# Pilot study on A study to assess the effectiveness of breast feeding on pain perception during vaccination among infants at urban health Centre, Vijayawada, A.P

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***ABSTRACT:** The aim of the study was to assess the effectiveness of breast feeding on pain perception during vaccination among infants. The analysis of the study made based on findings obtained from descriptive and inferential statistical analysis. The study findings revealed that there was a significant reduction in the pain perception during vaccination among infants of experimental group, which emphasizes that breast feeding, can be used as an effective pain relieving measure during vaccination.*

## I.INTRODUCTION

**'The child shall in all circumstances be among the first to receive protection and relief**
***-UN's Rights of children***

Infancy is a time to gurgle, a time to crawl, and time for laugh and cry a time to hear a sweet lullaby at it is a time to get vaccinated against major killer diseases. India is a vast country with widely differing populations. The all India rate masks variations that exist among sub groups of the population. Among sub groups infants are most important age group in the society, because there is renewed awareness that the determinants of infectious and chronic diseases in later life are laid down at this stage. The main causes for infants mortality are under weight, communicable diseases i.e, by immunization and oral rehydration.

Immunization averts an estimated 2 to 3 million deaths every year from diphtheria, tetanus, pertussis (whooping cough), and measles; however, an additional 1.5 million deaths could be avoided if global vaccination coverage improves. During 2015, about 86% (116 million) of infants worldwide received 3 doses of diphtheria-tetanus-pertussis (DTP3) vaccine, protecting them against infectious diseases that can cause serious illness and disability or be fatal. By 2015, 126 countries had reached at least 90% coverage of DTP3 vaccine. An estimated 19.4 million infants worldwide are still missing out on basic vaccines.

Pain is **"**an unpleasant sensory and emotional experience associated with actual or potential tissue damage**"**. Unfortunately, infants have limited means to cope with pain because they "cannot rub a painful area and stimulate non-nociceptive touch fibers that would block the pain sensation, nor can they distract themselves through visualization." There also are no current systemic pharmacological treatments that are appropriate to provide pain relief during minor procedures, such as immunizations, in this age group.

Two primary goals of nursing care are comfort provision and pain relief. To accomplish these goals, neonatal nurses must first prevent pain whenever possible, secondly, they must assess pain in their neonatal patients who cannot verbalize their experienced pain, and thirdly, they must provide relief or reduction of pain through the implementation of non-pharmacological and/or pharmacological measures. Lastly, they must assist the infant in coping when pain cannot be prevented.

An intervention that is natural, cost-effective and has no ill-effects would be ideal for use in primary care settings for infants receiving immunizations. Research has shown that breastfeeding is a natural and effective intervention to decrease pain perception in infants during vaccinations; as well as during venipuncture and heel-sticks. It encompasses 3 components that are comforting and analgesic to infants: taste, suckling and skin-to-skin contact.

**Mohammad HasanSahebihag et al., (2011)** Conducted a quasi-experimental study on "**effect of breastfeeding, oral sucrose and combination of oral sucrose and breastfeeding in infant's pain relief during vaccination"** 120 infants under 3 months of age who referred to Tabriz Health Centers, were categorized randomly in four

groups; 25%oral sucrose, breastfeeding, combined method and control groups. The findings of the study indicated that in breastfeeding group the mean pain score was the lowest immediately after the vaccination, but this difference was significant only in breastfeeding and control groups (p = 0.007). The minimum crying time was 66.6(32.62) seconds in breastfeeding group and the maximum time was 126.26(46.15) seconds in control group. **The study concluded that, the lowest pain score and crying time was in breastfed neonates.**

**Maryam Modarres et al., (2013)** conducted a **randomized** clinical trial on **"effect of breastfeeding on pain relief in full-term neonates during injection of hepatitis B vaccine"** among One hundred thirty healthy full-term neonates in Tehran, Iran. Neonates in the experimental group were breastfed two minutes before, during, and after the hepatitis B immunization and the control group were held in mothers' arms but not fed. The mean total pain score as measured by the DAN scale was 3.52 (SD = 1.37) for the experimental group and it was 6.78 (SD = 1.69) for the controls indicating a significant lower pain score for the experimental group (P<0.001). The study concluded that **breastfeeding reduces pain and is effective way for pain relief during hepatitis B vaccine injection.**

**LovepreetKaur et al.,(2009)** conducted a quasi-experimental study on " **Effect of feeding the infant on breast during injecting vaccine on perception in Chandigarh "** among **216** infants receiving DPT and its combinant vaccines were randomly distributed into control and experimental group. Infants in the control group (n=106) were administered vaccine without breast feeding and the infants in experimental group (n=110) were administered vaccine during breast feeding. Significant difference in behavioral response of the infants was observed among the infants, t= 5.5 at df = 214 (p< 0.01). **It was concluded that the perception of pain intensity is less among the infants when vaccine is administer during breastfeeding.**

The researcher observed that many children receive immunization with little or no formal attempt made to reduce the fear and pain associated with the injections. As this caused psychological impact for parents and difficulties in administering immunization by the health workers, this inspired the investigator to look out for an alternate method which would reduce the pain threshold of infant during immunization. Hence, the investigator felt the need to use breast feed as an intervention to decrease pain perception during vaccination which is natural, and cost effective.

## II EXPERIMENTAL WORK

A true experimental posttest control group was conducted to assess the effectiveness of breast feeding on pain perception during vaccination among infants at Vijayawada.

**Research Design:**A true experimental approach with a True experimental, posttest control group design was adopted for the present study.

**Sample size:**A total number 20 subjects (10 Experimental group + 10 control group infants) from urban health Centre.

**Sample technique:** simple random sampling method.

**Inclusion criteria:** The subjects who were

- In the age group of 1-6 months who Receiving Pentavalent vaccine (Intra muscular)
- Free from significant illness and Mothers who were willing to participate in the study and Attending at urban health center during data collection were selected.

**The instrument** was organized into three sections.

**Section-I**: consists of questions related to demographic data. The scoring key was prepared for section-1 by coding the demographic variables

**Section II: Part –A:** It includes Modified Behavioral Pain Scale by Taddio, et al to assess infants' pain perception during clinical procedures. It consist of 3 parameters: facial expression, cry and movements.The maximum score is 10 and the minimum score is 0

**Part–B:** Duration of crying will calculate for all the infants by stop watch beginning with the first needle puncture of skin to absence of audible distress vocalization.

**Section –III:** Visual analog scale by Wong an baker will use by infant mothers to code infants pain perception during vaccination. The score ranges from 0-10.

**Score interpretation:**Mild pain: 0-3, Moderate Pain: 4-7 and Severe Pain: 8-10

The pilot study was conducted and the findings of the study revealed that tool was reliable(r=0.96), feasible to conduct the main study. The data was analyzed by using descriptive statistics and inferential statistics

## III RESULTS AND DISCUSSIONS

**Table - I**

**Level of pain perception among infants during vaccination in experimental and control groups as per MBPS**

**n =20**

| S. No. | Categories | Control group | | Experimental Group | |
|---|---|---|---|---|---|
| | | F | % | F | % |
| 1. | Mild | 0 | 0% | 1 | 1% |
| 2. | Moderate | 3 | 3% | 8 | 8% |
| 3. | Severe | 7 | 7% | 1 | 1% |

**Table-1** depicts that among 10 infants as per MBPS score in control group7% had severe pain, 3% had moderate and no one had mild pain during vaccination. Whereas in experimental group 1% had mild pain, 8% had moderate and 1% had severe pain.

**Table - II**

**Level of pain perception among infants during vaccination in experimental and control groups as per VAS**

**n =20**

| S. No. | Categories | Control group | | Experimental Group | |
|---|---|---|---|---|---|
| | | F | % | F | % |
| 1. | Mild | 0 | 0% | 0 | 0% |
| 2. | Moderate | 4 | 4% | 9 | 9% |
| 3. | Severe | 6 | 6 % | 1 | 1 % |

**Table-1I**depicts that among 10 infants as per VAS score in control group 6% had severe pain, 4% had moderate and no one had mild pain during vaccination. Whereas in experimental group no one had mild pain, 9% had moderate and 1% had severe pain.

**Table - III**

**Level of pain perception among infants during vaccination in experimental and control groups as per crying duration**

| S.No | Categories | Control group | | Experimental Group | |
|---|---|---|---|---|---|
| | | F | % | F | % |
| 1. | Mild | 5 | 5% | 10 | 10% |
| 2. | Moderate | 1 | 1% | 0 | 0% |
| 3. | Severe | 4 | 4 % | 0 | 0 % |

**Table-1II**depicts that among 10 infants as per crying duration in control group 4% had severe pain, 1% had moderate and 5% had mild pain during vaccination. Whereas in experimental group 10% had mild pain, no one had severe and moderate pain

**Table-1V**

**Effectiveness of breast feeding on pain perception during vaccination among infants of experimental and control groups.**

| S.No | Parameters | Control group | | Experimental group | | 't' value | |
|---|---|---|---|---|---|---|---|
| | | MEAN | SD | MEAN | SD | Value | SN |
| 1 | Pain perception as per MBPS | 8.3 | 1.56 | 5.5 | 1.35 | 4.275 | ** |
| 2 | Pain perception as per VAS | 8.2 | 1.61 | 5.2 | 1.68 | 4.05 | ** |
| 3 | Crying duration | 115.7 | 62.39 | 60.39 | 29.85 | 2.537 | ** |

Key: S : Significant, *: significant at 0.05 level **: significant at 0.01 level

**MBPS:**Modified behavioral pain scale**VAS:** Visual analog scale

The data in the **Table-IV** represents that there is an significant reduction in the pain perception during vaccination

among infants of experimental group with't' value 4.275 by modified behavioral pain scale, 4.05 as per VAS and 2.537 as per crying duration at 0.01 level of significance, which emphasizes that breast feeding can be used as an effective pain relieving measure during vaccination.

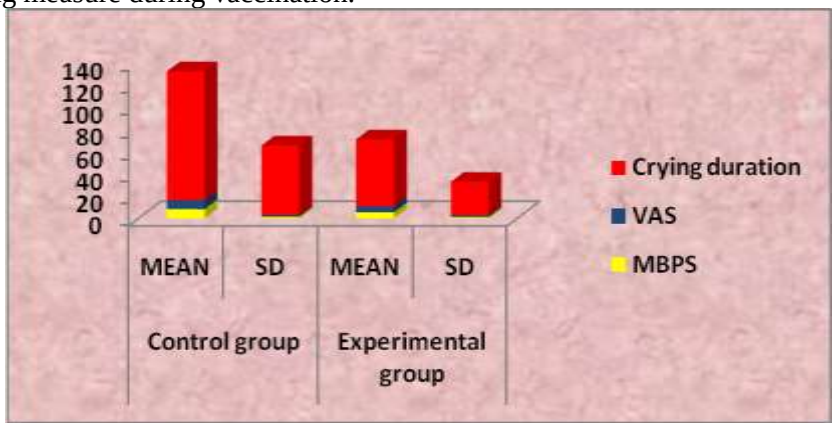


**Fig.IEffectiveness of breast feeding on pain perception during vaccination among infants of experimental and control groups.**

**Table-V**

**Effectiveness of breast feeding on Pain perception during vaccination among infants in experimental and control groups as per modified behavioral pain scale parameters.**

**n =20**

| S.No | MBPS Parameters | Control group | | Experimental group | | 't' value | |
|---|---|---|---|---|---|---|---|
| | | MEAN | SD | MEAN | SD | Value | Significance |
| **1.** | **Facial expression** | 2.6 | 0.516 | 1.85 | 0.7436 | 3.348 | ** |
| **2.** | **Cry** | 3.1 | 0.737 | 2 | 0.47 | 3.97 | ** |
| **3.** | **Movement** | 2.6 | 0.699 | 1.7 | 0.67 | 2.68 | ** |

Key: S : Significant, *: significant at 0.05 level **: significant at 0.01 level
**MBPS:**Modified behavioral pain scale**VAS:** Visual analog scale

The data in the **Table-V** represents that there is an significant reduction in the pain perception during vaccination among infants of experimental group with't' value 3.348 by facial expression, 3.97 as per Cry and 2.68 as per movement at 0.01 level of significance which emphasizes that breast feeding can be used as an effective pain relieving measure during vaccination as per MBPS score parameters.

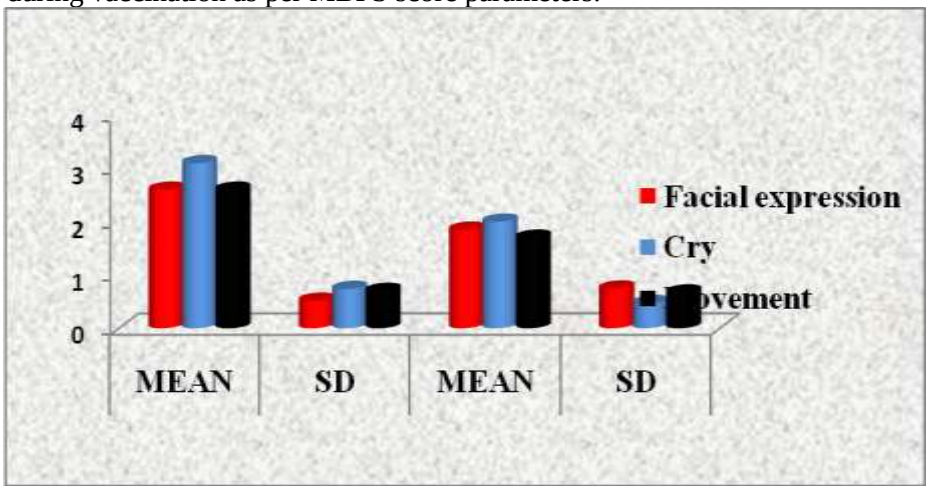


**Fig II.Effectiveness of breast feeding on pain perception during vaccination among infants of experimental and control groups as per MBPS parameters.**

## CONCLUSION

Routine vaccination is an inherent part of the health care delivery system as it is the most effective health

intervention in reducing the morbidity and mortality due to "vaccine preventable diseases". Vaccine injections are most iatrogenic procedures performed in child hood the major source of distress for children**.** In this study majority of infants experienced severe pain who were not breast fed and in the experimental group infants who were breast fed majority of them had moderate and mild pain. There was no significant association between selected demographic variables with infants of experimental group. These findings suggest that breast feeding is a non –pharmacological measure which is effective convenient and inexpensive, this can be easily adopted as part of standard infant immunization practice

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