and behaviour responses among children going through IV cannulation in both groups. **Methodology :** The research design adopted for the study is quasi experimental non equivalent control post test only group design. The conceptual framework used in this study was based on Roy's Adaptation Model. Variables under study were pain and behavior responses as dependent variables, kaleidoscope as independent variable. The tools used under this study were demographic data, WONG BAKER pain scale and FLACC behavioral pain assessment scale and instrument used was kaleidoscope. The data collected were analysed and interpreted by using descriptive and inferential statistics. **Result and Interpretation:** The mean score regarding pain level of experimental group is 2.27 which is lower than the control group 4.47. Similarly, the mean score regarding behaviour responses of experimental group is 2.73 which is lower than the control group 8.30 that shows there is reduction in pain and behaviour responses among children due to kaleidoscope on the experimental group to which it is introduced. The value of independent 't' test of pain level is 12.27 with the table value 58 at 0.05 level of significance was found to be significant whereas the independent 't' test of behaviour response between the two groups is 24.87 with the table value 58 at 0.05 level of significance was found to be significant as we saw a large difference between the two groups in both variables. So, in this study it was found that kaleidoscope was effective in reducing the pain and behaviour responses among children during IV cannulation. There is significant association was found in demographic variables (age, occupation) regarding behaviour responses among children in experimental group at 0.05 level of significance. **Hence the research hypothesis is accepted.** The study also reveals that there is a positive correlation of 0.78 between the two variables pain and behaviour responses among children in control group and similarly there is a positive correlation 0.79 between the same variables in experimental group. **Conclusion:** The following conclusion were drawn based on the findings of the study: Study revealed that in response to introducing kaleidoscope in experimental and control group the mean post test score for pain among experimental group (m=2.27) was lower than the mean post test pain score for control group (m=4.47).and the calculated 't' value is also greater (t=12.72) than the table value at 0.05 level of significance. Similarly, the mean post test score for behaviour response among experimental group (m=2.73) was lower than the mean post test behaviour response score for control group (m=8.30).and the calculated 't' value is also greater (t=24.87) than the table value at 0.05 level of significance. The findings shows that kaleidoscope was effective in reducing the pain and behaviour responses among children (4-10 yrs) during IV cannulation.

Key Words: kaleidoscope, IV cannulation, pain, behavior responses, children, effectiveness

1. INTRODUCTION :

During hospitalization, children may undergo a wide range of interventions, many of which can be traumatic, stressful and painful. Despite advances in both pharmacological and non pharmacological methods of preventing and treating pain, many children still endure unacceptable levels of pain and distress during their hospitalization (Lassetter, 2006). The WHO asserts that, pain relief is a basic human fundamental right and requires a multidisciplinary approach. Like the adult patients, unmanaged or poorly managed pain in children can result in a variety of negative long-term consequences (Katende and Mugabi, 2015). Wongs explained that children between the age groups of 4-10 yrs are pre schoolers and schooler. They are concrete , ego centric and magical thinking that limits their ability to understand the events because they view all the experience from their own self referred perspective. Children fears needle and pain its inflict the estimation of needle phobia ranges from 4.9%- 9% (Srouji, Ratnapalan and Schneeweiss, 2010). The study titled “Psychological intervention for needle related procedural pain and distress in children and adolescents” done in July 2006, depicts that psychological interventions are effective in reducing needle related pain and distress in children and adolescents. The research was conducted as 28 trials with 1951 participants. The interventions used were distraction, combined cognitive behavioral interventions and hypnosis (Uman et al., 2013). In the studies on preschool and school age children and on children and adolescents, the distraction by means of an illusion kaleidoscope reduced the pain associated with venipuncture in the experimental group ((VESSEY, CARLSON and MCGILL, 1994).

2. LITERATURE REVIEWS :

Remziye Semerci.et, al.(2020) conducted a study to determine the efficacy of distraction cards and a kaleidoscope in reducing pain during phlebotomy procedures among children aged 6 to 12. It is a randomized controlled study that involves intervention groups and a control group. Data were obtained by the use of an information form and the visual analog scale. Data were analyzed with descriptive statistics as well as Kruskal-Wallis, Wilcoxon, and post hoc tests. The results of the study revealed that during the phlebotomy, children in the control group experienced more pain than children in the distraction cards group and kaleidoscope group ($P < .001$). There was no significant difference between pain scores of the two intervention groups ($P > .05$). Both methods were found to be effective in reducing pain (Semerci and Akgün Kostak, 2020).

Dipeesh Kunjumon, Vinil Upendrababu (2018) conducted a study to assess the effect of kaleidoscope on pain perception of kids aged 4-6 years during intravenous cannulation. The research approach adopted for this study was true experimental and therefore the design was post test only control group design. The study was conducted among 30 children aged 4- 6 years who ~ 21 ~ were admitted within the pediatric ward, with 15 children each in experimental and control group. the kids within the experimental group were introduced to kaleidoscope before the cannulation and were told to appear through it during the procedure. During cannulation, the target pain was assessed by using FLACC scale. The result revealed that the kaleidoscope was effective in managing pain in children aged 4-6 years, during intravenous cannulation. So distraction are often used effectively in pain management of youngsters (Kunjumon, 2018).

3. MATERIALS AND METHODS :

Research design: A quasi experimental non equivalent post test only control group research design.

Settings : Shri Mahant Indresh Hospital, Dehradun.

Population : The target population is pediatric patients aged between 4-10years and the accessible population is 60 pediatric patients aged between 4- 10 yrs admitted in pediatric ward of selected hospital.

Samples : The sample comprises of 60 pediatric patient, 30 each in the experimental group and control group, between age 4-10 yrs admitted in pediatric ward of SMI Hospital.

Sampling Technique : Non- probability convenient sampling technique

Data Collection Procedure : WONG BAKER pain scale and FLACC behavior pain scale was appropriate tools for data collection. For the experimental group kaleidoscope was provided just before and during IV cannulation and then pain and behavioral responses are rated with the scale. Children in control group were in routine procedure during cannulation and pain and behavioral response are rated properly.

Data Analysis : The researcher planned to analyze the data in the following manner :

Section A : Description of sample characteristics

Section B: Association of demographic variables with pain level in both groups

Section C : Association of demographic variables with behaviour response in both groups

Section D : Effectiveness of kaleidoscope on pain and behaviour responses among children during IV cannulation

Section E : Correlation between pain and behavior responses among children in both groups.

4. DISCUSSION:

Based on the objectives of the study, kaleidoscope was used to assess its effectiveness on pain and behaviour responses of children 4-10yrs undergoing IV cannulation.

Table1: EFFECTIVENESS OF KALIEDOSCOPE ON PAIN AMONG CHILDREN DURING IV CANNULATION

SNO	GROUP	MEAN	SD	df	't' value	Table Value	p value
1	Control group	4.47	0.707	58	12.72	2.00	SIGNIFICANT
2	Experimental group	2.27	0.624				

Table2: EFFECTIVENESS OF KALIEDOSCOPE ON BEHAVIOUR RESPONSES AMONG CHILDREN DURING IV CANNULATION

SNO	GROUP	MEAN	SD	df	't' value	Table Value	p value
1	Control group	8.30	1.0	58	24.87	2.00	SIGNIFICANT
2	Experimental group	2.73	0.775				

Table 3: Correlation between pain and behavior responses among children in both groups.

GROUP	PAIN AND BEHAVIOUR	CORELATION 'r'
CONTROL	0.78	Positive correlation
EXPERIMENTAL	0.79	Positive correlation

5. RECOMMENDATIONS:

- More similar studies can be conducted in different setting on larger samples to generalise the findings.
- A comparative study can be conducted between experimental and control group.
- The study can be conducted on different age groups.
- Special teaching can be given to the staff nurses through STP on the knowledge about kaleidoscope that might help them in easy insertion of IV cannula to the children who causes hindrance during the procedure through their behaviour responses.

6. CONCLUSION :

The result of the study proved the effectiveness of kaleidoscope on reducing pain and behaviour responses in children between 4-10yrs of age.

REFERENCES :

1. Lassetter, J., 2006. The Effectiveness of Complementary Therapies on the Pain Experience of Hospitalized Children. *Journal of Holistic Nursing*, 24(3), pp.196-208.
2. Katende, G. and Mugabi, B., 2015. Comforting strategies and perceived barriers to pediatric pain management during IV line insertion procedure in Uganda's national referral hospital: A descriptive study. *BMC Pediatrics*, 15(1).

3. Srouji, R., Ratnapalan, S. and Schneeweiss, S., 2010. Pain in Children: Assessment and Nonpharmacological Management. *International Journal of Pediatrics*, 2010, pp.1-11.
4. Uman, L., Birnie, K., Noel, M., Parker, J., Chambers, C., McGrath, P. and Kisely, S., 2013. Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database of Systematic Reviews*.
5. VESSEY, J., CARLSON, K. and MCGILL, J., 1994. Use of Distraction with Children During an Acute Pain Experience. *Nursing Research*, 43(6), pp.369 -372.
6. Semerci, R. and Akgün Kostak, M., 2020. The Efficacy of Distraction Cards and Kaleidoscope for Reducing Pain During Phlebotomy: A Randomized Controlled Trial. *Journal of PeriAnesthesia Nursing*, 35(4), pp.397-402.
7. 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.