

Effectiveness of Distraction Techniques on Pain Intensity during Immunization among Infants

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ABSTRACT

Background: One of the most dramatic advances in pediatric nursing is the atraumatic care. Pain associated with some investigation, treatment or procedures is known as procedural pain. Distraction is non pharmacological method which is used for diverting attention from noxious stimulus by passively redirecting the attention or by actively performed by the subject in the performance of diversion technique.

Material and method: A true experimental multiple intervention post test control design was used. There were 100 infants selected using simple random sampling technique and were randomly allocated in various groups such as electronic toy group, key toy group, simple toy group and control group using lottery method. During immunization, distraction techniques were shown to experimental groups and routine care was given to control group. Research tool was submitted to 7 experts from various specialists for validity. Reliability was calculated by Kappa method and it was 0.83 of FLACC pain scale to assess pain intensity during immunization among infants. Data collection was done in January 2017. The obtained data was analyzed and interpreted in terms of objectives and research hypotheses. Analysis was done by using descriptive and inferential statistics.

Results: The results revealed that mean pain score of control group was higher (7.16 ± 0.16) as compared to that of electronic toy group (2.60 ± 0.16), key toy group (4.80 ± 0.22) and simple toy group (5.44 ± 0.18). The difference between mean pain score of infants in electronic toy group, key toy group, simple toy group with control group was found to be statistically significant at $p < 0.01$ level of significance.

Conclusion: Based on the study findings, it is concluded that distraction technique was effective in reducing the pain intensity during immunization among infants.

Keywords: Immunization, Pain, Distraction techniques, Multiple intervention post test design.

INTRODUCTION

Atraumatic care is the provision of therapeutic care by health personnel and through the use of interventions that eliminate or minimize psychological and physical distresses experienced by children and their families in health care system.¹ Parents want their child to be safe from diseases and immunization act as a preventive measure; routine immunization is an almost universal experience for children. Immunization is a proven tool for controlling and eliminating life threatening diseases.² Immunization is a process of protecting an individual from a disease through introduction of live, or killed or attenuated organisms in the individual system.³

Distraction is non pharmacological method which is used for diverting attention from noxious stimulus by passively redirecting the attention or by actively performed by the subject in the performance of diversion technique.⁴

Pain is sensory and emotional feeling with actual or potential tissue damage or described in terms of such damage and major source of distress in infants and their family members as well as health care providers- International Association for the study of pain (IASP)⁵. The painful experiences may have negative effect on their life because of pain so distraction technique can be reduced pain during immunization. This can be used just prior to the immunization so infant can feel less pain. The

complaint of pain is often neglected. Thus the researcher felt the need to assess the effectiveness of distraction techniques i.e toys used during immunization in terms of pain reduction among infants attending immunization clinic. So in the present study the researcher assessed the effect of different types of toy i.e apple dancing toy, doraemon playing drum and rattle on pain intensity among infants during immunization. The aim of present study was to compare the effectiveness of distraction techniques on pain intensity during immunization among infants.

METHOD

Simple Random sampling technique was used to select the sample size of 100 infants. Infants were randomly allocated in four groups such as electronic toy group, key toy group, simple toy group and control group using lottery method in each group. Informed consent was obtained from caregiver. Infants who were visiting immunization clinic and having 10 and 14 weeks of age and receiving pentavalent vaccine. The study excluded infants who had undergone any painful procedure 2 hour prior to immunization and visually or hearing disabled and had history of seizures, use of topical anesthetics at immunization site, use of sedatives, analgesics or opioids in the preceding 24 hours.

PROCEDURE

The procedure of data collection was carried out in the month of December and January 2017. A formal administrative approval was obtained from the Civil Surgeon of Civil hospital, Ambala. Keeping in mind inclusion and exclusion criteria, sample was identified and details of the study were explained to caregiver.

Infants were randomly allocated to one of the four groups using lottery method. Introduction to the nature of study was given to the parents/care givers of infants. Consent was taken from the parents /care giver. **Preparation phase:** Under this phase, explanation of procedure was given to parents/care givers present during the procedure. **Performance phase:** The infant along with caregiver was taken to immunization room. During the immunization procedure, the parents and caregiver in all groups were allowed to calm their babies by touching and talking to them, but not do anything that would distract the infant's attention. Infants in experimental groups were distracted by toys during immunization procedure and infants in the control group received immunization without any distraction and only routine care was maintained for infants in control group. The distraction technique given by researcher started 30 seconds before immunization and it lasted until 15 seconds after the immunization of each infant. Immunization was done by same health care worker. During immunization the researcher assessed the parameters of pain by using FLACC pain scale

Post performance phase: Under this phase, the scoring was done after video recording of the performance phase by the investigator. Pain was measured by FLACC pain scale and quantifying pain perception with scores ranging from 0 to 10 (0- no pain, 1-3 mild pain, 4-7 moderate pain, 8-10 Severe pain).

RESULTS

The analysis of data was done in accordance with the objectives of study. The findings have been organized and presented under following sections:

TABLE 1: Frequency and Percentage Distribution of Infants in terms of level of pain in Electronic toy group, Key toy group, Simple toy group and Control group N=100

Pain score	Electronic toy group (n=25) f (%)	key toy group (n=25) f (%)	Simple toy group (n=25) f (%)	Control group (n=25) f (%)
No pain/distress (0)	–	–	–	–
Mild pain/distress (1-3)	22(88)	–	–	–

Cont... TABLE 1: Frequency and Percentage Distribution of Infants in terms of level of pain in Electronic toy group, Key toy group, Simple toy group and Control group N=100

Moderate pain/distress (4-7)	03(12)	25(100)	25(100)	17(68)
Severe pain distress (8-10)	–	–	–	8(32)

Maximum score=10

Minimum score=0

Table 2 shows frequency and percentage distribution of infants in terms of level of pain in electronic toy group, key toy group, simple toy group and control group. In electronic toy group majority of the infants had mild pain (88%) and few (12%) of the infants had moderate pain. In key toy group and simple toy group all of the infants had moderate pain (100%). In control group more than half of the infants had moderate pain (68%) and one third of the infants had severe pain

TABLE 2: ANOVA Showing Comparison of Mean Pain Scores during Immunization among Infants in Electronic toy group. Key toy group, Simple toy group and Control group N=100

Group	Mean	SD	F	Df	p value
Electronic toy group (n=25)	2.60	0.16	104.60	3/96	0.01*
Key toy group (n=25)	4.80	0.22			
Simple toy group (n=25)	5.44	0.18			
Control group (n=25)	7.16	0.16			

*Significant(p≤0.05)

^{NS} Not significant (p> 0.05)

The data in the table 3 depicts that the mean pain score of electronic toy group was 2.60± 0.81, key toy group was 4.80±1.11, simple toy group was 5.44±0.91 and in control group was 7.16± 0.80. The computed “F” value 104.60 was found to be statistically significant at 0.01level of significance which showed that there was significant difference between four groups in terms of pain intensity. Mean pain score of electronic toy group (2.60±0.81) was significantly lower than mean

pain score in key toy group (4.80±1.11), simple toy group (5.44±0.91) and in control group (7.16± 0.80) respectively.

DISCUSSION

The aim of the study is to evaluate the effectiveness of distraction techniques on pain intensity among infants receiving immunization in selected immunization clinic of Ambala, Haryana. The findings of the study have been

discussed in terms of objectives, theoretical base and hypotheses formulated.

In the present study in electronic toy group majority of the infants had mild pain (88%) and 3(12%) of the infants had moderate pain. In key toy group and simple toy group all of the infants had moderate pain (100%). In control group more than half of the infants had moderate pain (68%) and one third of the infants had severe pain (32%). The findings of the study was also consistent with the findings of **Subramani G et al** study who conducted a study to assess to compare the effectiveness of distraction techniques upon pain among children receiving immunization in Mangalore where 90% children had moderate pain and 10% had severe pain in experimental group I. In experimental group II, 80% children had moderate pain and 20 % had severe pain whereas in Group III (control group) nearly half of children (46.7%) had moderate pain and 53.3% had severe pain.⁷

Effectiveness of distraction techniques during immunization in reduction of pain intensity among infants

In the present study clearly established that the distraction was effective during immunization in reduction of pain intensity among infants attending immunization clinic. Mean pain score of electronic toy group was 2.60 ± 0.81 , key toy group was 4.80 ± 1.11 , simple toy group was 5.44 ± 0.91 and in control group was 7.16 ± 0.80 . The computed “F” value 104.60 was found to be statistically significant at 0.01 level of significance which showed that there was significant difference between four groups in terms of pain intensity. Mean pain score of electronic toy group (2.60 ± 0.81) was significantly lower than mean pain score in key toy group (4.80 ± 1.11), simple toy group (5.44 ± 0.91) and in control group (7.16 ± 0.80) respectively. The findings of the study was also consistent with the findings of **Rimple Sharma et.al** who conducted a randomized control trial to determine the effect of distraction technique on pain in infants during immunization. Mean pain score level of control group is higher 6.87 as compared to experimental group 1 was 3.50 and experimental group 2 was 2.50. The mean pain score level of control group, experimental group 1 and 2 was found statistically significant ($p < 0.01$).⁸

Association of pain intensity during immunization among infants with selected variables.

In the present study, ANOVA and “t” value for association of pain intensity during immunization with selected variables. The findings revealed that association of age with FLACC pain scores was assessed using independent “t” test. There was significant difference found in FLACC pain scores among male and female infants ($t = 2.06$, $p = 0.05$) at 0.05 level of significance. Association of past history of illness with FLACC pain scores was assessed using independent “t” test. There was significant difference found in FLACC pain scores among infants ($t = 0.13$, $p = 0.02$) at 0.05 level of significance. Therefore, this elucidates that the FLACC pain score was dependent of selected sample demographic and clinical variables in key toy group. There was association of FLACC pain score with age and past history of illness among infants in key toy group.

Association of present history of illness with FLACC pain scores was assessed using independent “t” test. There was significant difference found in FLACC pain scores among infants ($t = 2.24$, $p = 0.03$) at 0.05 level of significance. Therefore, this elucidates that the FLACC pain score was dependent of selected clinical variables in simple toy group. There was association of FLACC pain score with present history of illness among infants in simple toy group.

In the present study there was no significant association found in electronic toy group and control group with selected variables at 0.05 level of significance. The findings of the study was also consistent with the findings of **Umarani J.** who conducted a study to assess the effectiveness of diversion therapy on pain among infants receiving injections at selected clinics. Chi – square test was used to calculate the association between pain score and selected demographic variables.⁶

CONCLUSION

On the basis of the findings of the present study, the following conclusions can be drawn: The mean pain scores of infants receiving distraction technique during immunization was significantly less as compared to mean pain score of infants in control group. The mean

pain score of electronic toy group lower as compared to key toy group and control group.

Therefore, Distraction technique while immunizing was effective in reducing pain intensity. The study concludes that Distraction technique was an effective technique in reducing the pain intensity during immunization among infants. Toys can be used as a distractor among infants during immunization.

Ethical Clearance: Ethical clearance has been taken from M.M. college of nursing(Maharishi markandeshwar University).

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Conflict of Interest: Nil

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