

A True Experimental Study to Assess the Effectiveness of Helfer Skin Tap Technique in Reducing Pain During Intramuscular Injection Among Under-Five Children in Selected Community Health Center At Kalyanpur, Kanpur

Mrs. Anjulika Yadav¹, Mr Shridhar², Mr. Shreyash³, Ms. Chandani⁴,
Ms Kiran⁵, Ms Ritika⁶, Ms. Harshita⁷

¹Professor, Child health Nursing, Regency Institute of Nursing kanpur

²Senior Nursing Tutor, Regency Institute of Nursing kanpur

^{3,4,5,6,7}Nursing students Regency Institute of Nursing Kanpur

Abstract

Pain management during routine immunization remains an area of concern in paediatric nursing practice. Intramuscular injections are a major source of iatrogenic pain in children. Studies indicate that a significant proportion of children develop fear of needles due to painful injection experiences, which may lead to avoidance of medical procedures later in life. **OBJECTIVE** 1.To assess the pain level during Intramuscular Injection among Under Five Children in experimental group. 2.To assess the pain level during Intramuscular Injection among Under Five Children in control group 3.To assess the effectiveness of Helfer Skin Tap Technique on Pain during Intramuscular Injection among Under Five Children in experimental group. 4.To find out the significant association between the level of pain in control group and experimental group during Intramuscular Injection among Under Five Children with their selected Socio demographic variables.

METHODOLOGY

A experimental research design in which one group control group and other experimental group, was used in the study. 30 children were selected by simple random sampling techniques. Structured knowledge questionnaires were used for data collection. **Result;** among 30 children 67% severe pain, 33% students had moderate pain and no one had no pain in the pre-test, and 74% had no pain, 26% had less pain, no one had severe pain in post-test.

Keywords: Umbilical cord stem cell banking, effectiveness, STP, adolescent students.

Introduction

Pain is an inevitable experience during many medical procedures, particularly during intramuscular

injections in children. For under-five children, pain during injections is a significant concern for parents as well as healthcare professionals. Repeated painful experiences in early childhood may lead to fear, anxiety, needle phobia, and avoidance of healthcare services in later life. Therefore, minimizing pain during routine immunization is an important responsibility of nurses and other healthcare providers.

The Helfer Skin Tap Technique is a non-pharmacological method used to reduce pain during intramuscular injections. It is a form of touch therapy in which rhythmic tapping is performed over the injection site using the palmar aspect of the dominant hand. The technique involves tapping the skin sixteen times prior to injection, followed by three taps during insertion and removal of the needle while stabilizing the muscle in a “V” position using the non-dominant hand. This rhythmic stimulation helps in relaxing the muscle and reducing resistance to needle entry.¹ The scientific basis of the Helfer Skin Tap Technique is derived from the Gate Control Theory of Pain, proposed by Melzack and Wall. According to this theory, pain perception can be modified by stimulating large-diameter nerve fibres, which inhibit the transmission of pain impulses carried by small-diameter fibres.¹ Mechanical stimulation through skin tapping activates these non-pain fibres, thereby reducing the perception of pain during injection

Methodology;

Quantitative research approach with quasi experimental– one group experimental group and one control group research design were used in this study. 30 sample were selected by using non probability purposive sampling technique. Data was collected by using structured knowledge questionnaire. Ethical permission was taken from principal before collection of data.

Result:

SECTION -A

DESCRIPTIVE ANALYSIS OF DEMOGRAPHIC VARIABLES

Table no.4.1: Frequency and percentage description of children under five in control group.

N=15

S.NO.	DEMOGRAPHIC VARIABLE	FREQUENCY	PERCENTAGE
1.	Age		
	0-1	08	53%
	2-3	02	13%
	4-5	05	34%
2.	GENDER		
	MALE	09	60%
	FEMALE	06	40%
3.	RELIGION		
	Hindu	10	66%
	Muslim	03	20%
	Christian	01	7%
	Others	01	7%
4.	Education of mother		
	Non-literate	01	7%
	Primary school	05	33%

	Higher secondary	03	20%
	Intermediate	03	20%
	Graduation and above	03	20%
5.	Education of the father		
	Non-literate	00	00%
	Primary education	03	20%
	Higher secondary	05	33%
	Intermediate	04	27%
	Graduation and above	03	20%
6.	Occupation of the mother		
	Housewife	10	67%
	Government employee	04	26%
	Private employee	00	00%
	Daily wages labor	01	7%
	Business and others	00	00%
7.	Occupation of the father		
	Government employee	00	00%
	Private employee	10	67%
	Daily wages labor	05	33%
	Business and others	00	00%
8.	Family monthly income		
	Less than ₹5,000	01	7%
	₹5001 to ₹10000	07	47%
	₹10001 to ₹20000	04	26%
	₹20000 and above	03	20%
9.	Area of living		
	Urban	09	60%
	Rural	06	40%
10.	Previous exposure of injection		
	Yes	13	87%
	No	02	13%

SECTION -B

Descriptive analysis of demographic variables

Table no.4.2: Frequency and percentage description of under five children in experimental group.

N=15

S.NO.	DEMOGRAPHIC VARIABLE	FREQUENCY	PERCENTAGE
1.	Age		
	0-1	10	67%
	2-3	02	13%
	4-5	03	20%
2.	GENDER		

	MALE	08	53%
	FEMALE	07	47%
3.	RELIGION		
	Hindu	15	100%
	Muslim	00	00%
	Christian	00	00%
	Others	00	00%
4.	Education of mother		
	Non-literate	0	00%
	Primary school	03	20%
	Higher secondary	01	7%
	Intermediate	03	20%
	Graduation and above	08	53%
5.	Education of the father		
	Non-literate	00	00%
	Primary education	02	13%
	Higher secondary	03	20%
	Intermediate	04	27%
	Graduation and above	06	40%
6.	Occupation of the mother		
	Housewife	15	100%
	Government employee	00	00%
	Private employee	00	00%
	Daily wages labor	00	00%
	Business and others	00	00%
7.	Occupation of the father		
	Government employee	00	00%
	Private employee	12	80%
	Daily wages labor	02	13%
	Business and others	01	7%
8.	Family monthly income		
	Less than ₹5,000	00	00%
	₹5001 to ₹10000	04	27%
	₹1001 to ₹20000	07	46%
	₹20000 and above	04	27%
9.	Area of living		
	Urban	12	80%
	Rural	03	20%
10.	Previous exposure of injection		
	Yes	11	74%
	No	04	26%

SECTION:C

TABLE NO.4.3: ASSESSMENT OF LEVEL OF PAIN IN CONTROL GROUP

LEVEL OF PAIN	FREQUENCY	PERCENTAGE
No pain	00	0%
Mild pain	00	0%
Moderate pain	05	33%
Severe pain	10	67%

The above table shows the distribution of subjects according to their level of pain. Among the total 15 subjects, the majority, 10 (67%), experienced severe pain, indicating that severe pain was the most common level among the subjects. Additionally, 5 subjects (33%) reported moderate pain. None of the subjects experienced no pain or mild pain, as both categories had zero frequency and percentage. This finding indicates that all subjects experienced higher levels of pain, with most suffering from severe pain and the remaining experiencing moderate pain.

SECTION D

TABLE NO.4.4: ASSESSMENT OF LEVEL OF PAIN IN EXPERIMENTAL GROUP

LEVEL OF PAIN	FREQUENCY	PERCENTAGE
No pain	00	0%
Mild pain	09	60%
Moderate pain	06	40%
Severe pain	00	0%

The above table shows the frequency and percentage distribution of level of pain among the subjects. The majority of the subjects, 9 (60%), experienced mild pain, while 6 (40%) experienced moderate pain. None of the subjects reported no pain or severe pain. This finding indicates that most of the subjects had mild pain, and a considerable proportion had moderate pain, with no subjects in the extreme categories.

SECTION E

COMPARISON OF PAIN LEVEL AMONG EXPERIMENTAL AND CONTROL GROUP

TABLE NO. 4.5: Effectiveness of Helfer skin tap technique During intramuscular injection among Under five children

S.NO.	GROUP	MEAN	MEAN DIFFERENCE	STANDARD DEVIATION	"t" value
1.	CONTROL GROUP	6.80	3.27	1.08	6.97* df=28 P=2.048
2.	EXPERIMENTAL GROUP	3.67		1.18	

The above table shows the comparison of mean knowledge scores between the control group and experimental group. The mean knowledge score of the control group was 6.80 with a standard deviation of 1.08, whereas the experimental group had a mean score of 3.67 with a standard deviation of 1.18. The mean difference between the two groups was 3.27. The calculated 't' value was 6.97, which is higher than the table value of 2.048 at 0.05 level of significance with 28 degrees of freedom. This indicates that there was a statistically significant difference between the control and experimental group. Hence, the intervention was effective in improving the knowledge score. Hence H_1 Accepted.

SECTION F

ANALYSIS OF ASSOCIATION BETWEEN CONTROL GROUP WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Table No.4.6: Determine the association between the control group score with their selected demographic variable.

DEMOGRAPHIC VARIABLE	LEVEL OF PAIN			CHI SQUARE VALUE	SIGNIFICANT & NON-SIGNIFICANT
	MILD	MODERATE	SEVERE		
Age				$X^2=0.76$ Df=2 P=5.99	NON-SIGNIFICANT
0-1	00	02	06		
2-3	00	01	01		
4-5	00	02	03		
Gender				$X^2=1.4$ Df=1 P=3.84	NON-SIGNIFICANT
Male	00	02	07		
Female	00	03	03		
Religion				$X^2=0.83$ Df=3 P=7.21	NON-SIGNIFICANT
Hindu	00	04	06		
Muslim	00	01	02		
Christian	00	00	01		
Others	00	00	01		
Education of mother				$X^2=6.21$ Df=4 P=9.49	NON-SIGNIFICANT
Non-literate	00	01	00		
Primary school	00	01	04		
Higher secondary	00	01	02		
Intermediate	00	00	03		
Graduation and above	00	02	01		
Education of the father				$X^2=6.53$ Df=4 P=9.49	NON-SIGNIFICANT
Non-literate	00	00	03		
Primary education	00	00	03		
Higher secondary	00	03	02		
Intermediate	00	01	00		
Graduation and above	00	01	02		
Occupation of the mother				$X^2=0.72$	NON-

Housewife	00	04	06	Df=2 P=5.99	SIGNIFICANT
Government employee	00	01	03		
Private employee	00	00	00		
Daily wages labor	00	00	00		
Business and others	00	01	01		
Occupation of the father				X ² =4.67 Df=2 P=5.99	NON-SIGNIFICANT
Government employee	00	00	00		
Private employee	00	04	06		
Daily wages labor	00	01	00		
Business and others	00	00	04		
Family monthly income				X ² =1.65 Df=3 P=7.81	NON-SIGNIFICANT
Less than ₹5,000	00	00	01		
₹5001 to ₹10000	00	02	05		
₹1001 to ₹20000	00	01	02		
₹20001 and above	00	02	02		
Area of living				X ² =0 Df=1 P=3.84	NON-SIGNIFICANT
Urban	00	03	06		
Rural	00	02	04		
Previous exposure of injection				X ² =0.00 Df=1 P=3.14	NON-SIGNIFICANT
Yes	00	04	04		
No	00	01	01		

The above table shows the association between level of pain and selected demographic variables. The calculated chi-square values for age (0.76), gender (1.4), religion (0.83), education of mother (6.21), education of father (6.53), occupation of mother (0.72), occupation of father (4.67), family monthly income (1.65), and area of living (0) were less than the respective table values at 0.05 level of significance. Hence, there was no statistically significant association between level of pain and selected demographic variables. Therefore, the research hypothesis was rejected and the null hypothesis was accepted.

SECTION G

ANALYSIS OF ASSOCIATION BETWEEN EXPERIMENTAL GROUP WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Table No.4.7: Determine the association between the experimental group score with their selected demographic variable.

DEMOGRAPHIC VARIABLE	LEVEL OF PAIN			CHI SQUARE VALUE	SIGNIFICANT & NON-SIGNIFICANT
	MILD	MODERATE	SEVERE		
Age				X ² =1.64	NON-SIGNIFICANT
0-1	07	03	00	Df=2	
2-3	01	01	00	P=5.99	

4-5	01	02	00		
Gender				X ² =0.11	NON-SIGNIFICANT
Male	05	03		Df=1	
Female	04	03	00	P=3.84	
Religion				X ² =0.00	NON-SIGNIFICANT
Hindu	09	06	00	Df=3	
Muslim	00	00	00	P=7.81	
Christian	00	00	00		
Others	00	00	00		
Education of mother				X ² =0.93 Df=3 P=7.81	NON-SIGNIFICANT
Non-literate	00	00	00		
Primary school	02	01	00		
Higher secondary	00	01	00		
Intermediate	02	01	00		
Graduation and above	05	03	00		NON-SIGNIFICANT
Education of the father				X ² =3.2 Df=3 P=7.81	
Non-literate	00	00	00		
Primary education	01	01	00		
Higher secondary	01	02	00		
Intermediate	04	00	00		
Graduation and above	03	03	00		NON-SIGNIFICANT
Occupation of the mother				X ² =0.00 Df=4 P=9.49	
Housewife	09	06	00		
Government employee	00	00	00		
Private employee	00	00	00		
Daily wages labor	00	00	00		
Business and others	00	00	00		NON-SIGNIFICANT
Occupation of the father				X ² =2.67 Df=2 P=5.99	
Government employee	00	00	00		
Private employee	06	06	00		
Daily wages labor	02	00	00		
Business and others	01	00	00		
Family monthly income				X ² =0.44 Df=2 P=5.99	NON-SIGNIFICANT
Less than ₹5,000	00	00	00		
₹5001 to ₹10000	03	01	00		
₹1001 to ₹20000	04	03	00		
₹20001 and above	02	02	00		
Area of living				X ² =3	NON-SIGNIFICANT
Urban	06	06	00	Df=1	
Rural	03	00	00	P=3.84	
Previous exposure of injection				X ² =0.02 Df=1	NON-SIGNIFICANT

Yes	07	04	00	P=3.84	
No	02	02	00		

The chi-square test was applied to determine the association between selected demographic variables and level of pain. The obtained chi-square values for age (1.64), gender (0.11), religion (0.00), education of mother (0.93), education of father (3.20), occupation of mother (0.00), occupation of father (2.67), family monthly income (0.44), area of living (3.00), and previous exposure to injection (0.02) were found to be statistically non-significant at 0.05 level of significance. Hence, there was no significant association between demographic variables and level of pain among the study participants.

SUMMARY

This chapter deal with the data analysis and interpretation adopted for the study and included the description of the study objective, analysis of the study finding are organized under the following (section A, section B, section C, section D, section E, section F, section G).

CONCLUSION:

From the study findings it is concluded that the effectiveness of Helfer Skin Tap Technique in reducing pain during intramuscular injection under five children in selected community health center was not effective in reducing pain.

REFERENCES:

1. https://www.ijhsr.org/IJHSR_Vol.9_Issue.1_Jan2019/IJHSR_Abstract.016.htm
2. https://f1000research.com/articles/14-205/v1/pdf?article_uuid=9e747299-65e1-47ed-a98f-b6ce2640976
3. <https://medwinpublishers.com/BEBA/assessing-the-effectiveness-of-helfer-skin-tap-technique-on-pain-reduction-among-children-undergoing-intramuscular-injection-in-flacc-numerical-pain-scale.pdf>
4. Nafila A.K. 2019.Knowledge Attitude and Practice of Mothers with Under-Five Children about Injection, international journal of contemporary medical research, Volume 6 | Issue 11. 2. Dinesh Kumar Sukanandam, Jasmin Ruby Anand, et al., An experimental study to determine the pain response.