

# Effectiveness of Facilitated Tucking on Pain Among Infants Undergoing DPT Vaccination.

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**Abstract-** Routine immunization injections are the most common painful procedure of childhood. Most of these injections are administered early in a child's life. With the continued introduction of new vaccines, children may now receive up to 20 injections by their second birthday. Thus investigator would like to take up the present study to evaluate the effectiveness of facilitated tucking on pain among infants undergoing DPT vaccination. Facilitated Tucking improves the emotional security and reduces the pain perception. The research approach adopted for study was evaluative survey approach, research design was Quasi experimental post test only control group design. By using non-probability purposive sampling technique 100 infants were selected for the study. Modified Neonatal Infant Pain Scale was used to assess the pain scores of the infants during and after receiving DPT vaccination. The calculated unpaired 't' value ( $t_{cal} = 9.52$ ) was greater than tabulated 't' value ( $t_{tab} = 1.27$ ) after vaccination. Therefore it can be inferred that facilitated tucking is effective in reducing pain during and after 2 minutes of DPT vaccination among infants. The calculated chi square values were higher than tabulated values at 0.05 level of significance. The results of the study revealed that there was significant association between posttest pain scores and selected socio-demographic variables. i.e age in months, [ $\chi^2_{cal} = 20.81$ ,  $\chi^2_{tab} = 12.59$ ].

The present study revealed that majority of subjects in experimental group 38(76 %) had mild pain while minimum number 12 (24%) were had moderate pain whereas in control group majority of subjects 31 (62%) had moderate pain while 9 (18%) had mild pain. therefore it was concluded that facilitated tucking helped to decrease the pain among infants during and after DPT vaccination.

**Index Terms-** Infants, Facilitated tucking, DPT vaccination, Pain.

## I. INTRODUCTION

Globally, pain is an issue in neonatal intensive care. Infants are unable to verbalize pain causing it to sometimes go unnoticed. In the past, it was ostensibly believed that neonates did not feel pain or that a painful experience would be forgotten as rapidly as it had occurred. Injections of vaccinations are the most common source of iatrogenic pain in childhood. They are administered repeatedly to almost all children throughout infancy, childhood and adolescence. The pain associated with such injections is a source of distress for children, their parents and those administering the injections. If not addressed, this pain can lead to pre-procedural anxiety in the future, needle fears and health care avoidance behaviors, including non-adherence with vaccination schedules. It is estimated that up to 25% of adults have a fear of needles, with most fears developing in childhood. About 10% of the population avoids vaccination and other needle procedures because of needle fears.<sup>2</sup> Vaccinations are first administered when babies are very young

## III. DISSCUSSION

The present study was designed to evaluate the effectiveness of facilitated tucking as a non-pharmacological pain management technique on pain during and after DPT vaccination among subjects at

Studies have shown that uncontrolled pain experienced during the early stages of life has negative and long-term side effects, such as distress, and that such pain negatively affects the development of the central nervous system.<sup>3</sup>

Facilitated tucking is one of the simplest non-pharmacological and cost effective techniques simulating the condition of being in uterus. This makes the infant comfortable, more secure with controlled response. It facilitates self-regulation by decreasing the physiologic response like prolonged heart rate elevation that contributes to the disequilibrium associated with pain and stress. Facilitated tucking improves the emotional security and reduces the pain perception.<sup>7</sup>

Facilitated tucking improves the emotional security and reduces the pain perception.<sup>7</sup> There is lack of awareness among health care professionals regarding pain perception, assessment and management in infants. Facilitated Tucking improves the emotional security and reduces the pain perception. The nurse or care givers can effectively implement facilitative tucking for reduction of pain in any setting as it is a very simple technique.

## II. METHODS AND DATA COLLECTION

Data was collected from different research studies and through journals, newspapers, and government reports on vaccination and census reports. After an extensive review of literature referring the books and journals as well as discussion with the guide and experts, the tool that is socio-demographic variables and modified neonatal infant pain scale were developed to assess the effectiveness of facilitated tucking on pain among infants undergoing DPT vaccination. Selected Socio-demographic variables. It consisted of six items for obtaining information about the selected background factors of samples such as age in months, gender, birth weight, present weight, gestational age, dose DPT vaccination etc. Research study was conducted at well baby clinics of Kolhapur. Permission was obtained from the concerned authorities of the selected hospitals, Kolhapur. 100 subjects were randomly selected according to inclusion criteria, by Non-probability purposive sampling method for experimental (50) and control group (50). The investigator introduced herself to the mothers of infants. Written consent was taken by explaining the purpose and objectives of the study from mothers of infants. Facilitated tucking, that is fetal position was provided to the infants by the investigator, in experimental group, one minute prior to DPT vaccination. Routine position (extension of leg) was provided to infants in control group. DPT vaccination is administered by the staff nurses. Pain perception was assessed in both group by using modified NIPS scale during injecting vaccination and after 2 minutes of the DPT vaccination by non participant trained observer. The collected data was analyzed and tabulated.

selected well baby clinics. The collected data was coded, organized, analyzed and interpreted, by using both descriptive and inferential statistics. The descriptive statistics used were frequency and percentage distribution of sample characteristics and computation of mean, median, mode, range and standard deviation of posttest pain scores. Inferential

statistics used was unpaired “t” test to evaluate the effectiveness of facilitated tucking.

Analysis and interpretation of information collected with the help of selected socio-demographic variables and Modified Neonatal Infant Pain Scale from 100 subjects who had underwent vaccination procedures at selected well baby clinics. Majority of the infants 53 (53%) were males and 47 (47%) were female. In the present study, Majority of infants 33 (33%), belonged to the age group of 1.5 to 2.5 months, while minimum number 15 (15%) belonged to the age group of 4.6 to 5.5 months. Majority of the infants 53 (53%) were males and 47 (47%) were female. Birth weight of majority of infants 55(55%) were between 2.6 to 3 kg, while minimum number 03(3%) had 1.5 to 2 kg. Present weight of majority of infants 39 (39%) were between 5.1 to 6 kg, while minimum number 09 (9%) had 7.1 to 8 kg . majority of infants 39 (39%) were receiving second dose of DPT vaccination while 23 (23%) infants were receiving first dose. Gestational age of majority of infants 74 (74%) were term while minimum number of infants 06 (6%) were post-term.

In the present study, while conducting assessment of pain scores during vaccination, out of 100 infants in experimental and control group, majority of infants in experimental group 28 (56%) had moderate pain while minimum number of infants 22(44%) showed severe pain whereas in control group majority of infants 42 (84%) had severe pain while minimum number 8 (16%) had moderate pain. While doing assessment of pain scores after two minutes of vaccination, out of 100 infants in experimental and control group, majority of infants in experimental group 38(76 %) had mild pain while minimum number 12 (24%) were having moderate pain whereas in control group majority of infants 31 (62%) had moderate pain while 9 (18%) had mild pain

In this present study, the overall pain score of subjects in the experimental group was less than the control group by mean difference 1.86 units and median was 0.5 units where mode was 3 units during injecting DPT vaccination the overall pain score of subjects in the experimental group was less than the control group by mean difference 2 units and median was 2 units where mode was 1 units, after the 2 mins DPT vaccination.

In this present study, there was significant association between posttest pain scores with their selected socio-demographic variables like Age in months [ $\chi^2_{cal} = 20.81$ ,  $\chi^2_{tab} = 12.59$ ]. This indicated that there was significant association between post test pain scores and selected socio-demographic variables, that is age of infant can interfere with pain score during invasive procedures. In the present study, the calculated unpaired ‘t’ value ( $t_{cal} = 9.52$ ) is greater than tabulated ‘t’ value ( $t_{tab} = 1.27$ ) after vaccination.. This indicated that there was statistically significant difference between the mean posttest pain score value of experimental and the control groups. ( $p < 0.05$ ) Therefore it can be inferred that facilitated tucking is effective in reducing pain during and after 2 minutes vaccination among infants.

Similar finding were reported in the study done by Olive Lopez et.al on the effect of facilitated tucking on procedural pain control among premature babies, In this study, the variable age had significant association with pain scores among infants another Similar findings were shown by Ms. Rubin Selvarani.G on effectiveness of facilitated tucking on level of pain among preterm infants undergoing painful procedure at selected hospitals regarding post test pain score.

Figure 1: facilitated tucking position



Figure 2: classical holding position



## IMPLICATIONS

The investigator has put forward the following implications from the study which is of crucial concern for nursing practice, nursing education, nursing administration and nursing research. The child health nursing practitioners can formulate a separate protocol for practicing facilitated tucking in their daily routine as procedural pain control measure. The nurse administrator should enforce in organizing Continuing Nursing Education (CNE), conferences and workshop on facilitated tucking on level of procedural pain in preterm infants and other potential benefits and more research studies can be done by nurses to evaluate other non-pharmacological interventions like oral sucrose, Music to reduce pain among children.

## RECOMMENDATIONS

The researcher presents strong recommendation to the neonatal nurses, to involve actively in on prevention of the long-term consequences of repeated painful stimuli through the simple cost-effective nursing measure, facilitated tucking during the routine painful procedures.

The study recommends the following for further research.

- 1.The researcher will recommend for implementing the facilitated tucking in preterm and term infants undergoing painful procedure in the clinical area by the staff nurses
2. A comparative study can be conducted to compare the effectiveness of facilitated tucking with other non-pharmacological pain relief measures.
3. The same study can be replicated with large samples in various other settings for reinforcement.
4. A prospective study can be conducted to assess the effectiveness of facilitated tucking on various other behavioral parameters among preterm infants.
5. A comparative study can be done by using facilitated tucking with oral sucrose / swaddling and facilitated tucking without oral sucrose / swaddling on reducing pain

## CONCLUSION

Based on the findings of the study, the following conclusions were drawn. The study revealed that facilitated tucking is effective in reducing pain in infants during and after DPT vaccination.

The calculated unpaired 't' value ( $t_{cal} = 9.52$ ) is greater than tabulated 't' value ( $t_{tab} = 1.27$ ) after 2 mins of DPT vaccination Hence  $H_1$  is accepted. This indicates that there was statistically significant difference between the mean posttest pain score value of experimental and the control groups. ( $p < 0.05$ ). Hence, it is proved that facilitated tucking is an effective non-pharmacological pain management technique in reducing pain among infants during and after vaccination.

The association revealed that the age in months is statistically associated [ $\chi^2_{cal} = 20.81$ ,  $\chi^2_{tab} = 12.59$ ] with posttest pain scores at 0.05 level of significance. Hence, it is recommended that awareness on use of facilitated tucking should be promoted among staff nurses by continuing nursing education and develops immunization practice protocol in use of such non-pharmacological techniques like facilitated tucking during immunization to reduce pain among children.

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