

# “Study To Assess The Effect Of Helper Skin Tap Technique On Level Of Pain Among Patients Receiving Intramuscular Injection In A Tertiary Care Hospital In Thiruvananthapuram Corporation”

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## Abstract:

**Background:** Intramuscular injection is a routine procedure that nurses do frequently, which leads to pain and distress to the recipients. Procedural pain is a prominent source of discomfort among patients, therefore most of them tend to avoid the causes for the same.<sup>9</sup> American pain society states that “pain is the fifth vital sign” and therefore they focus on its management during procedures that induce pain. A good injection technique reduces pain and discomfort.<sup>19</sup> According to most studies majority patients are experiencing pain while receiving intramuscular injection. Researcher conducted “Study to assess the effect of Helper Skin Tap Technique on level of pain among patients receiving intramuscular injection in a tertiary care hospital in Thiruvananthapuram Corporation”

**Material and methods:** The researcher adopted a quantitative quasi experimental research approach, non-randomized two group post-test only design. This study aimed at nursing intervention (Helper Skin Tap Technique) for alleviating pain during intramuscular injection among 60 participants selected using consecutive sampling technique, 30 in each group at Ananthapuri Hospitals and Research Institute. Data was collected using structured interview technique and Numerical Pain Rating Scale was used to assess post-test level of pain among participants receiving intramuscular injection. Helper skin tap technique was used to administer injection for experimental group and Routine technique was used to administer injection for control group. Data was analyzed using descriptive and inferential statistics in terms of mean, standard deviation, percentage, frequency, Mann Whitney U test, chi square and fishers exact test.

**Results:** Post test level of pain was assessed in both group. Result revealed that there was a statistically significant difference ( $p < 0.001$ ) in the post-test score of pain perception between experimental and control group. This indicates that there is significant reduction in level of pain among patients receiving intramuscular injection in experimental group. Hence, the research hypothesis  $H_1$  was proved and accepted. There was significant association between gender ( $p < 0.05$ ), muscle strengthening exercise ( $p < 0.01$ ), body mass index ( $p < 0.01$ ), co-morbidities ( $p < 0.05$ ) and level of pain. The study concluded that HSTT can be considered as a safe and effective technique for reducing pain among patients receiving IMI.

**Conclusion:** This study concluded that Helper skin tap technique is an effective technique to reduce pain during intramuscular injection. Proper administration of intramuscular injection is necessary to minimize discomfort and pain and to achieve maximum therapeutic effect. By practicing this technique routinely nurses can contribute to improve patient's comfort level by reducing the interventional pain.<sup>4</sup>

**Key words:** effect; helper skin tap technique; patients receiving intramuscular injection; numerical pain rating scale.

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## I. Introduction

Giving injection is the routine nursing activity and good injection technique can make the experience for the patient relatively painless. Interventions are provided to promote comfort. Comfort is a concept central to the art of nursing.<sup>1</sup> An intramuscular injection (IMI) is a technique used to deliver a medication deep into the muscles. Muscles have little tight fibers, and if its separate by sticking a needle in there, it can cause an inflammatory reaction. When there is an inflammation, it can end up having pain.<sup>4</sup> Understanding the complex mechanisms of pain is undoubtedly essential for pain research and pain management, and in consequence can provide comfort for the patients and improve the quality of care in health care settings.<sup>4</sup> It is

important to pay attention on pain during any nursing procedure. So, health care professionals should focus to the importance of effective pain management strategies.

Intramuscular injection (IMI) is one of the most common procedures done almost everyday. The present study was intended to assess the effect of Helfer Skin Tap Technique on level of pain among patients receiving intramuscular injection. Quasi experimental two group post-test only design was adopted, by consecutive sampling 60 participants were selected 30 in each group. A structured interview was used to collect socio-demographic and clinical variables of the participants and Numerical Pain Rating Scale was used to assess post-test level of pain among participants receiving intramuscular injection. Helfer skin tap technique was used to administer injection for experimental group and Routine technique was used to administer injection for control group. Data was analyzed using descriptive and inferential statistics. Result revealed that there was a statistically significant difference ( $p < 0.001$ ) in the post-test score of pain perception between experimental and control group. There was significant association between gender ( $p < 0.05$ ), muscle strengthening exercise ( $p < 0.01$ ), body mass index ( $p < 0.01$ ), co-morbidities ( $p < 0.05$ ) and level of pain. In experimental group 63.33 % (19) had mild pain and 36.66 % (11) reported no pain. In control group 46.66 % (14) had moderate pain, 40 % (12) had severe pain and 13.33% (4) had mild pain. The study concluded that Helfer skin tap technique can be considered as a safe and effective technique for reducing pain among patients receiving intramuscular injection.

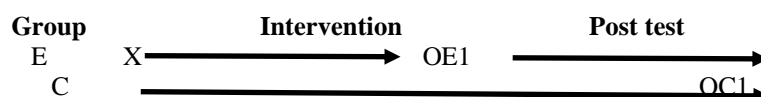
### **Objectives of the study**

1. Assess the level of pain among patients receiving intramuscular injection.
2. Evaluate the effect of Helfer Skin Tap Technique on level of pain among patients receiving intramuscular injection.
3. Determine the association between level of pain among patients receiving intramuscular injection and socio demographic variables.
4. Determine the association between level of pain among patients receiving intramuscular injection and clinical variables.

## **II. Material and method**

Quantitative Experimental research approach was used for the present study. This approach would help the research to assess the effect of Helfer skin tap technique on level of pain among patients receiving intramuscular injection.

**Research design:** Quasi experimental two group – post-test only design.



**Research Setting:** The study was conducted in outpatient departments of Ananthapuri Hospitals and Research Institute, Thiruvananthapuram.

**Study duration:** 1<sup>st</sup> february, 2022 to 14<sup>th</sup> february, 2022

**Population:** The study population comprised of patients receiving intra muscular injection.

**Sampling Technique:** Consecutive sampling technique

**Sampling size:** Samples consisted of 60 patients attending the outpatient department receiving intramuscular injection. Among them 30 patients were selected as experimental group and 30 patients as control group

### **Inclusion criteria:**

- Patients who can understand Malayalam or English.
- Patients who are willing to participate.
- Patients between the age group 20 - 60 years.

### **Exclusion criteria:**

- Critically ill clients.
- Patients with severe visual and hearing impairment.
- Patients who have cognitive impairment.

- Severely injured patients.
- Unconscious patients.
- Mentally challenged patients

**Procedure Methodology:** Data collection was a systematic gathering of information (data) relevant to the research purpose. After getting permission from the Institutional ethical committee and concerned authority of Ananthapuri Hospitals and Research Institute Thiruvananthapuram, those who met the inclusion criteria were selected as participants. Consecutive sampling technique was used to select 60 patients receiving intramuscular injection and grouped into two, 30 in experimental group and 30 in control group. Consent for participating in the study was obtained after detailed explanation. A structured interview schedule was used to collect socio-demographic and clinical variables of the participants. The tool was simple, clear and unambiguous. Intramuscular injection was administered to experimental group by performing Helfer skin tap technique and for control group intramuscular injection was administered using routine technique. Post-test level of pain was evaluated for both experimental and control group using Numerical pain rating scale.

**Statistical analysis:** Data analysis is the technique used to reduce, organize and give meaning to the data. In the present study, data obtained were analyzed on the basis of objectives of the study using descriptive and inferential statistics. A master datasheet was prepared with responses given by participants.

- Descriptive statistics was used to describe the data by using mean, standard deviation, percentage and frequency distribution. Sample characteristics were presented as frequency distribution and percentages illustrated with tables and figures.
- Inferential statistics: Mann Whitney U test was used to assess the effect of Helfer skin tap technique among patients receiving intramuscular injection and chi square and fisher's exact test was used to find out the association between post-test level of pain among patients receiving intramuscular injection and selected variables.

### III. Results

**Section 1:** Distribution of participants receiving intramuscular injection based on socio-demographic variables.

**Section 2:** Distribution of participants receiving intramuscular injection based on clinical variables.

**Section 3:** Distribution of participants receiving intramuscular injection in experimental group and control group based on post-test level of pain.

**Section 4:** Effect of Helfer skin tap technique on level of pain among participants receiving intramuscular injection.

**Section 5:** Association between post-test level of pain among participants receiving intramuscular injection and selected socio-demographic variables.

**Section 6:** Association between post-test level of pain among participants receiving intramuscular injection and selected clinical variables.

#### SECTION-1

#### FREQUENCY AND PERCENTAGE DISTRIBUTION OF SOCIO-DEMOGRAPHIC VARIABLES.

**TABLE 1: SOCIO-DEMOGRAPHIC VARIABLES  
N= 60**

S. N.	SocioDemographic Variables	Frequency (Experimental)	Percentage (Experimental)	Frequency (Control)	Percentage (Control)
<b>1</b>	<b>Age(inyear)</b>				
a)	20-29	9	30%	11	32.50%
b)	30-39	10	33%	7	37.50%
c)	40-49	5	17%	6	30%
d)	50-60	6	20%	6	0%
	<b>TOTAL</b>	30	100%	0	100%

<b>2</b>	<b>Gender</b>				
a)	Male	15	50%	15	50%
b)	Female	15	50%	15	50%
c)	<b>TOTAL</b>	30	100%	30	100%
<b>3</b>	<b>Type of family</b>				
a)	Nuclear	18	60%	22	73%
b)	Joint	6	20%	2	7%
c)	Extended	6	20%	6	20%
	<b>TOTAL</b>	30	100%	30	100%
<b>4</b>	<b>Dietary pattern</b>				
a)	Vegetarian	6	20%	6	20%
b)	Mixed diet	24	80%	24	80%
	<b>TOTAL</b>	30	100%	30	100%
<b>5</b>	<b>Adverse health habit</b>				
a)	Smoking	6	20%	7	23%
b)	Alcoholism	2	7%	3	10%
c)	None	22	73%	20	67%
	<b>TOTAL</b>				
<b>6</b>	<b>Residential area</b>				
a)	Urban	16	53%	15	50%
b)	Rural	14	47%	15	50%
	<b>TOTAL</b>	30	100%	30	100%
<b>7</b>	<b>Practicing muscle strengthening exercise</b>				
a)	Yes	8	27%	4	13%
b)	No	22	73%	26	87%

<b>TOTAL</b>	30	100%	30	100%
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The data given table 1 describes the frequency and percentage of experimental and control group participants receiving intramuscular injection based on age in years, gender, type of family, dietary pattern, adverse health habit, residential area and practicing muscle strengthening exercise.

**SECTION-2**

**FREQUENCY AND PERCENTAGE DISTRIBUTION OF CLINICAL VARIABLES.**

**TABLE2: CLINICAL VARIABLES**

**N= 60**

S. N.	Clinical Variables	Frequency(Experimental)	Percentage(Experimental)	Frequency(Control)	Percentage(Control)
<b>1</b>	<b>Height</b>				
a)	<150 cm	1	3%	2	7%
b)	150-160cm	7	23%	11	37%
c)	161-170cm	8	27%	8	27%
d)	171-180cm	11	37%	8	27%
e)	>180cm	3	10%	1	3%
<b>TOTAL</b>		30	100%	0	100%
<b>2</b>	<b>Weight (in kilograms)</b>				
a)	<50kg	2	6.6%	3	10%
b)	50-60kg	6	20%	6	20%
c)	61-70kg	12	40%	10	33.3%
d)	71-80kg	5	16.7%	7	23.3%
e)	>80kg	5	16.7%	4	13.3%
<b>TOTAL</b>		30	100%	30	100%
<b>3</b>	<b>Body Mass Index(in kg/m<sup>2</sup>)</b>				
a)	<18.5	1	3.3%	3	10%
b)	18.5-24.9	18	60%	12	40%
c)	25-29.9	7	23.3%	11	37%
d)	>29.9	4	13.3%	4	13%
<b>TOTAL</b>		30	100%	30	100%
<b>4</b>	<b>Co-morbidities</b>				
a)	Yes	12	40%	15	50%
b)	No	18	60%	15	50%

<b>TOTAL</b>	30	100%	30	100%
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The data given table 2 describes the frequency and percentage of experimental and control group participants receiving intramuscular injection based on height in centimeter, weight in kilogram, body mass index and co-morbidities.

**SECTION 3**

**TABLE 3: DISTRIBUTION OF PARTICIPANTS BASED ON POST-TEST LEVEL OF PAIN**

Level of pain	Experimental group		Control group	
	f	%	f	%
No pain	11	36.66	0	0
Mild pain	19	63.33	4	13.33
Moderate pain	0	0	14	46.66
Severe pain	0	0	12	40
<b>TOTAL</b>	30	100	30	100

**SECTION 4**

**TABLE 4: EFFECT OF HELPER SKIN TAP TECHNIQUE ON LEVEL OF PAIN AMONG PARTICIPANTS RECEIVING INTRAMUSCULAR INJECTION.**

Post-test level of pain				
Group	Mean	SD	Median	Z# p
Experimental group	1.2	1.2	1.0	6.53***0.001
Control group	6.0	1.9	6.0	

\*\*\* Significant at 0.001 level **Mann Whitney U test**

The result shows that in the Experimental group post-test mean 1.2 with standard deviation 1.2 and in the Control group post-test mean was 6.0 with standard deviation 1.9, Z value was 6.53 which was higher than the table value that is at 0.001 levels. Hence H<sub>1</sub> was accepted.

**SECTION 5**

**TABLE 5: ASSOCIATION BETWEEN POST-TEST LEVEL OF PAIN AMONG PARTICIPANTS RECEIVING INTRAMUSCULAR INJECTION AND SELECTED SOCIO-DEMOGRAPHIC VARIABLES.**

Gender	Post-test level of pain						χ <sup>2</sup>	df	p
	No pain to Mild		Moderate to Severe		Total				
	f	%	f	%	f	%			
Female	18	60.0	12	40.0	30	100	8.76*	1	0.033
Male	16	53.3	14	46.7	30	100			

Table 5 depicts that, there is a statistically significant association between post-test level of pain among participants receiving intramuscular injection and gender.

**Table 12**  
**Association between post-test level of pain and muscle strengthening exercise among participants receiving intramuscular injection ( n = 60)**

	Practicing muscle strengthening exercise						p
	No pain to Mild		Moderate to Severe		Total		
	f	%	f	%	f	%	
Yes	9	75.0	3	25.0	12	100	0.018*
No	25	52.1	23	47.9	48	100	

\*Significant at 0.01 level

Fisher’s Exact test

Table 12 depicts that, there is statistically significant association between post-test level of pain and practicing muscle strengthening exercise among participants receiving intramuscular injection.

#### IV Discussion

##### **Effect of Helper Skin Tap Technique on level of pain among patients receiving intramuscular injection.**

The main objective of the study was evaluate the effect of Helper Skin Tap Technique on level of pain among patients receiving intramuscular injection. The present study shows that the post-test pain mean score difference between the experimental group was (1.2 ±1.2) and in control group was (6.0 ±1.9) and is statistically significant at 0.001 level (p=0.001). Hence the study proved that Helper skin tap technique is an effective method to reduce intramuscular injection pain.

A similar quasi experimental design to assess the effect of Helper skin tap technique on level of pain perception among patients receiving intra muscular injection conducted in PPK Hospital Marthandam. among 25 participants in each group reveals that there was a significant reduction in pain among patients after administration of Helper skin tap technique, thus it proved to be an effective treatment for pain, therefore, this intervention should be promoted as an institutional policy and implemented as a routine care for all patients following intramuscular injection for effective management of pain.

##### **Association between level of pain among patients receiving intramuscular injection and socio demographic variables.**

The present study reveals significant association between post-test level of pain and socio-demographic variables such as gender and practice of muscle strengthening exercise. In the present study, in experimental group 33% (10) of participants were between the age group 30-39 and in control group 37% (11) of participants were between the age group 20-29, and the study reveals that there is no significant association between age and post-test level of pain.

A randomized control trail conducted among 100 patients in Turkey reveals that there is no significant association between age and pain perception (p=0.786).

##### **Association between level of pain among patients receiving intramuscular injection and clinical variables.**

The present study reveals significant association between post-test level of pain and body mass index and co-morbidity. Majority of participants in experimental group and control group belongs to body mass index between 18.5-24.9, regarding the co-morbidities, in experimental group 60% (18) of participants doesn’t had co-morbidities and 40% (12) had co-morbidities and in control group 50% (15) of participants were having co-morbidities and doesn’t have any co-morbidities respectively.

A similar study conducted in Egypt reveals that there is significant association between BMI and post-test level of pain.<sup>24</sup> A true experimental study was conducted to assess the effectiveness of HSTT on the level of pain during IMI of Tetanus toxoid among 60 Antenatal Mothers in a selected Hospital of Delhi reveals that significant association was found between the level of pain and Body Mass Index.

#### V Conclusion

The study was conducted by quasi-experimental two group post-test only design using quantitative approach among 60 patients receiving intramuscular injection. Samples were collected from covid vaccination department in Ananthapuri Hospitals and Research Institute Chackai, Thiruvananthapuram. The conceptual framework adopted for this study was based on Ernestine Wiedenbach’s, The Helping Art of Clinical Nursing Theory. Data was collected by using structured interview schedule. Sample consisted of 60 subjects came to take covid vaccine and participants were selected using consecutive sampling technique between the age group

20-60 years. Socio demographic data and clinical data are collected by structured interview prior to the intervention. Experimental group is administered injection by performing Helper skin tap technique and standard technique was done to control group while administering intramuscular injection. After the procedure post-test level of pain perception was recorded using Numerical pain rating scale. Appropriate descriptive and inferential statistical methods were used to analyze data. On analysis the result of the study findings revealed that Helper skin tap technique reduced the pain perception in the experimental group. The post-test results revealed statistically significant difference in the level of pain among experimental group compared to control group ( $p=0.001$ ). Hence the hypothesis “There is significant reduction in level of pain among patients receiving intramuscular injection in experimental group after the intervention” was accepted. Proper administration of intramuscular injection is necessary to minimize discomfort and pain and to achieve maximum therapeutic effect. The study concluded that Helper skin tap technique is an effective method to reduce pain during intramuscular injection.

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