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EFFECT OF SELECTED DISTRACTION TECHNIQUES IN BEHAVIOR RESPONSES TO PAIN AMONG TODDLERS RECEIVING INVASIVE IMMUNIZATION

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Abstract:

Immunization is a proven tool for controlling and even eradicating disease. But children especially toddlers show their resistance during immunization so that parents also sometimes avoid this procedure. Distraction techniques are much effective to reduce the behaviour responses during painful procedures. Distraction techniques are also very useful due to its economical and safe aspects.¹

It was found that to undue pain and distress, lack of pain control for injection is a barrier to immunization. Many physicians withhold scheduled vaccines out of concern for the excessive pain for simultaneous immunization. Distraction was chosen as the primary intervention because it provides a simple approach in reducing anxiety that has been shown to be effective in a number of settings, requires little training, and has a number of theoretical sound reasons for why it should work.

In the present study an attempt was made to compare the effect of selected distraction techniques in behaviour responses to pain among toddlers receiving invasive immunization in Immunization clinic of Dr. D.Y Patil Hospital and Research Centre, Pimpri Pune.”

INTRODUCTION

This study attempted to:

1. To determine the behavioural responses to pain among toddler who are given a toy as distraction (Group I) during immunization.
2. To determine the behavioural responses to pain among toddler who are given music as a distraction (Group II) during immunization.
3. To determine the behavioural responses to pain among toddler in the control group – no intervention (Group III) during immunization.
4. To compare the behavioural responses to pain in Group I, Group II and Group III in toddlers during immunization.
5. To find association between behavioural responses to pain score and selected demographic variables of toddlers during immunization.

The reviewed literature for the present study is organized under the following headings:

- 1) Literature related to effect of distraction techniques in behavior responses to pain.
- 2) Literature related to compare the effect of distraction techniques in behavior response to pain.

An experimental study was conducted at a children's hospital of Pittsburgh, USA to assess the effectiveness, feasibility, and parental acceptance of a simple combination pain reduction intervention for 116 infants receiving multiple immunization injections. The intervention group received sucrose and oral tactile stimulation (with a pacifier or a bottle) and were held by their parents during immunization. The median (25th-75th percentile range) first cry duration was 19.0 (5.8-62.8) seconds for the intervention group compared to 57.5 (31.0-81.5) seconds for the control group ($P=0.002$). Parents of the intervention group reported a strong preference for future use of the injection procedure. With that it can be concluded that combining sucrose, oral tactile stimulation and parental holding was associated with significantly reduced crying in infants receiving multiple immunization injections. ([Reis EC](#), [Roth EK](#)(2004)

Preetha S. (2004), conducted an experimental study at the pediatric OPD of Father Muller College of Nursing, Mangalore, to evaluate the effectiveness of kaleidoscope as a

International Journal of Nursing and Medical Science 2016; 5 (1), 504-512

distraction technique among hospitalized children during their acute pain experience. Using convenient sampling, 60 subjects were selected – 30 in the control and 30 in the experimental group. The findings revealed that children in Group I (37%) reported less intensity of pain, and most of the children in Group II (43%) perceived high intensity of pain. The mean behavioural response pain showed significant difference in the behavioural response and intensity of pain between Group I and Group II ($t_{58} = 6.383$ and 6.66 respectively; $p < 0.001$)⁶¹.

Research Methodology

Research Design:

To accomplish the objectives and considering the feasibility, the research design selected for the present study is post-test only control group design, a Quasi experimental design.

Variables:

Dependent variable: - Behavioural responses to pain.

Independent variable: - Distraction techniques and the objects of distraction are toy (no sound) and music.

Hypothesis:

Ho: There will be no significant difference in the severity of behavioural response score of Group I, Group II and III.

Setting Of The Study:

The study was conducted in Immunization clinic of Dr. D.Y Patil hospital and research centre, Pimpri, Pune City for main study and Jeejamata hospital, Pimpri for pilot study.

Sample and sample size:

In the present study the sample consisted of 90 toddlers, 30 each in Experimental I (Group I), Experimental II (Group II) and the control group (Group III), who were undergoing invasive (D.P.T Booster dose) immunization.

Sampling technique:

International Journal of Nursing and Medical Science 2016; 5 (1), 504-512

The samples were selected using Non probability purposive sampling technique and assigned to Group I, Group II and Group III.

Criteria For Sample Selection:

Inclusion criteria:

In this study the inclusion criteria are:

1. Children visiting the immunization clinic.
2. Children between 1 to 3 years of age.
3. Children undergoing invasive immunization.
4. Mothers/Caretaker who are willing to give consent.

Exclusion criteria:

1. Children who are critically ill.
2. Visually and auditaory handicapped children.

Data collection technique and tool:

A demographic proforma was prepared to collect relevant demographic data and a modified observational pain scale was prepared from the "FLACC observational pain scale" used to assess the behavior response to pain.

Procedure For Data Collection

The final data collection was scheduled from 5 Oct. 2010 to 4 Nov. 2010. The children in the Experimental Group-I was encouraged to see and touch the toy for 5 minutes and routine care was given. In Experimental Group II the children were encouraged to listen the music for 5 minutes and routine care was given. Whereas children in the control group received immunization without any distraction but only routine care was given.

Distraction provided just 1 minute before the procedure, 1 minute during the procedure and 3 minutes after the procedure.

Results

Majority (65.55%) of the samples in all three groups were 18-24 months of age and majority (58.88%) of the samples in all three groups were male. Majority (83.33%) of the children's mothers were present at the time of immunization. Majority (51.11%) of the children showed Rebellious and high resistance to previous immunization. Majority (55.56%) of children were totally reluctant to accept health personnel (nurses) early.

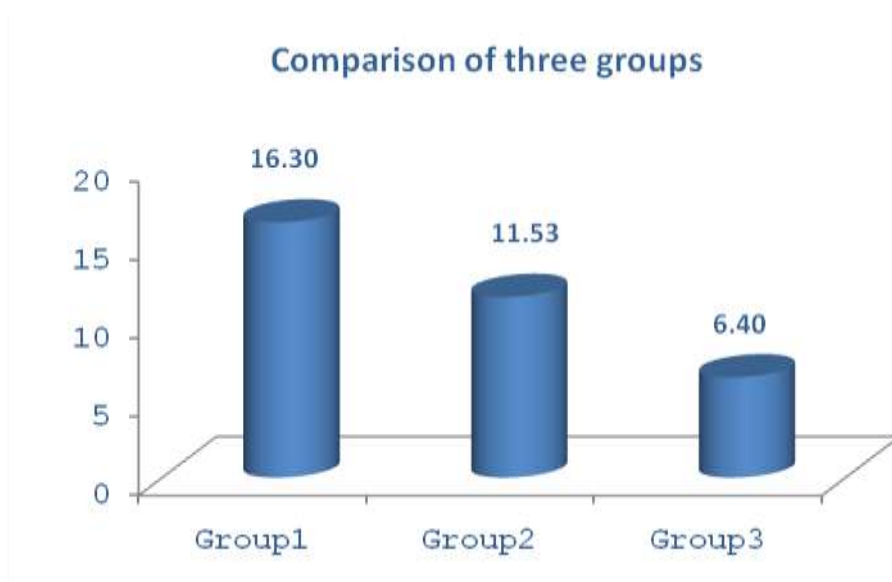
International Journal of Nursing and Medical Science 2016; 5 (1), 504-512

In Group I (toy is used as a distraction) has maximum score (16.30 out of 20) by the modified objective pain scale. It indicates that children of group I have minimum behavioral responses to pain because good response is related to highest scores.

In Group II (music is used as distraction) has score (11.53 out of 20) in modified objective pain scale. It indicates that children of group II had moderate behavioral responses to pain.

In Group III (control group) has minimum score (06.40 out of 20) by the modified objective pain scale. It indicates that children of group III had severe behavioral responses to pain.

Mean score in Group I was 16.30 ± 3.48 , in Group II was 11.53 ± 1.14 and in Group III was 06.40 ± 3.10 . Which indicate that toy is the more effective in reducing behavior response to pain than music and control group condition.



(Figure-1, Bar diagram shows that Comparison of three groups mean pain scores)

Table 1: Comparison of Group I and Group II using two sample t-test.

S.No	Group	Mean	SD	T	p-value
1	GroupI	16.30	3.48	7.14	0.000
2	GroupII	11.53	1.14		

International Journal of Nursing and Medical Science 2016; 5 (1), 504-512

Since p-value is less than 0.05, null hypothesis of no difference between Group I and Group II was rejected. The score of Group I is significantly higher than Group II. It indicate that toy was more effective than music in pain response.

Table 2: Comparison of Group I and Group III using two sample t-test N(group-I)=30,N(group-III)=30

S.No	Group	Mean	SD	T	p-value
1	GroupI	16.30	3.48	11.64	0.000
2	GroupIII	6.40	3.10		

Since p-value is less than 0.05, null hypothesis of no difference between Group I and Group III was rejected. The score of Group I is significantly higher than that of Group III. It indicate that toy was more effective than control group in pain response.

77

Table 3: Comparison of Group II and Group III using two sample t-test N(group-I)=30,N(group-III)=30

S.No	Group	Mean	SD	T	p-value
1	GroupII	11.53	1.14	8.51	0.000
2	GroupIII	6.40	3.10		

Since p-value is less than 0.05, null hypothesis of no difference between Group II and Group III was rejected. The score of Group II is significantly higher than that of Group III. It indicate that music was more effective than control in pain response.

Discussion and Implications

The Major findings of the study are:

1. Three groups differ from each other significantly.
2. Group I has highest average score among three groups.

International Journal of Nursing and Medical Science 2016; 5 (1), 504-512

3. Group III has lowest average score among three groups.
4. So toy is the most effective distraction technique in reducing the behavior response of pain than music and control techniques.
5. Music is more effective distraction technique than control in reducing the behavior response of pain.
6. There is not a single demographic variable which was found to have statistically significant association with pain score.

The present study has implications for nursing practice, nursing education nursing administration and nursing research.

Nursing practice:-

Pain management in children is now considered as a key area in pediatric nursing, as distraction strategies are inexpensive and require no additional training. So it can be easily used by nurses in immunization clinics.

Nursing education:-

Student should develop knowledge and skill in assessment and management of responses to pain. The use of non-pharmacological pain relieving interventions such as distraction is one of most important aspects to be included in the clinical nursing practice. Students should also be taught to develop pain assessment tools.

Nursing administration:-

Nursing administrators should make a policy in using distraction technique along with immunization as a routine. They should develop nursing practice standards, protocols and manuals of pain assessment and pain management in children of various age groups which should include distraction technique as an important strategy to relieve the pain for children.

Nursing research:-

Further research in this area will help the nurse to find out other effective distraction technique to reduce the behavioral responses, which are easily and locally available. Emphasis should be given to the utilization of the research findings. Appropriate utilization of research helps nurses to make evidence based decision regarding care of the children.

Recommendations

- Similar study can be conducted on large sample.

International Journal of Nursing and Medical Science 2016; 5 (1), 504-512

- Similar study can be conducted on the other age groups and can be compared with other distraction techniques.
- Further research can be conducted by using other distractions like picture books talking with the child, party blower, kaleidoscope pop-up books, blowing bubbles, looking for hidden objects in the room, counting out a loud, hand handled games, imagining fun and exciting things or a quiet and relaxing scene.
- Similar study can be conducted with age appropriate toy.
- A study can be conducted on the effectiveness of music on older children than toddlers.
- A study can be conducted on the effectiveness of cartoon on older children than toddlers.
- Similar study can be conducted music with headphone in older children.
- A study can be conducted on the effectiveness of music on older children during any painful procedure

Conclusion:

It is important for the nurses, who administer immunization, to alter the painful response as much as possible. Nurses must meet the challenges in relieving the pain by distracting the children. The finding concluded that the modified objective pain scale was effective in assessing the behavior responses in toddlers.

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International Journal of Nursing and Medical Science 2016; 5 (1), 504-512

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