

# EFFECTIVENESS OF FACILITATED TUCKING ON PAIN DURING HEEL PRICK PROCEDURE AMONG NEONATES

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## Abstract

According to the International Association for the Study of Pain, "Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage". Perception of pain in pediatrics is complex, and entails physiological, psychological, behavioral, and developmental factors. However, in spite of its frequency, pain in infants, children, and adolescent is often underestimated and under treated. It has also been shown that infants and children, who experience pain in early life, show long-term changes in terms of pain perception and related behaviors

The aim of the study is to assess the effectiveness of facilitated tucking on pain during heel prick procedure among neonates admitted in NICU at selected hospitals of Punjab.

Quantitative approach, Quasi experimental- Post test only control group design without randomization & Non – probability convenience sampling technique was used to select 60 neonates (30 in experimental and 30 in control group). Study was conducted in Civil Hospital, Fatehgarh Sahib and Civil Hospital, Khanna. The tool used had two sections, socio demographic variables and Bernese Pain Scale for Neonates. Bernese Pain Scale for Neonates had been used to assess the pain among neonates. Facilitated tucking had been implemented on neonates in experimental group only.

The study results revealed that there is statistically significant difference (unpaired t test 6.686) in the mean pain score in experimental group ( $9.2667 \pm 3.00498$ ) and control group ( $14.9000 \pm 3.59454$ ) at 0.05 level of significance. The results also depict that there is statistically significant difference in pain in experimental & control group as calculated by chi square test (6.22) at 0.05 level of significance. This study concluded that there is statistically significant difference in the post interventional pain between control and experimental group at the 0.05 level of significance.

## Keywords

effectiveness, facilitated tucking, pain, neonates, NICU

## INTRODUCTION

According to the International Association for the Study of Pain, "Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage". Perception of pain in pediatrics is complex, and entails physiological, psychological, behavioral, and developmental factors.<sup>1</sup> However, in spite of its frequency, pain in infants, children, and adolescent is often underestimated and under treated. It has also been shown that infants and children, who experience pain in early life, show long-term changes in terms of pain perception and related behaviors.<sup>2</sup>

**FACILITATED TUCKING** refers to the positioning of the neonate in a flexed position (fetal position) with the arms and legs close to the middle of the trunk with the help of hands of the researcher.<sup>3</sup>

Pain places increase demands on cardio respiratory and neurological system. There can also be adverse long term developmental sequel such as reduction of pain threshold and hyperalgesia.<sup>19</sup> The prevention of pain in neonate should be the goal of all caregivers, because repeated painful exposures have the potential for deleterious consequences. Neonates at greatest risk of neuro-developmental impairment as a result of preterm birth (ie, the smallest and sickest) are also those most likely to be exposed to the greatest number of painful stimuli in the NICU.<sup>20</sup>

Despite these facts, emphasis on the assessment and management of pain in the children is lacking. Some of the possible reasons for the neglect of pain relief in pediatric management are listed below: -

- Lack of capability of neonates to perceive pain.
- Lack of awareness of clinical situations wherein pain is perceived.
- Inability of neonates to express pain specifically.
- Medical attention focused towards treatment of primary clinical condition.
- Neonates expression (s) of pain interpreted as expressions of fear.
- Lack of awareness of methods of facilitated tucking
- Inability of health team members to perceive neonatal pain.

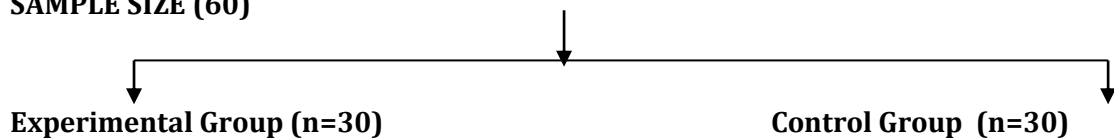
### OBJECTIVES OF THE STUDY

1. To assess the pain in experimental and control group during heel prick procedure.
2. To compare the pain in experimental & control group during heel prick procedure.
3. To find out the association of pain with selected socio- demographic variables.

### MATERIAL AND METHODS

A quantitative research approach, Quasi experimental research in which post test only control group design without randomization was used for the present study. The present study was conducted at NICU of Civil Hospital, Fatehgarh Sahib and Civil Hospital, Khanna. The target population of the present study consists of neonates who were receiving heel prick procedure in Civil Hospital, Fatehgarh Sahib and Civil Hospital, Khanna. 60 children were selected as study subjects receiving heel prick procedure in Civil Hospital, Fatehgarh Sahib and Civil Hospital, Khanna based upon the inclusion and exclusion criteria. The proposed sample was selected by convenience sampling technique as the parents of neonates agreed to participate in the study.

### SAMPLE SIZE (60)



#### Experimental Group (n=30)

- The study includes the neonates who were within 28 days, receiving heel prick, willing to participate in the study and present at the time of data collection. The study excludes the neonates who were having any type of congenital malformations, under the effect of analgesics or sedations, with musculoskeletal disorders, any diversional technique like breast feeding, oral sucrose. The tool planned for data collection consists of two sections:
- Part-A consists of socio- Demographic variables (gestational age, gender of neonate, birth weight of neonate, duration of hospitalization in NICU, neonatal age, Status of neonate before heel prick procedure) and Part-B consists of **BPSN (BERNESE PAIN SCALE FOR NEONATES)** pain scale. The data for pilot study was collected in the month of January 2020. A sample of 6 neonates i.e. 3 for experimental group and 3 for control group were selected for pilot study by using Convenience sampling technique.
- Data collection was done from January 28, 2020 to February 24, 2020. Demographic data from 60 parents were collected by investigator with the help of structured interview schedule. Subjects were divided into 2 groups, as experimental and control group. The intervention and assessment of pain was done by researcher by using BPSN pain scale for 1-2 minute. The intervention for the present study was facilitated tucking to reduce the pain. In experimental group, facilitated tucking is used in which neonates kept in supine position, then hold upper extremities by one hand and lower extremities by other hand. Then keep the neonate in flexed position till the heel prick procedure is not performed. After heel prick, remove facilitated tucking. Leave the neonate in comfortable position & observe for pain. In control group, routine heel prick procedure was used. Data analysis was done by using descriptive and inferential statistics such as mean, percentage, standard deviation, unpaired t test and chi square test.

**RESULTS**

Among 30 Samples (N = 60 ),. Hence, in experimental group majority 23 ( 76.6% ) of the neonates had no pain , 7( 23.3%) had pain. In control group, majority 25 ( 83.3% ) of neonates had pain & 5 ( 16.6%) had no pain. Hence it was concluded that majority of the neonates felt no pain in experimental group and majority of the neonates felt pain in control group. Table 1 depicts that mean pain score in experimental group was  $3.1 \pm 0.92$  and  $3.8 \pm 1.2$  in control group. On statistical analysis, using unpaired ‘t’ test the calculated value was found to be 17.9 which was higher than table value (1.98) at 0.05 level of significance. Hence it was interpreted that there is statistically significant difference in the post interventional mean pain score between experimental group and control group.

**Table 1: Comparison of mean pain score in experimental group and control group. (N=60)**

Group	Observation Mean pain score $\pm$ S.D	Unpaired ‘t’ test
Experimental (n=30)	$9.2667 \pm 3.00498$	6.686** df = 158
Control (n=30)	$14.9000 \pm 3.59454$	

\*\* significant at level of 0.05

On statistical analysis, using unpaired ‘t’ test the calculated value was found to be 6.686 which was higher than table value at 0.05 level of significance. Hence it was interpreted that there is statistically significant difference in mean pain score between experimental group and control group during heel prick procedure at 0.05 level of significance. There is no significant association of pain with socio-demographic variables in experimental and control group.

**DISCUSSION**

The objective neonates who are under experimental group during heel prick perceive had no pain than neonates who are under in control group. It reveals that there is no pain in experimental group than control group during heel prick. So, use of facilitated tucking reduce the level of pain as there were only 7 neonates who had pain and 23 had no pain in experimental group as compared to in control group where 25 neonates had pain and 5 neonates had no pain. mean pain score was  $9.2667 \pm 3.00498$  in experimental group whereas in control group mean pain score was  $14.9000 \pm 3.59454$ . On statistical analysis, using unpaired ‘t’ test the calculated value was found to be 6.686 which was higher than table value at 0.05 level of significance. The above objective and findings are supported by **Kucukoglu S et al (2015)** A randomized controlled experimental study. The mean pain scores of infants who receive heel prick in the facilitated tucking position ( $2.83 \pm 1.18$ ) were significantly statistically lower than the scores of infants receive heel prick in routine procedure ( $6.47 \pm 1.07$ ) ( $p < 0.05$ ). **Britto C et al (2017)** shows duration of hospitalization and gender does not affect pain during heel prick as The mean birth weight was 2441 g (SD: 699) at a mean gestation of 34.4 weeks (SD: 3.2). The obtained chi square values did not shown any significant association of pain selected socio- demographic variables in experimental and control group.

**LIMITATIONS AND FUTURE PRESPECTIVE**

**Limitations of the Study**

- Short availability of time for data collection limits the area under research.
- Small sample size result in the limitation of generalizing the findings.

**RECOMMENDATIONS**

On the basis of the findings of the study following recommendations are-

- A similar study can be replicated on large sample to generalize the findings.

- Randomized controlled trial can be done for similar type of study.
- An experimental study can be conducted with control group in order to see the effectiveness of various pain reduction strategies.
- Comparison study can be conducted between different pain reduction strategies like oral sucrose, KMC, music etc. with facilitated tucking. Facilitated tucking requiring less time can be invented.
- An experimental study can be conducted to assess the effectiveness of facilitated tucking on pain during various procedures.

**CONFLICT OF INTEREST**

None

**ROLE OF FUNDING SOURCE**

None

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