



EFFECTIVENESS OF HELPER SKIN TAP TECHNIQUE ON PAIN LEVEL AMONG INFANTS DURING INTRAMUSCULAR VACCINATION AT A SELECTED HOSPITAL IN DISTRICT SHIMLA, HIMACHAL PRADESH

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ABSTRACT

Background: Immunization is a routine but painful procedure in infancy. Managing this pain is vital because repeated exposure to painful stimuli can affect an infant's comfort and create anxiety for both infants and parents. The Helper Skin Tap Technique (HSTT) is a simple, non-pharmacological method that involves rhythmic tapping of the skin to reduce pain sensations during injections. **Objective:** The present study aimed to determine the effectiveness of the Helper Skin Tap Technique in reducing pain among infants receiving intramuscular vaccinations at a selected hospital in District Shimla, Himachal Pradesh. **Methodology:** A quantitative research approach with a quasi-experimental post-test only design was adopted. Sixty infants aged 2–6 months who came for pentavalent vaccination were selected using purposive sampling and were divided equally into experimental (n=30) and control (n=30) groups. The experimental group received HSTT before and during vaccination, while the control group received the routine injection method. Pain was assessed immediately after vaccination using the FLACC Behavioral Pain Scale. Data were analyzed using descriptive and inferential statistics. **Results:** In the experimental group, 20 infants (66.7%) had moderate pain and 10 (33.3%) had mild pain. In contrast, in the control group, 12 infants (40%) had severe pain and 18 (60%) had moderate pain. The mean pain score in the experimental group was 4.00 (SD = 0.9), while in the control group it was 6.07 (SD = 1.1). The mean difference of 2.07 was statistically significant ($p < 0.001$). No relationship was found between pain level and selected demographic variables. **Conclusion:** The Helper Skin Tap Technique effectively reduces pain in infants during intramuscular vaccination. The method is safe, inexpensive, and easy for nurses to perform. It can be included as a routine nursing practice to enhance infant comfort during immunization.

KEYWORDS : Helper Skin Tap Technique, Pain, Infants, Intramuscular Vaccination, FLACC Scale

INTRODUCTION

Vaccinations are essential for preventing serious diseases in childhood. However, the act of giving an injection is often painful for infants, leading to crying, anxiety, and fear. Pain management during immunization is therefore a key responsibility for nurses and healthcare providers.¹

Infants cannot verbalize their pain, but they show it through body movements, facial expressions, and crying. Frequent painful experiences during early life can have both short-term and long-term behavioral effects, including needle fear and avoidance of healthcare visits later in life.

The Helper Skin Tap Technique (HSTT), developed by Joanne Helfer in 1998, provides an easy, drug-free way to minimize injection pain. The technique is based on the gate control theory of pain, which explains that gentle stimulation of the skin can —close the gate to pain signals transmitted to the brain. By rhythmically tapping the injection site before and during injection, the nurse distracts the sensory nerves and reduces pain perception.²

Although HSTT has been tested in several countries, limited studies have been conducted in North India, especially in Himachal Pradesh. Therefore, this study was undertaken to assess its effectiveness in reducing pain among infants receiving intramuscular vaccinations in District Shimla.³

OBJECTIVES

1. To assess the level of pain among infants receiving intramuscular vaccination in the experimental and control groups.
2. To determine the effectiveness of the Helper Skin Tap Technique in reducing pain among infants.
3. To find the association between pain levels and selected demographic variables such as age, weight, and gestational age.

Hypotheses:

- H₁: There is a significant difference in the level of pain between infants who receive HSTT and those who receive the routine injection technique.
- H₂: There is a significant association between the level of pain and selected socio-demographic variables.

MATERIALS AND METHODS

Research Design: Quasi-experimental non-equivalent post-test only design.

Research Approach: Quantitative.

Setting: Civil Hospital, Rohru, District Shimla, Himachal Pradesh.

Population: Infants aged 2–6 months scheduled for pentavalent vaccination.

Sample Size: 60 infants (30 in the experimental group and 30 in the control group).

Sampling Technique: Non-probability purposive sampling.

Tools Used:

1. Demographic information sheet (age, gender, weight, gestational age, dose number, parental education).
2. FLACC Behavioral Pain Assessment Scale (Face, Legs, Activity, Cry, Consolability)-scores range from 0 (no pain) to 10 (severe pain).

Procedure:

Infants in the experimental group were given the injection after applying the Helper Skin Tap Technique. The researcher tapped the skin gently 16 times before the needle was inserted, three times during insertion, and continued tapping until the needle was removed. In the control group, vaccination was administered using the routine method without HSTT. Pain was observed and scored immediately after injection.⁴

Ethical Considerations:

Ethical approval was obtained from the Institutional Ethics Committee. Written informed consent was taken from parents before data collection.

Data Analysis:

Data were analyzed using descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (independent t-test and chi-square test). A p-value less than 0.05 was considered significant.⁵

RESULTS

1. Demographic Profile of Infants

Most infants in both groups were between 2 and 4 months old, with normal birth weight and full-term gestation. There was no significant difference between the two groups in terms of background characteristics.

2. Pain Level Distribution

Table 1. Socio-Demographic Characteristics of Infants (n = 60)

Shows age, gender, weight, gestational age, and parental education of infants in both experimental and control groups.

Variable	Experimental Group (n=30)	Control Group (n=30)
Age (months)	2–4: 70% / 5–6: 30%	2–4: 66.7% / 5–6: 33.3%
Gender	Male: 53% / Female: 47%	Male: 50% / Female: 50%
Mean Weight (kg)	5.4 ± 0.8	5.6 ± 0.7
Gestational Age	Full-term: 90% / Preterm: 10%	Full-term: 93% / Preterm: 7%
Parental Education	Primary & above: 85%	Primary & above: 80%

Table 2. Distribution Of Pain Levels Among Infants In Experimental And Control Groups (n = 60)

Pain Level	Experimental Group (n=30)	Control Group (n=30)
Mild	10 (33.3%)	0 (0%)
Moderate	20 (66.7%)	18 (60%)
Severe	0 (0%)	12 (40%)

Table 2 shows that none of the infants in the experimental group experienced severe pain, while 40% of the control group did. The distribution of pain levels is illustrated in Figure 1.

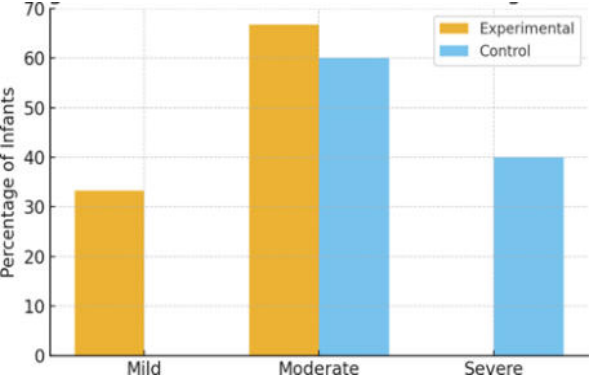


Figure: 1 Distribution Of Pain Levels Among Infants

Table 3. Comparison of Mean FLACC Pain Scores between Experimental and Control Groups (n = 60)

Group	Mean	Standard Deviation	Mean Difference	t-value	p-value
Experimental	4.00	0.9	2.07	6.12	<0.001*
Control	6.07	1.1	—	—	—

Table 3 shows a significant difference in mean pain scores between experimental and control groups (p < 0.001).

Mean Pain Scores

The mean pain score of the experimental group was 4.00 (SD = 0.9), while the mean pain score in the control group was 6.07 (SD = 1.1). The calculated t-value of 6.12 at p < 0.001 indicates a significant difference between the two groups.

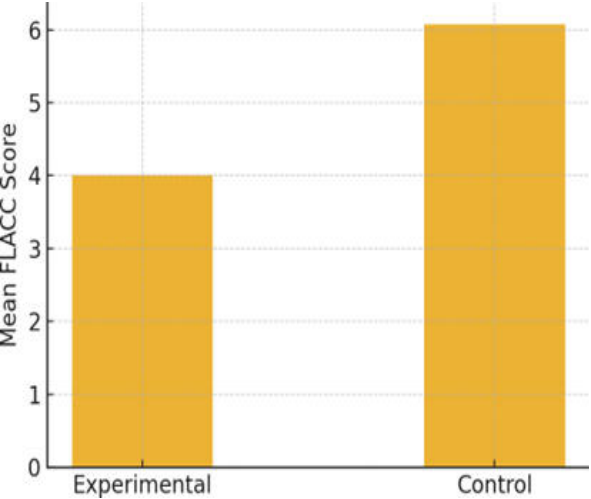


Figure: 2 Comparison Of Mean FLACC Pain Score

Table 4. Association of Pain Level with Selected Socio-Demographic Variables (n = 60)

Variables	χ ² (Chi-square) Value	df	p-value	Remark
Age of Infant	1.25	1	0.26	NS
Gender	0.31	1	0.58	NS
Weight	1.11	1	0.29	NS
Gestational Age	0.54	1	0.46	NS
Parental Education	0.89	1	0.34	NS

Table 4 indicates no significant association between pain level and selected demographic variables (p > 0.05).

4. Association With Demographic Variables

No significant association was found between the level of pain and demographic factors such as age, weight, gestational age, or parent's education.

DISCUSSION

The present study demonstrates that infants who received the Helper Skin Tap Technique during vaccination showed a much lower pain response compared to those who received the standard injection. The gentle tapping seems to provide a distraction and relax the muscle, reducing tension and pain perception.⁶

Similar results have been reported by Guven et al. (2023), Sahoo et al. (2025), and Bhardwaj et al. (2023), who found that rhythmic tapping effectively reduced pain scores during intramuscular injections in neonates and infants. These findings confirm that the method is consistent, safe, and effective across different settings.

The absence of a link between demographic variables and pain level suggests that the technique works equally well for all infants regardless of age or weight.

CONCLUSION

The Helper Skin Tap Technique is an effective, quick, and non-invasive method to reduce pain in infants during intramuscular vaccination. As it does not require any special equipment, it can be easily performed by nurses during routine immunization sessions. Its regular use can make vaccination experiences less distressing for infants and caregivers alike.

Implications

- **Nursing Practice:** The technique should be adopted in all immunization clinics to improve comfort and reduce distress among infants.
- **Nursing Education:** HSTT should be included in clinical training and nursing curricula.
- **Future Research:** Further studies can combine HSTT with other pain-relieving methods, such as breastfeeding or oral sucrose, for enhanced effectiveness.

Limitations

- Small sample size limited to one hospital in Shimla district.
- Only behavioral observation was used; physiological parameters like heart rate were not recorded.
- Randomization could not be fully achieved due to practical constraints.

Recommendations

1. Conduct similar studies on larger populations and in different regions.
2. Compare the effectiveness of HSTT with other distraction methods like cold application or vibration devices.
3. Assess physiological indicators alongside behavioral scales for a more comprehensive pain evaluation.

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