Effectiveness of Breastfeeding on relief of pain during DPT immunization with that of Non-breastfeeding for the infant of the age group between 6-17 weeks

Khumukcham Anupama Devi

M.Sc. Nurse,All India Institute of Medical Sciences,Patna,Bihar

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Abstract- A quasi-experimental, post-test only control group design study was undertaken to evaluate the effectiveness of breastfeeding on relief of pain during DPT immunization with that of non-breastfeeding during DPT immunization for the infant of the age group between 6 -17 weeks at the immunization clinic in selected PHC of Manipur .The main objective is to find out the effectiveness of breastfeeding on relief of pain during DPT immunization. The theoretical framework adopted for the study was based on gate control theory. Experts established the content validity of the tools. Total 60 infants were selected by quota sampling technique 30 each for experimental and control group. Experimental group were given breastfeeding and control were not given during DPT immunization. Socio demographic data of the subjects were collected from mothers and Neonatal Infant Pain Scale (NIPS) measured the pain response of infants at 1st min and 5th min. The finding of the study revealed that the mean pain score of the control group at 1st and 5th min which is higher than the mean pain score of experimental group at 1st min and 5th min with mean differences at 1st min and at 5th min .The obtained mean difference was found statistically significant at 0.05 level of significance as evident from calculated unpaired 't' values at 1st min and at 5th min thereby indicating the effectiveness of breastfeeding on relief of pain during DPT immunization.

Index Terms- Effectiveness of breastfeeding, pain, DPT immunization, infant.

I. INTRODUCTION

As recently as two decades ago, it was believed that neonates are incapable of experiencing pain. Since then evidence continues to mount that neonate not only experience pain but also do so at much intensity than adults or older children. Moreover, neonatal pain has long-term adverse effects on the babies' subsequent neurodevelopment. Infants and new-borns either sick or healthy will have to undergo many painful procedures during their early life. Immunization is one such routine and compulsory procedure in which the infant experiences sudden pain. Despite the proven benefits of the immunization procedure, the pain associated with these injections is a source of great anxiety and distress for the infants as well as parents. The non-pharmacological method of pain management helps reduce the pain perception, makes pain more tolerable, decreases anxiety and enhances well-being. In busy immunization clinics, the health personnel have less considered the pain experienced by the infant. The use of analgesia is not at all practised, breastfeeding is a natural process, which is effective in managing the pain response of infants during immunization. It is practicable and economical even in busy immunization clinics as nurse, not spend much time for it. The study was done to assess the effectiveness of breastfeeding on relief of pain during DPT immunization with that of non-breastfeeding during DPT immunization for the infant of the age group between 6- 17 weeks at the immunization clinic in selected PHC of Manipur.

Objectives of the Study:

1. To assess the level of pain of infant with breastfeeding during DPT immunization at 1st min and 5th min

2. To assess the level of pain of infant without breastfeeding during DPT immunization at 1st min and 5th min

3. To find out the difference on level of pain among the experimental group and control group at 1st min and 5th min.

4. To identify the effectiveness of breastfeeding on relief of pain of infant during DPT immunization in terms of pain score.

5. To determine the association between selected socio-demographic variable (sex) with pain response of the infants of control group at 1st min and 5th min

II. METHODOLOGY

A quasi-experimental, non-randomized post-test control group design. The study was conducted in Kakching Khunou Primary Health Centre, Kakching Khunou, Manipur. The sample size is 60 infants with 30 others in experimental group and 30 infants in control group

Description of the Tool:

Two tools were used for data collection

1. Tool I Structural Interview Schedule (Demographic data), it was collected by interviewing the sample's parent and it consists of age of the baby, sex, birth weight, type of DPT dose, educational status of parent, type of family, income of the family per month.
2. Tool II Rating Scale Neonatal Infant Pain Scale (NIPS) the parameters of the NIPS were facial expression, cry, breathing, arms, legs, alertness, the minimum score is '0'

and maximum score is '7'data was collected by observing pain response of the infants during DPT immunization.

Data Collection Procedure

Part I

A pilot study was conducted at Wangoo PHC, Wangoo, Manipur Total sample of 30 infants were selected who were coming for 1st dose, 2nd dose and 3rd dose of DPT immunization by purposive sampling technique,15 subjects each for experimental group and control group.

Part II

Total sample of 60 infants were selected who were coming for 1st dose, 2nd dose and 3rd dose of DPT immunization by purposive sampling technique,30 subjects each for experimental group and control group and selection of samples for experiment and control group was done by tossing a coin ,head for experiment group and tail for control group,10 subjects each for 1st ,2nd and 3rd dose of experiment and control group. All mothers were explained to stop breast fed an hour prior to immunization and for the experimental group mothers was explained to breastfeed 2 min prior to immunization and continue during and after the immunization, the control group were explained not to breastfeed during and after the procedure breathing pattern of infants was check for both the groups 2 mins prior the immunization. Background demographic data were collected by Structured interview schedule. Pain response of the infant for both the groups was measured with the help of Neonatal Infants Pain Scale (NIPS) at 1st min and 5th min after DPT

III. RESULTS

Finding related to demographic variables

Table-1: Frequency and percentage distribution of demographic variables

n=60

Sl. No.	Demographic variable	Experiment group		Control group	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	**Age of the baby in week**				
	6-9	10	16.66	10	16.66
	10-13	10	16.66	10	16.66
	14-17	10	16.66	10	16.66
2	**Sex**				
	Male	**17**	**28.33**	12	20
	Female	13	21.16	**18**	**30**
3	**Birth weight**				
	2.5 -2.90kg	11	18.33	14	23.33
	3.0-3.5kg	**19**	**31.66**	**16**	**26.66**
4	**Type of DPT dose**				
	1st dose	10	16.66	10	16.66
	2nd dose	10	16.66	10	16.66
	3rd dose	10	16.66	10	16.66
5	**Educational status of mother**				
	Literate	2	3.33	1	1.66
	Primary pass	10	16.66	10	16.66
	Class 10 pass	**16**	**26.66**	**18**	**30.00**
	Class 12 pass and above	2	3.33	1	1.66
6	**Type of family**				
	Nuclear family	14	23.33	10	16.66
	Joint family	**18**	**30.00**	**18**	**30.00**
7	**Income of the family per month**				
	Below Rs.10,000	**24**	**40**	23	38.33
	Rs.10,000-	6	10	**7**	**11.66**
	Rs.15,000	0	0	0	0
	Above Rs.15,000				

Table 1: In experiment group, 28.33% were male 31.66 % were born with birth weight between 3-3.5 kg ,26.66 % mothers were class X pass,30% infants belonged to joint family and 40 % of the family income per month was below Rs.10,000 and non of the family income per month is above Rs.15,000 for both groups.

In control group, 30 % infants were females and 23.33% infants were born with birth weight between 3kg-3.5 kg, 30% of mothers were class 10 pass and 11.66% of the family income per month was Rs.10, 000-Rs.15, 000.

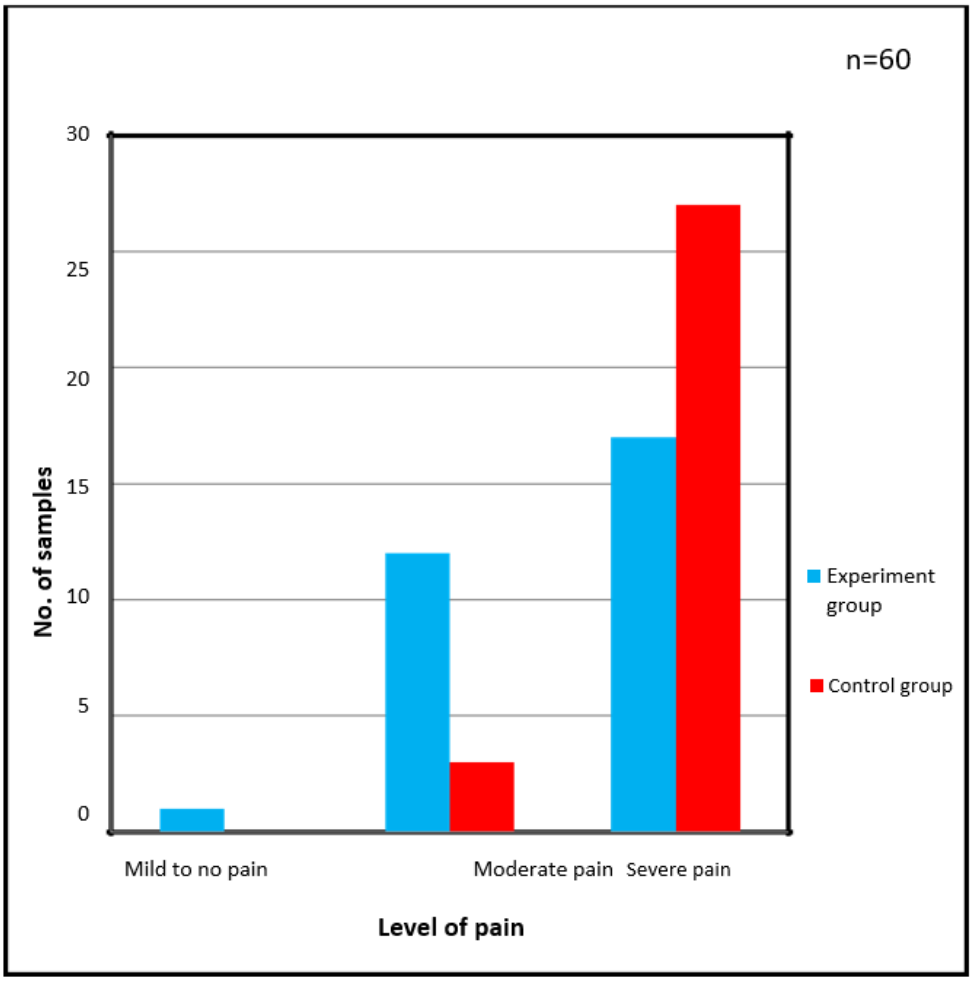

Fig 1. Showed the comparison of level of pain of experiment group and control group at 1st min. For **experimental group,** 56.67% of infants experienced severe pain and 40% of infants experienced mild to moderate pain and 3.33% experienced mild to no pain and for **control group,** 90% of infants experienced severe pain and 10% of infants experienced mild to moderate pain and none of the infants experience mild to no pain

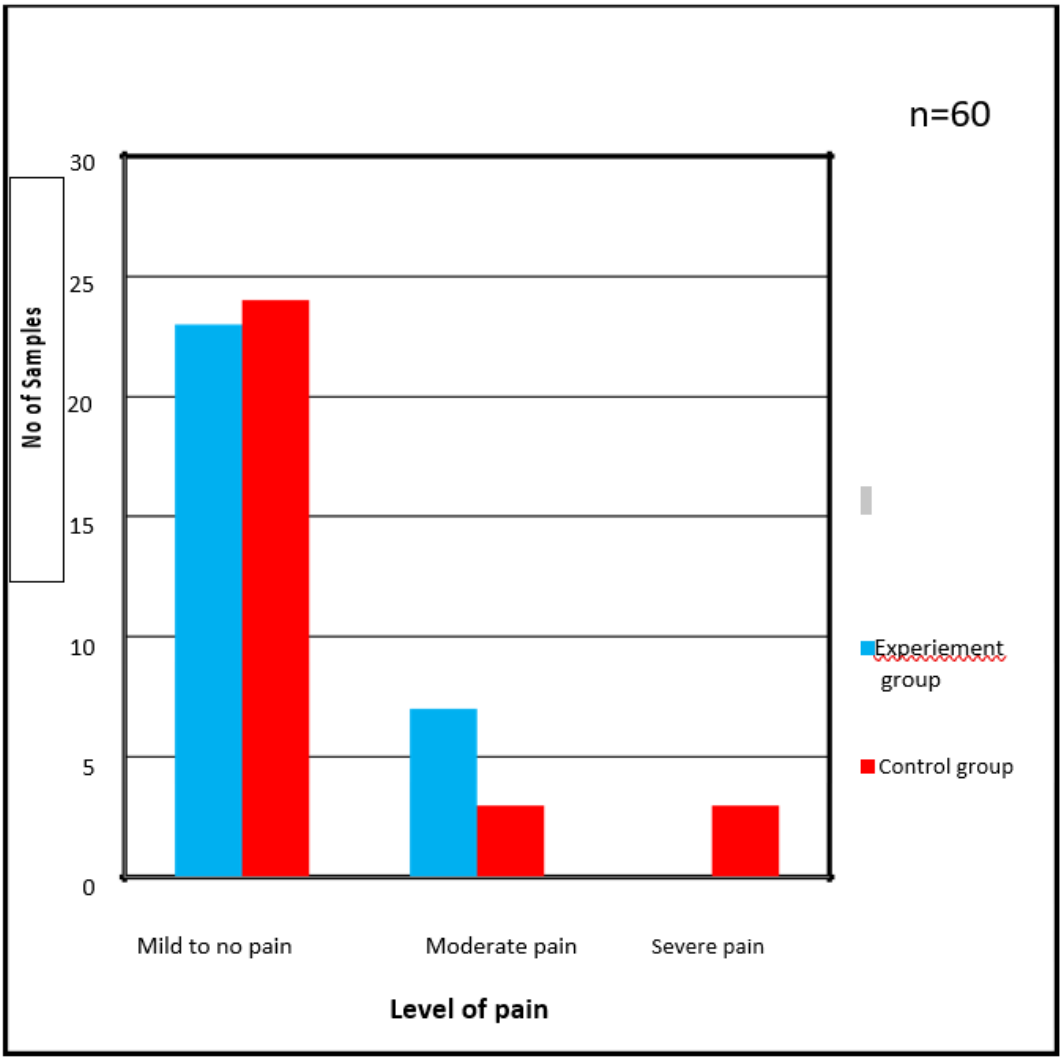

Fig 2. Showed the comparison of level of pain of experiment group and control group at 5th min. **For experimental group,** 76.67% infants experienced mild to no pain, 23.3% experience mild to moderate pain and none of the infants experienced severe pain and **for control group**, 80% infants experienced mild to no pain, 10% infants experienced mild to moderate pain and 10% infants experienced severe pain

Table 2: Frequencies and frequencies percentages of pain scores of experimental group at 1st min and 5th min.

n=30

Sl no.	Level of pain level	Frequency at 1st min	Percentage (%)	Frequency at 5th min	Percentage (%)
1.	Mild pain -no pain (0-2)	1	3.33	23	**76.67**
2.	Mild pain - Moderate pain (3-4)	12	40	7	23.33
3.	Severe pain (>4)	17	**56.67**	0	0

Table -2: Finding related to level of pain response of infant with breastfeeding i.e. experimental group during DPT immunization at 1st min and 5th min

At 1st min after DPT immunization, 56.67% of infants experienced severe pain and 40% of infants experienced mild to moderate pain and 3.33% experienced mild to no pain. At 5th min after DPT immunization 76.67% infants experienced mild to no pain, 23.3% experienced mild to moderate pain and none of the infants experienced severe pain.

Table -3: Frequencies and frequencies percentages of pain scores of control group at

1st min and 5th min. n=30

Sl no.	Level of pain level	Frequency at 1st min	Percentage (%)	Frequency at 5th min	Percentage (%)
1.	**Mild pain -no pain (0-2)**	0	0	24	**80**
2.	**Mild pain - Moderate pain (3-4)**	3	10	3	10
3.	**Severe pain (>4)**	27	**90**	3	10

Table 3: Finding related to level of pain of infant without breastfeeding i.e. control group during DPT immunization at 1st min and 5th min. At 1st min after DPT immunization 90% of infants experienced severe pain and 10% of infants experienced mild to moderate pain and none of the infants experienced mild to no pain. At 5th min after DPT immunization 80% infants experience mild to no pain, 10 % infants experienced mild to moderate pain and 10% infants experienced severe pain.

Table-4: Analysis of variance (ANOVA) at 1st min.

n=60

Square of Variance	df	Sum of square	Mean of sum of square	F-ratio
Between the groups	5	43.95	8.79	**2.837179***
Within the groups	54	167.3	3.098148	
Total	59	211.25		

*significant (p<.05)

Table-5: Analysis of variance (ANOVA) at 5th min.

n=60

Square of Variance	df	Sum of square	Mean of sum of square	F-ratio
Between the groups	5	31.33	6.27	**2.99***
Within the groups	54	113	2.09	
Total	59	144.33		

*significant (p<.05)

Table 4 and 5 : Finding related to comparison of level of pain among infants who are getting 1st dose 2nd dose and 3rd dose of DPT immunization of the experimental group and control group at 1st min and 5th min.

The difference of the mean pain scores among infants was evident by the calculated 'F' value 2.837 which was greater than tabulated 'F' value 2.37 for horizontal (df=5) and vertical (df=54) at .05 level of significance at 1st min and at 5th min calculated 'F' value 2.99 which was greater than tabulated 'F' value 2.37 for horizontal (df=5) and vertical (df=54) at .05 level of significance .Therefore, null hypothesis was rejected and statistically it inferred that there is significant difference of mean pain scores among infants of experiment and control group who were getting 1st dose,2nd dose and 3rd dose at 1st min and 5th min.

Table-6: Mean, mean difference, standard deviation and unpaired 't' value of experiment group and control group at 1st min.

n=60

Pain score	Mean	Mean difference	SD	Unpaired 't' value
Experimental group	5.1	1.3	2.17	**2.83***
Control group	6.4		1.3	

*'t' df (58) =2.00; p<0.05

Table-7: Mean, mean difference, standard deviation and unpaired 't' value of experiment group and control group at 5th min.

Pain score	Mean	Mean difference	SD	n=60 Unpaired 't' value
Experimental	0.7	1.29		
group		0.93		2.38*
Control group	1.63	1.69		

*'t' df (58) =2.00; p<0.05

Table 6 and 7: Finding related to effectiveness of breastfeeding on relief of pain of infant during DPT immunization in terms of pain score as measured by NIPS (Neonatal Infant Pain Scale).

The effectiveness of breastfeeding was evident by unpaired't' value 2.83 which was higher than tabulated value 2.0 at df (58) at .05 level of significance at 1st min. At 5th min the calculated unpaired't' value of 2.38 which was higher than tabulated value 2.0 at df 58 at .05 level of significance .These showed that the difference between mean pain score of control group and experiment group were true difference and not by chance. Hence, the null hypothesis $H0_2$ was rejected and research hypothesis was accepted. So, it can be said that breastfeeding is effective on reduce of pain experience by the infant during immunization.

Table -8: Associations between sex with pain scores of the infants at 1st min.

Pain score	Median >median	<median	Total	n=60 Chi-square
Male	8	4	12	
Female	14	4	18	1.20^{NS}df=1
Total	22	8	30	

NS: Not significance (p>0.05)

Table -9: Associations between sex with pain scores of infants at 5th min.

Pain score	Median		Total	n=60 Chi-square
	>median	<median		
Male	4	8	12	
Female	11	7	18	2.22^{NS} df=1
Total	15	15	30	

NS: Not significance (p>0.05)

Table 8 and 9: Finding related to association between sex with pain response of infants during DPT immunization at 1st min and 5th min.

The association between sex with pain score of infants of control group at 1st min and 5th min was evident by chi square value at 1 degree of freedom, under probability.05 was 3.84. So the calculated chi square value 1.20 at 1st min and 2.22 at 5th min was less than tabulated value at the .05 level of significance.

IV. CONCLUSION

From the findings of the present study and congruence with others study it can be concluded that breastfeeding was effective on relief of pain during DPT immunization as the computed unpaired 't' test was significant at 0.05 level and there was no association between sex and pain response.

Implications: The information drawn out of research may help the Medical Officer of Primary Health Centre to plan management of pain, helps nurses to improve the evidence-based practice on pain management during immunization. Other researchers conducting further studies in the same field could utilize the suggestions and recommendations

Limitations: No attempt was made to investigate which component of suckling acts contributes to analgesic effect. Subjects were limited only to healthy and term infant.

Recommendation: A similar study can be repeated by using a larger sample thereby finding can be more for generalized and while doing painful procedure to the infants.

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AUTHORS

First Author – Khumukcham Anupama Devi, (M.Sc. Nurse)
All India Institute of Medical Sciences,Patna,Bihar
E-mail:khumukcham.devi@aiimspatna.org