

## Effectiveness of Breastfeeding on pain among infants undergoing Intramuscular vaccination

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### Abstract:

Vaccinations are essential for child's development<sup>1</sup>. It is a simple, safe and effective method of protecting children from harmful diseases. One of every child's essential rights is routine immunisation<sup>2</sup>. Vaccination is the safest way to protect children from life-threatening diseases in the world<sup>2</sup>. It is an unpleasant feeling experienced by the babies<sup>3</sup>. Babies receive the immunization in a short period of time, which results in intense stress<sup>4</sup>. By reducing the discomfort and anxiety associated with vaccinations, breastfeeding can help mothers and children have a more enjoyable experience. The aim of this study was to assess the effectiveness of breast feeding on pain level during intramuscular vaccination among infants. The study was conducted among 100 infants between the ages of one month to four months by using during Intra muscular vaccination at selected hospital Bengaluru. They were selected by using purposive sampling technique. Socio-demographic data was collected from the mothers and care takers of infants. Neonatal Infant Pain Scale (NIPS) were used for assessing the pain during intra muscular vaccination among infants. Encouraged mothers to start breastfeeding 5minutes before during and continue after the intra muscular vaccination. The data were analyzed by using descriptive and inferential statistics. The result revealed that, majority (64%) of the infants had no pain during intra muscular vaccination in experimental group compared to control group. [t= 18.45, p<0.001) is less than p<0.05]. the researcher concluded that breastfeeding feeding is effective in reducing the pain during intra muscular vaccination among infants between the ages of one to four months. It has to be recommended for infants to reduce their pain and anxiety during intra muscular vaccination.

**Keywords:** Effectiveness, Breastfeeding, Pain , Infants, Intra muscular vaccination

### Introduction

Vaccination is the safest way to protect children from life-threatening diseases in the world<sup>2</sup>. A child is a priceless gift with unlimited potential given the right

development and influencing can become the greatest asset to the country. Children in good health can grow up to be the healthy citizens of the nation<sup>5</sup>.

Taking care of a family member who has a preventable disease may be difficult. Especially in a country like India, where a substantial portion of the population originates from low-income families, in addition to wiping out all savings, it occasionally throws families finances into disarray. When a family member becomes ill, the individuals responsible for their care frequently find themselves unable to work and provide care for the family. All of these can be prevented by getting the right immunization at the right time. India's Universal Immunization Program (UIP) is one of the world's largest public health campaigns<sup>2</sup>.

Pain is a global health problem. Every living being experiences it at every stage of development<sup>6</sup>. According to the International Association, "Pain is subjective". Each person gains knowledge of the word's effectiveness through early-life experiences. The unique nature of every person's reaction to pain and the significant role of early-life pain experiences can influence that reaction<sup>5</sup>. The American Academy of Pediatrics states that "every health care facility caring for neonates should implement an effective pain prevention program"<sup>7</sup>. Syncope, fear, irritation, difficulty sleeping and delayed eating are some of the acute impacts of pain. Delays in wound healing, malfunctions of the immune system, endocrine and biological chemistry alterations, elevated levels of cortisol and catecholamine's, elevated levels of glucagon, growth hormone, rennin, aldosterone anti-diuretic hormone and reduced insulin

secretion are only a few of its short-term consequences<sup>8</sup>.

More than 13 million vaccination sessions are held across the country to vaccinate children and expectant mothers, with around 26 million newborns and 34 million pregnant women being the target population for immunization each year. 86% of the world's coverage in 2019 fell to 81% in 2021. In 2021, vaccination rates keep going down<sup>4</sup>. This year, 2.25 million children-2 million more than in 2020 and 6 million more than in 2019-did not receive their life-saving basic immunisation<sup>2</sup>. This is the largest number of misses since 2009<sup>4</sup>. The vaccination campaign in India has raised the percentage of 12 to 23 month-old children who are fully immunized from an estimated 62%<sup>9</sup>.

Therefore, in order to provide better child care, every effort must be made to reduce painful stimuli. Studies indicate that early childhood pain exposure causes violence and self-destructive conduct in adolescent<sup>8</sup>. Stressful childhood vaccination experiences are linked to adult refusals to obtain treatment, avoid physical examinations and lack support for preventative care<sup>10</sup>. The agony of traumatic experiences causes a more intense response to subsequent vaccines<sup>11</sup>. Each and every client has the right to an evaluation and treatment for their suffering. It is both a morale and a humanitarian duty to care for our most vulnerable citizens<sup>12</sup>.

There are many diversion therapies are introducing to relieve the pain level during vaccination. Breast feeding is the best way to keep baby calm and relax. It will divert the babies mind by providing

comfortable, skin to skin contact, and it also provides security feeling, emotional and psychological support to the babies. One of the most accessible, affordable and emotionally bonding methods to lessen the pain associated with vaccinations is breastfeeding<sup>13</sup>. It should be the duty of health care providers to alleviate suffering and avoid pain. Improving vaccination acceptability is crucial for the child's future health and well-being.

### Methodology

The objectives of the study were

1. To assess the pain level among infants undergoing intramuscular vaccination in the experimental and control groups.
2. To analyze the effectiveness of breast feeding on pain levels during intramuscular vaccination among infants.
3. To find out the association between post-test pain level scores with selected socio-demographic variables among the experimental and control groups.

### Hypothesis: -

**H<sub>01</sub>:** There will be no significant difference between the effectiveness of breast feeding between the experimental and control groups on assessing the pain level using the Neonatal Infant Pain Scale (NIPS).

**H<sub>02</sub>:** There will be no significant association between the selected socio-demographic variables and post-test pain level scores in the experimental and control groups.

**H<sub>1</sub>:** There will be a significant difference between the effectiveness of breast feeding between the experimental and control groups

in assessing the pain level using the Neonatal Infant Pain Scale (NIPS).

**H<sub>2</sub>:** There will be a significant association between the selected socio-demographic variables and post-test pain level scores in the experimental and control groups.

### Materials and Methods

**Source of data:** The data was collected from the mothers or care takers and infants at selected hospitals, Bengaluru, Karnataka.

**Research approach:** Quantitative approach.

**Research design:** Quasi experimental post-test only research design was adopted for the study.

**Research setting:** The study was at the Immunization room of Indira Gandhi Institute of Child Health, Bengaluru, Karnataka.

**Population:** Infants between the age of one to four months who are coming for intramuscular vaccination at selected hospitals, Bengaluru, Karnataka.

**Sampling technique:** Purposive sampling technique was used for the selection of samples.

**Sample size:** The sample size is 100 who fulfill the inclusion criteria was selected for the study.

### Instrument used:

- Section A: Demographic data.
- Section B: Neonatal Infant Pain Scale (NIPS)

### Plan for Data Analysis:

- The data was analysed using descriptive and inferential statistics.

**Results and Interpretation**

**Table1: Frequency and percentage distribution of subjects according to their post-test pain levels in both experimental and control group.** N = 100

Sl. No	Pain level	Experimental group		Control group	
		f	%	f	%
1	No	32	64.0	-	-
2	Mild to moderate	14	28.0	1	2.0
3	More severe	4	8.0	49	98.0

Above table and diagram shows that in experimental group, majority 32 subjects (64%) of the infants had no pain during Intra muscular vaccination. Where as in control group, majority 49 subjects (98%) of the infants had severe pain during Intra muscular vaccination.

**Table 2:Mean and Standard deviation of post-test pain scores in both experimental and control group.** N= 100(50+50)

Sl. No	Group	Min	Max	Mean	SD
1	Experimental group	0	7	2.32	1.558
2	Control group	3	8	6.82	0.720

The overall actual scores of the Neonatal Infant Pain Scale (NIPS) are in the range 0-9. The above table shows that in experimental group, the minimum score is zero (0) whereas maximum score is 7 with the mean of 2.32 and a standard deviation of 1.558. In control group, the minimum score is 3, whereas maximum score is 8, with the mean of 6.82 and a standard deviation of 0.720 respectively.

**Table 3: Effectiveness of breastfeeding on pain among infants undergoing intra muscular vaccination.** N= 100 (50+50)

Sl. No	Group	Mean	SD	t test	P value
1	Experimental group	2.32	1.558	18.45	< 0.001
2	Control group	6.82	0.720		

The data presented in the table 5 shows that the calculated value( $t= 18.45, p<0.001$ ) is less than  $p<0.05$ . Hence the null hypothesis ( $H_{01}$ ) was rejected and inferred that there is a significant difference in the effectiveness of breast feeding during intra muscular vaccination in the experimental group. Hence the breastfeeding feeding is effective in reducing the pain during intra muscular vaccination among infants between the ages of one to four months.

**Table 4: Association of post-test pain level scores with selected socio-demographic variables in experimental group. n<sub>1</sub>= 50**

Sl. No	Variable	Pain level			Chi Square	df	Significance
		No	Mild to moderate	More severe			
1	<b>Age of the child (months)</b>				16.089	4	*
	1-2 months	9	2	1			
	2.1-3 months	8	2	2			
	3.1-4 months	15	10	1			
2	<b>Gender</b>				0.972	2	**
	Male	25	9	3			
	Female	7	5	1			
3	<b>Religion</b>				1.552	4	**
	Hindu	19	7	3			
	Muslim	12	7	1			
	Christian	1	0	0			
4	<b>Recommended vaccine</b>				0.556	2	**
	Pentavalent	17	9	2			
	PCV	15	5	2			
5	<b>Mother's education</b>				3.875	6	**
	Primary Education	2	1	0			
	Secondary	9	3	2			
	PUC	9	2	0			
	Graduate	12	8	2			
6	<b>History of hospitalization</b>				0.242	2	**
	Yes	7	4	1			
	No	25	10	3			

Note:\*\*- Not significant at 0.05 level of significance \*- Significant at 0.05 level Of significance

The data in Table 5 shows chi-square results that, there was a significant association between post-test pain level scores with age of the child.

The chi-square result shows that there was no significant association between post-test pain level scores with other socio-demographic variables such as gender, religion, recommended vaccine, mother's education and history of hospitalization.

Thus H<sub>02</sub> was rejected and inferred as there was significant association between post-test pain level scores and above mentioned socio-demographic variable (age) in experimental group.

**Table 5: Association of post-test pain level scores with selected socio-demographic variables in control group.n<sub>2</sub>=50**

Sl. No	Variable	Pain level		Chi Square	df	significance
		Mild to moderate	More severe			
1	<b>Age of the child (months)</b>			1.020	2	**
	1-2 months	0	11			
	2.1-3 months	0	14			
	3.1-4 months	1	24			
2	<b>Gender</b>			0.526	1	**
	Male	1	32			
	Female	0	17			
3	<b>Religion</b>			1.198	2	**
	Hindu	0	24			
	Muslim	1	22			
	Christian	0	3			
4	<b>Recommended vaccine</b>			0.869	1	**
	Pentavalent	1	26			
	PCV	0	23			
5	<b>Mother's education</b>			0.802	3	**
	Primary Education	0	2			
	Secondary	0	11			
	PUC	0	9			
	Graduate	1	27			
6	<b>History of hospitalization</b>			0.166	1	**
	Yes	0	7			
	No	1	42			

Note: \*\*- Not significant at 0.05level of significance

The data in Table 6 shows the p values of age (p=0.600), gender (p=0.468), religion (p= 0.549), recommended vaccine (p=0.351), mother's education(p=0.849) and history of hospitalization(p=0.684) are greater than 0.05 level of significance which shows that there was no association between post-test pain level scores and above mentioned socio-demographic variables. Thus H<sub>02</sub> was accepted and inferred as there was no significant association between post-test pain level scores and above mentioned socio-demographic variables in control group.

## Conclusion

As per the study finding, majority of the infants had no pain during intra muscular vaccination in experimental group compared to control group. The study revealed that breastfeeding feeding is effective in reducing the pain during intra muscular vaccination among infants between the ages of one to four months. It can be recommended for infants to reduce their pain and anxiety during intra muscular vaccination.

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