

Effect of Rhythmic Skin Tap on Pain During DPT Vaccination among Toddler

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Abstract

Vaccine injections are the most common reason for iatrogenic pain in childhood. With the steadily increasing number of recommended vaccinations, there has been a concomitant increase in concern regarding the adequacy of pain management. In view of this investigator aimed to assess the effect of rhythmic skin tap on pain During DPT vaccination among toddler. It was a quasi-experimental study; based on Kolcaba Comfort Theory. After getting informed consent from primary care givers, 60 toddler (30 each in experimental and control group) who attended the immunization OPD of Aswini Hospital was selected as samples. The demographic performa of the toddler was assessed from care giver, immunization card and procedural pain was assessed by standardized FLACC behavioural pain scale. The findings revealed that, the intervention of rhythmic skin tap was effective in reducing pain with $p = <0.001$ and there is a significant difference between the post-test pain score among toddlers with $p = <0.001$. Moreover the analysis states that there is no association between pain among toddlers with selected demographic variable. Study proved that rhythmic skin tap technique during the administration of DPT vaccination resulted in significant reduction in pain level in the experimental group than the control group. Hence it is clear that the rhythmic skin tap technique is an effective measure to reduce pain level during invasive procedure.

Keywords: Rhythmic Skin Tap; DPT Vaccination; Toddler; FLACC Scale.

Introduction

Background of the Study

Pain is a natural and unavoidable part of childhood. It is an unpleasant sensory and emotional experience associated with actual or potential tissue damage [1]. Vaccine injections are the most common reason for iatrogenic pain in childhood. With the steadily increasing number of recommended vaccinations, there has been a concomitant increase in concern regarding the adequacy of pain management [2].

Pain is a common and a ubiquitous sensation for children and adult. Every child has his or her own perception of pain [3]. A fundamental principle of responsible medical care is not 'do not hurt' but 'do not harm' since pain is harmful to children [4]. Non-pharmacological intervention improve the emotional security and reduce the pain perception. Non-pharmacological interventions are often an adjunct to pharmacological intervention [5].

Objectives

- To assess the pain level among toddler during DPT vaccination in control and experimental

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group

- To find out the effect of rhythmic skin tap among toddler during DPT vaccination in control and experimental group
- To associate the pain level of toddler during DPT vaccination and selected demographic variable

Methods and Materials

It was a quasi-experimental study; a quantitative approach, based on Kolcaba Comfort Theory. After getting informed consent from primary care givers, 60 toddler (30 each in experimental and control group) who attended the immunization OPD of Aswini Hospital for DPT vaccination was selected using non probability purposive sampling. The tool was consisted of section A: -The demographic performa of the toddler was assessed from care giver, immunization card and section B: -procedural pain was assessed by using standardized FLACC behavioural pain scale ranging from 0-no pain, 1-3 mild pain, 4-6 moderate and 7-10severe pain. Ethical clearance has been obtained in the prior from the ethical committee constituted by the institution. A formal permission to conduct the study was obtained from the Director Board of Aswini Hospital, Thrissur, The same information has communicated to the department of immunization OPD.

The details and need for the study was explained to parents and obtained written consent. During the first phase of data collection toddler who receives DPT vaccination is considered as control group till the sample size is achieved and followed by in the next phase toddler who receives DPT vaccination is considered as experimental group till the sample size is achieved. Pre and post-test pain score of control group is obtained by using FLACC behavioural pain scale. For experimental group, after the pre-test pain score assessment injection site were identified, followed by the investigator provided rhythmic skin tap during the administration of DPT vaccination. The level of pain of toddlers were assessed before and after the DPT vaccination in both experimental and control group.

Result

Section A:-Demographic Profile of the Toddler

- Among 30 samples in control group , 15(50.0%) were between age group of 18-23 months of age, 12(40.0%) was in the age group of 24-29 months,

3(10.0%) was in the age of 30-35 month, no samples was found in above 35 month. Whereas in experimental group 14(46.7%) belongs to 18-23 months, 11(36.7%) in the age of 24-29 months, 4(13.3%) of toddlers where in 30-35 months and only 1(3.3%) in above 35 month.

- Regarding the gender, in control group 18(60%) were male and 12(40%) were female. Male and female ratio was equal in experimental group 15(50%).
- On the basis of birth weight, in control group 4 (13.3%) belongs to 2000-2500gm. 11(36.7%) were in 2501-3000gm, 14 (47.7%) were in 3001- 3500gm and 1(3.3%) were in 3051 and above. Whereas in experimental group 8(26.7%)belongs to 2000-2500gm, 13(43.3%) in 2501-3000gm, 8(26.7%) in 3001-3500gm and 1(3.3%) in above 3500gm.
- Regarding gestational age in control group, 19(63.3%) were in the 36-37wk, 9 (30%) in 38-39 wks, and 2(6.7%) were in ≥ 40 wks and in experimental group 12(40%) were belongs to 36-37wk, 15(50%) belongs to 38-39wks and 3(10%)were in ≥ 40 wks.
- On the basis of birth order in the control group 13(43.3%) of toddlers belongs to first and second order. Whereas only 5(16.7%) in the third birth order. No samples was found in third and above. In the experimental group majority of toddlers 11(36.7%) belongs to both first and second birth order. 7(23.3%) were in third order and 1(3.3%) belongs to the above third.
- With regard to present weight in control group 9(30.0%) were having < 8 kg, 11(36.7%) in the 8-10 kg, 10(33.3%) were between the weight of 11-13kg and no samples were in > 13 kg. and in experimental group 7(23.3%) were in the present weight of < 8 kg, equal percentage of 11(36.7%) belongs to 8-10kg and 11-13 kg and only 1(3.3%) samples in the present weight of > 13 kg.
- Regarding to the length of the child, in the control group 15(50%) were having 75-80 cm of length, 10(33.3%) were in 81-85 cm, 5(16.7%) belongs to 86-90cm. In the experimental group 12(40%) were in 75-80 cm length, 14(46.7%) were belongs to 81-85cm and remaining 4(13.3%)were in 86-90 cm.
- With regards to when to start to crying, in the control group no one were crying before entering inside the room and 7(23.3%) were cried after entering the room, 9(30.0%) cried on the time of vaccination and 14(46.7%) were cried after vaccination. In experimental group 2(6.7%) were cried before entering inside the room, 6(20%) were cried after entering inside the room and on

vaccination, 15(50%) cried after vaccination, 1(13.3%) were in no crying.

- Regarding the duration of cry, in the control group1 (3.3%) cried for <30 seconds, 4(13.3%) whereas toddlers duration of cry was in between 30-sec to 1 minutes, 9(30%) belongs to 1-2 minutes and 16(53.3%) were in over 2 minutes. In experimental group, 12(40%) were cried under 30 seconds and 30 sec- 1minutes and 6(20%) were cried for between 1-2 minutes and no toddlers experienced cry for more than 2 minutes duration of cry.

Section B:-Pain Response of Toddler in Experimental and Control Group

In the pre-test pain score, majority of the samples in experimental and control group was in relaxed state 29(96.70%), 28(93.30%) respectively. The post-test pain score among the toddlers in control group and experimental group. In control group 4(13.3%) were having moderate pain, 26(86.7%) were experienced severe pain. None of the sample in control group was in the category of relaxed and mild state. With related to experimental group, 4(13.3%)

were experienced severe pain, 23(76.7%) were experienced moderate. Only 3(10.0%) of samples experienced mild pain.

Section C: Effectiveness of Rhythmic Skin Tap Technique on Pain Responses of Toddlers

The comparison of mean post-test pain score between control and experimental group. The mean post-test in experimental group was 5.133 and in control group was 8.433. To assess the significance of rhythmic skin tap the independent t-test was applied. The calculated t- value for pain level was found to be 9.33 and the p value <0.001 which is significant at 0.01 level.

Section D:-Association of Post-Test Pain Score of Toddler in Experimental and Control Group Undergoing DPT Vaccination with Selected Demographic Variables

The result states that there is there is no association between the post- test level of score in experimental and control group with demographic variable like age, gender, birth order, gestational age, length, birth weight, present weight, duration of cry and when to start to cry. Spearman’s rank correlation was done and value is not significant at the level of p< 0.05.

Table 1: Pre-test pain score of toddler in experimental and control group N=60

Level of pain	Experimental Group		Control Group	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
0 relaxed	29	96.7	28	93.30
1-3 mild	01	3.3	02	6.7
4-6 moderate	0	0	0	00
7-10 severe	0	0	0	00

Table 2: Post-test pain score of toddlers in experimental and control group N=60

Level of pain	Experimental Group		Control Group	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
0 relaxed	00	00	00	00
1-3 mild	03	10.0	00	00
4-6 moderate	23	76.7	4	13.30
7-10 severe	04	13.3	26	86.70

Table 3: Effectiveness of rhythmic skin tap technique on pain response of toddlers during DPT vaccination N=60

Group	n	Mean Score	SD	t-value	P-value
Experimental	30	5.133	1.432	9.33**	<0.001
Control	30	8.433	1.305		

** significant at 0.01 level

Discussion

Dissemination of the findings of evidence based practice through conference, seminars, publications in national nursing journals and world-wide web

will benefit a wider community. Promote effective utilization of research finding help the nurses to reduce pain during DPT vaccination.

The investigator through the present study has proved that providing rhythmic skin tap technique,

which is a non-pharmacological intervention, during painful procedures like vaccination is effective for reducing the pain level. Hence rhythmic skin tap technique can be used as a simple and effective nursing intervention for the management of pain in toddler.

Nursing Implication

- The nursing curriculum should emphasize the supportive therapy of non-pharmacological intervention in effective management of pain among pediatric age group.
- The nurse educator should arrange an in-service education programme for staff nurses regarding rhythmic skin tap technique to reduce the level of pain during DPT vaccination.
- The nurse administrator can emphasize on promoting EBNP for effective pain management during immunization among toddlers by using non-pharmacological measures.
- The study finding could help the nurse administrator to make protocol for rhythmic skin tap technique to reduce level pain among children during vaccination

Limitations

- The study was conducted on a small group of toddler and thus limits the generalizability of the study finding.
- Researcher plan to conduct true experimental study design. But randomization is not possible in this study due to time constraints.
- The investigator could not assess the attitude of care givers regarding rhythmic skin tap technique

Recommendations

- The study can be replicated on a large sample in order to validate the finding and make generalization

- Similar study can be conducted among different developmental age group to elicit their pain level.
- A study can be conducted to assess the anxiety and perception of under-five mothers during the time of vaccination.

Conclusion

Rhythmic sin tap technique during the administration of DPT vaccination resulted in significant reduction in pain level in the experimental group. Study proved that there is a significant difference in the pain score in control and the experimental group. Hence it is clear that the toddlers in control group experiences more level of pain than the experimental group. The study also identified that, there is no significant association between the level of pain of toddlers with the selected demographic variables like age, gender, length, gestational age, birth weight, present weight, duration of cry and when to start to cry.

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