International Journal of Research In Paediatric Nursing

E-ISSN: 2664-1305
P-ISSN: 2664-1291
www.paediatricnursing.net
IJRPN 2025; 7(2): 178-182
Received: 05-08-2025
Accepted: 10-09-2025

Kavitha Rani
Associate Professor, Department of Child Health Nursing, St. Josephs College of Nursing, Mysore, Karnataka, India

Gowthami BN
Assistant Professor, Department of Medical Surgical Nursing, Cauvery College of Nursing, Mysore, Karnataka, India

Corresponding Author:
Kavitha Rani
Associate Professor, Department of Child Health Nursing, St. Josephs College of Nursing, Mysore, Karnataka, India

A study to assess the effectiveness of Helfer skin tap technique on pain during intramuscular injection among infants in St. Joseph's Hospital Mysore

Kavitha Rani and Gowthami BN

DOI: https://www.doi.org/10.33545/26641291.2025.v7.i2c.251

Abstract
Every human being has a natural need to protect both their own and others' health. Being ignorant makes it impossible to meet this commitment. Injections can be administered intramuscularly, intravenously, subcutaneously, or intradermally. Procedural pain is a primary source of suffering for patients receiving nursing care. It is the nurse's responsibility to use the most effective approach of pain management because providing pain relief is considered one of the most important human rights. Effective pain treatment not only relieves physical suffering, but it also improves quality of life. The study volunteers, thirty in each of the experimental and control groups, were chosen by a rigorous random sampling method. Only babies in the experimental group got Helfer skin tapping. The FLACC pain scale was used to assess pain at zero minutes. The findings indicate that there was a significant difference in the posttest pain scores of newborns during IM injection at 0 minutes between the experimental and control groups. This discrepancy was statistically verified using the independent "t" test. The study's findings also revealed that there was no significant relationship between the infants' pain assessments during an IM injection at 0 minutes utilizing the Helfer skin tap technique and their selected personal characteristics. As a result, the study concluded that the Helfer skin tap technique was effective in reducing infant discomfort during vaccinations.

Keywords: Helfer skin tap technique, infant pain, intramuscular injection (IM), pain management

Introduction
Everyone is born with the obligation to protect their own and others' health. This responsibility cannot be carried out when one is uneducated. Injections can be administered by a variety of methods, including intramuscular, intravenous, subcutaneous, and intradermal. Procedural pain is a significant source of discomfort for nursing care patients.

The nurse uses a number of techniques to provide relief. Pain management during an invasive surgery presents a difficulty for direct care providers. Pain treatment is seen as a fundamental human right, and it is the nurse's responsibility to apply the most effective strategy to pain management. Effective pain management not only alleviates physical suffering but also improves overall quality of life. Nurses care for patients in a variety of locations and situations, including comfort-promoting measures. Comfort is a major notion in nursing.

In India, a survey indicated that antibiotics, vitamins, and analgesics accounted for 96% of all injections administered by private doctors. A conservative estimate of the average number of injections per person per year ranged from 0.9 to 8.5, with 1.5 being the median. According to the World Health Organization, intramuscular injection is the administration of drugs by a skin puncture with a syringe and a needle deep into a major muscle of the body for preventative or therapeutic purposes.

Routine vaccines are the most common uncomfortable medical procedure for children. The World Health Organization estimates that 12 billion injections are administered yearly, with pediatric immunizations accounting for around 5%. Vaccine injections are the most common cause of procedural discomfort in kids. Immunization is a difficult process for both children and parents. During the clinical experience, the investigator discovered that vaccination causes iatrogenic discomfort in youngsters. The investigator thought that there was a scarcity of studies in this field in the Indian setting, thus he proposed performing a study to assess an infant's pain level during immunization using the Helfer Skin tap technique.

An infant is a term derived from the Latin word "infants," which means "unable to speak" or "speechless". Infants cry as a means of basic innate communication. A crying newborn may be expressing a range of emotions, such as hunger, pain or discomfort, overstimulation, boredom, a desire for something, or loneliness.

Fear of needles is a frequent phobia among children. Children are afraid of injections, which causes them to weep. Every parent strives to find the best approach to respond to their children's screams. Vaccination is the most widely used percutaneous approach. This is something that every child must confront in their early years. Pain is the most common vaccine-related side effect.

Injections are the most common medical practice, with an estimated 12 billion administered globally each year. Of them, 5% or fewer are for immunization, while the remainder are for therapeutic purposes. In India, a survey indicated that antibiotics, vitamins, and analgesics accounted for 96% of all injections administered by private doctors. Children may find intramuscular injections painful, necessitating a suitable explanation and psychological assistance.

Materials and Methods

The purposes of the study are to assess the effectiveness of helfer skin tap technique among infants in selected hospital at Mysore. The research approach for this study is quantitative approach. This approach is considered most suitable for present study.

Variables of the study

Variables of the study were:

a) **Independent Variables:** Helfer skin tapping technique administered to infants during IM injection.
b) **Dependent variable:** Pain level of infants during IM injection.
c) **Demographic variable:** Age in months, gender, status of infant, name of vaccine.

Setting of the study

The study was conducted among 60 infants who are undergoing IM injection in St Joseph's hospital Mysore

Population

The term "population" refers to a group of cases that meet specific criteria and can be used for research purposes. In this trial, 60 newborns are having intramuscular injection at St Joseph's Hospital in Mysore.

Sample and sampling technique

A sample refers to an individual from a population in a research study who meets the inclusion requirements. In this study, the sample consists of newborns receiving an intramuscular injection at St. Joseph's Hospital in Mysuru. The present study included 60 infants: 30 for the experimental group and 30 for the control group. The current study used a systematic random sampling technique.

Techniques of data collection

Demographic data were gathered through interviews and extracted from vaccination cards. Infants' intramuscular vaccination discomfort was examined using the FLACC pain scale and the observation technique.

Intervention

Helfer skin tap technique: Tap over the intramuscular site with the palmer aspect of the dominant hand sixteen times before inserting the needle to relax the muscle, then make a 'v' with the thumb and other fingers of the non-dominant hand, and tap the sin three times during insertion and removal of the needle.

Step

- Infants were identified based on inclusion criteria.
- Infants were placed in the supine posture.
- To relax the muscle before intramuscular immunization, tap the spot 16 times with the palmer aspect of the dominant hand, about 10 seconds apart.
- The researcher tapped around the vaccination site three times after the doctor administered the vaccination. • The researcher continued tapping until the needle was removed.
- At 0 minutes after immunization, pain level is measured using the FLACC scale.

Data collection procedure

St. Joseph's Hospital in Mysuru granted permission to perform the study. St. Joseph's College Mysore approved the study. Data were obtained between August 24 and September 24. Parents/guardians provided informed consent stating their willingness to have their son/daughter participate in the study.

Results

The purpose of this study was to determine the efficiency of the Helfer skin tap technique in newborns receiving IM injections at St. Joseph's Hospital in Mysore. The information gathered was tabulated, analysed, and interpreted using descriptive and inferential statistics. The findings are organized under the following headings.

Section 1: Description of selected personal variables of study subjects

Frequency and percentage distribution of infants undergoing IM injection in Experimental and control group according to their selected personal variables.

Section 2: Effectiveness of Helfer skin tap technique on infants during IM injection in 0 minute

- Description of mean, range and standard deviation of pain scores.
- Frequency and percentage distribution of pain scores among infants in experimental and control group.
- Significance of difference between the posttest pain scores of infant during IM Injection at 0 minute in experimental and control group.

Section 3: Findings related to the association between pain scores of infants during IM injection at 0 minute in experimental group and their selected personal variables.

Section I

Description of selected personal variables of study Subjects

1. Frequency and percentage distribution of infants during IM injection in Experimental and control group according to their selected personal variables: The study

sample comprised of 60 infants, 30 each in experimental and control group. The selected personal variables were age in months, gender, status of the child as show in table.

Table 1: Frequency and percentage distribution of infants during IM injection in Experimental and control group according to their selected personal variables

Demographic variable		Experimental group		Control group	
		Number	Percentage	Number	Percentage
Gender	Male	18	60	15	50
	Female	12	40	15	50
Age group	1 to 3 months	10	33.3	10	33.3
	3 to 6 months	10	33.3	6	20
	6 to 9 months	0	0	0	0
	9 to 12 months	10	33.3	14	46.6
Status of baby	Awake	24	80	26	86.6
	Asleep	6	20	4	13.3
Name of vaccination	Pnuemococcal	10	33.3	14	46.6
	Pentavalent	12	40	9	30
	Japanese Encephalitis	8	26.6	7	23.3

Section: II

Effectiveness of helfer skin tap technique on pain during IM injection among infants

1. Description of pain scores of infants during IM injection in control and experimental group: The pain scores obtained from the samples were tabulated to a master sheet and mean, median, range and standard deviation of experimental and control group were computed. The findings were presented in the Table 2.

Table 2: Mean, standard deviation of pain scores of infants in control and experimental group

Group		Mean	Standard deviation
control group n=30		7.53	±0.97
Experimental group n=30		3.5	±1.50

The data presented in Table:5 Shows, the mean pain score of infants in control group is 7.53 with the standard deviation±0.97, whereas in experimental group the mean score is 3.5 With the standard deviation ±1.50. This indicates that there was a decrease in mean pain scores of infants with Helfer skin tap technique.

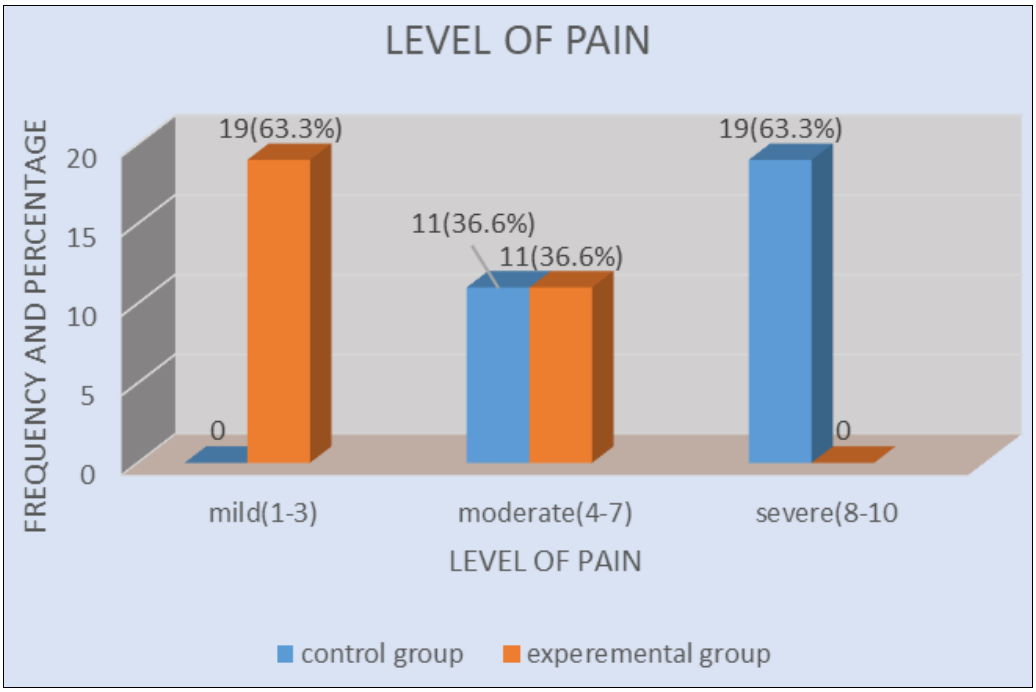

Fig 1: Frequency and percentage distribution level of pain scores of infants at 0 minute in control and experimental group

Section III

Findings related to the association between pain scores of infants during IM injection at 0 minute in Experimental group and their selected personal variables: Chi square values were computed to find out the association between the pain scores of infants undergoing IM injection with Helfer skin tap technique and selected personal variables and to test the statistical significance the following hypothesis was stated

H1- There will be significant difference between the post test pain score of infant undergoing IM injection in experimental group and control group

Table 5: Chi -square values between pain scores of infants during IM injection at 0 minute Experimental group and their selected personal variables. CHI SQUARE n=30

Demographic variable		Level of pain		Chi-square value
		Mild	Moderate	
Gender	Male	9	9	CHI SQUARE-3.445 DF=1 P=0.06 NS
	Female	10	2	
Age group	1 to 3 months	4	6	CHI SQUARE-3.732 DF=3 P=0.29 S
	3 to 6 Months	7	3	
	6 to 9 months	0	0	
	9 to 12 Months	8	2	
Status of baby	Awake	16	10	CHI SQUARE-0.271 DF=1 P=0.60 NS
	Alseep	3	1	
Name of the vaccine	Pnuemococcal	0	10	CHI SQUARE-26.053 DF=2 P=0.000 HS
	Pentavalent	11	1	
	Japanese encephalitis	8	0	

The findings in Table 8 show that the computed Chi-square value for the association between the degree of pain scores of infants following IM injection using Helfer skin tap technique and their selected personal factors was not significant at the 0.05 level of significance.

As a result, the null hypothesis H1 was supported, implying that there was no significant relationship between the pain scores of infants receiving IM injections using the Helfer skin tap technique and chosen personal factors.

Conclusion

The current study aimed to determine the impact of the Helfer skin tap technique on pain during IM injection in newborns at St Joseph's Hospital Mysore. The analysis of the findings revealed that infants' pain scores decreased significantly upon IM injection at 0 minute in both the control and experimental groups. To determine the significance of the difference in mean post-test pain scores of infants during IM injection at 0 minute in the experimental and control groups, an independent 't' test was performed, and the obtained value of independent 't'= 12.59 was found to be significant at the 0.05 level of significance, implying that the Helfer skin tap technique was effective in reducing the pain scores of infants in the experimental group. The computed Chi-square value to determine the relationship between infants' pain scores during IM injection at 0 minute with Helfer skin tap technique and selected personal factors was determined to be non-significant at the 0.05 level of significance. As a result, there was no significant relationship between infants' pain scores during IM injection at 0 minute using the Helfer skin tap technique and chosen personal factors. Thus, it was established that the Helfer skin tap technique is one of the most efficient ways to reduce pain during intramuscular vaccination. This technique can be used during newborn immunization as a non-pharmacological pain control therapy.

Conflict of Interest

Not available.

Financial Support

Not available.

References

1. Negi P. Effectiveness of Helfer skin tap technique on pain reduction during intramuscular injection among infants. Int J Adv Res Dev. 2018;4(3):34-39. Available from: https://www.ijarnd.com/manuscripts/v4i3/V4I3-1146.pdf
2. Chaudhari H. Assess the effectiveness of Helfer skin tap technique on pain during vaccination among infants. Int J Innov Stud Sociol Humanit. 2018;3(12):73-75. Available from: https://ijissh.org/storage/Volume3/Issue12/IJISSH-031211.pdf
3. Raja SN, Carr DB, Cohen M, *et al*. The revised IASP definition of pain: concepts, challenges, and compromises. Pain. 2020;161(9):1976-1982. DOI: 10.1097/j.pain.0000000000001939
4. Chaudhari H, Vageriya V. Impact of Helfer skin tap technique in reduction of pain during vaccination among infants. J Surg Surg Res. 2021;5:173-176. Available from: https://www.researchgate.net/publication/349596988
5. Hasnein AA, Mohammad H, Solimen. Efficacy of Helfer skin tapping technique on pain intensity among patients receiving intramuscular injection. Int J Nurs Didact. 2016;6:12-22. Available from: https://www.researchgate.net/publication/311901595
6. Said O, Shehata MH. Effects of Helfer skin tapping and Z-track techniques on pain intensity among hospitalized adult patients receiving intramuscular injection. Int J Novel Res Healthc Nurs. 2016;3(3):77-94. Available from: https://www.noveltyjournals.com/upload/paper/Effects%20of%20Helfer%20Skin%20Tapping%20and%20Z-816.pdf
7. Sivapriya M, Kumari L. A study to assess the effectiveness of Helfer skin tap technique on pain

during intramuscular injection among neonates in a tertiary hospital, Uttar Pradesh. Int J Sci Res. 2015;4(4):547-552. Available from: https://www.ijsr.net/archive/v4i4/SUB152873.pdf
8. Mishra S, Singh S, Singh A, Mishra RK, Mishra KK. Assessing the effectiveness of Helfer skin tap technique on pain reduction among children undergoing intramuscular vaccination using the FLACC scale. Bioequiv Bioavail Int J. 2017;7(1). Available from: https://medwinpublishers.com/BEBA/assessing-the-effectiveness-of-helfer-skin-tap-technique.pdf
9. Menaka J, Malarvizhi G, Glory H. Effectiveness of Helfer skin tap technique in pain reduction among infants undergoing intramuscular vaccination in a tertiary care setting, Coimbatore. Int J Nurs Midwifery Res. 2018;6(1). Available from: https://medical.advancedresearchpublications.com/index.php/IntlJ-Nursing-MidwiferyResearch/article/view/16
10. Priyakumari M, Subin S, Charan A, Varma S. Effectiveness of Helfer skin tap technique in pain reduction among infants undergoing intramuscular vaccination in a tertiary care outpatient setting. Int J Multidiscip Educ Res. 2023;12(12):114-115. Available from: https://s3-ap-southeast-1.amazonaws.com/ijmer/pdf/volume12/volume12-issue12(2)/17.pdf
11. Neupane U, Thomas P, Thakur R. Effectiveness of Helfer skin tap technique on level of pain during intramuscular injection among adults in a selected hospital, Bangalore. Int J Health Sci Res. 2019;9(1):95-103. Available from: https://www.ijhsr.org/IJHSR_Vol.9_Issue.1_Jan2019/16.pdf
12. Vaidya N, Mudhol B. Effectiveness of Helfer skin tap technique on level of pain during intramuscular injection among infants in a selected hospital, Moradabad. Int J Sci Res. 2022;2(2):496-498. Available from: https://www.ijsr.net/archive/v11i2/MR22210090000.pdf
13. Merlin R, Ambika K. Effectiveness of Helfer skin tap technique on pain during intramuscular injection among infants in a selected hospital at Mysuru. Int J Curr Res. 2023;15(3):24967-24969. Available from: https://journalcra.com/article/study-assess-effectiveness-helfer-skin-tap-technique
14. Peter B, Mathew B. Pain level of infants receiving Helfer skin tap during vaccination. Int J Health Sci Res. 2019;9(7):102-106. Available from: https://www.ijhsr.org/IJHSR_Vol.9_Issue.7_July2019/16.pdf
15. Meera P, Yogesh K, Gurneet K. Effectiveness of Helfer skin tap technique during immunization in infants in selected hospitals and Anganwadi centres of Ambala, Haryana. J Nurs Sci Pract. 2014;4(3):1-2. Available from: https://www.researchgate.net/publication/324477213
16. Patidar T. Effectiveness of Helfer skin tap technique on pain associated with intramuscular injection among adult patients in selected hospitals of Navi Mumbai. Int J Med Res. 2020;5(9):137-140. Available from: https://www.researchgate.net/publication/352378261
17. Lal V, Abraham D, Thomas A. Effectiveness of Helfer skin tap technique on pain and physiological parameters during intramuscular injection among infants in a selected hospital at Durg (C.G.). Int J Sci Res. 2013;2(7):283-293. Available from: https://paper.researchbib.com/view/paper/363513
18. Lisha JLM. Effectiveness of Helfer skin tap technique on pain reduction during intramuscular injection among infants. Am J Adv Nurs Res. 2024;2(2). Available from: https://mcmed.us/dart/abstract/2396/ajanr
19. Maria Therese A, Suriya Devi. Effectiveness of Helfer skin tap technique and routine technique on pain reduction among patients receiving intramuscular injection at Government General Hospital, Puducherry. Int J Sci Res. 2014;3(10):1446-1449. Available from: https://www.researchgate.net/publication/267351980

How to Cite This Article
Rani K, Gowthami BN. A study to assess the effectiveness of Helfer skin tap technique on pain during intramuscular injection among infants in St. Joseph's Hospital Mysore. International Journal of Research in Paediatric Nursing. 2025;7(2):178-182.

Creative Commons (CC) License
This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.