



Assessment Of Helder Skin Tap Technique On Pain Among Infants In Holy Family Hospital, New Delhi

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Introduction

Nursing is a profession within the health care sector focused on the care of individuals, families, and communities. They attain, maintain, or recover optimal health and quality of life. Nurses help people in every walk of life and every part of life. A nurse career can take many forms, from working in hospital with gravely ill patients; Nurses help individuals from before birth to the time of death; and even help family members cope with the loss of a loved one, imaginable situation involving the health or illness of a person. Nurses may be differentiated from other health care providers by their approach to patient care, training, and scope of practice. Nurses develop a plan of care, working collaboratively with physicians, therapists, the patient, the patient's family and other team members, that focus on treating illness to improve quality of life.

An illness is the response of the person to a disease; it is an abnormal process in which the person's level of functioning is changed when compared with a previous level. A disease is traditionally diagnosed and treated by a physician, while nurses focus on the person with an illness. Medications are one of the main options in the cure, treatment and prevention of numerous medical conditions and illness.

Medications or drugs are introduced into the body by several routes. They may be taken by mouth (Orally), given by injection into a vein (Intravenously), into a muscle (intramuscularly), into the space around the spinal cord (Intrathecal), or beneath the skin (subcutaneously), Placed under the tongue (Sublingually) or between the gums and cheek (Buccally), inserted in the rectum (rectally) or vagina (Vaginally), placed in the eye (by the ocular route) or the ear, sprayed into the nose and absorbed through the nasal membranes (nasally), breathed into the lungs, usually through the mouth (by inhalation) or mouth and nose (by nebulization), applied to the skin (Subcutaneously) for a local (topical) or body wide (systemic) effect, delivered through the skin by a patch (Transdermal) for a systemic effect.

Blessy Peter, Dr. Bindhu Mathew, Research Scholar, JJT University, Rajasthan, Professor & HOD, Medical Surgical Nursing, St. Johns National Academy of Health Sciences, Bangalore, India as part of the Immunization schedule every child in India are exposed Pain is a common and unpleasant sensation for children. Every child has his or her own perception of pain. Routine immunization is the most frequent painful medical procedure during childhood. Pain is an unpleasant sensory and emotional feeling accompanying existing or impending tissue damages or reference to such damage.

As part of the Immunization schedule every child in India are exposed to numerous injections between the ages of 0-1 year, which inflict pain for children. If the pain is not addressed it causes pre procedural anxiety in the future and fear about needles which may lead to non-adherence to vaccination. Various recommendations and practices are experimented to reduce the pain during vaccination in children and one among the technique is

Helfer skin tap which is proved to reduce the pain in infants. The present study intended to assess the pain during intramuscular injection using Helfer skin tap among children at selected hospitals of Pathanamthitta district.

(UNICEF, 2017) Child survival is a field of public health concerned with reducing child mortality. Child survival interventions are designed to address the most common causes of child deaths that occur, which include communicable diseases. Among children under the age of 5 alone, an estimated 5.6 million children die each year mostly from such preventable causes. In developing countries, child mortality rates related to communicable disease reduced by introducing low-cost immunization.

(WHO, 2017) Infant mortality rate was an indicator used to monitor progress towards the Fourth Goal of the Millennium Development Goals. The prevalence of infant mortality rate globally as reported as 4.2 million. In India it was 37.8 per 1000 live birth. Diphtheria contributed to 20% infant death, pertussis contributed to 2% fatal illness and 70-80% death occurs globally due to Tetanus among children who are unvaccinated.

(WHO, 2016) Vaccinations are the safest and most effective way to prevent serious illness and death. In fact, vaccinations prevent approximately 2.5 million deaths every year. However, despite the success of vaccinations in preventing morbidity and mortality, some countries struggle to maintain high levels of vaccination update. For example, in 2016 only 69% of Indian children aged 19–35 months had fully completed a combined series of childhood vaccinations.

(Centers for Disease Control and Prevention, 2016) The Centers for Disease Control and Prevention recommends vaccinations to prevent 17 life-threatening diseases; consequently, adherence to the recommended vaccination schedule means children will receive an average of 18–24 injections by the time they are 2 years old. Adherence to the vaccination gives protection against so many diseases. Some parents may delay or refuse childhood vaccinations for a variety of reasons. A few of the common parental reasons for refusing childhood vaccinations include questioning vaccination safety, distrust of the government, concern about contraindications with a child's underlying medical condition, as well as the pain and anxiety associated with needle puncture.

(Taddio A, Shah V, Leung E, *et al.*, 2015) Intra muscular injection is common yet a complex technique used to deliver medication and vaccination deep into the large muscles of the body. Intra muscular injection route provides faster drug absorption than the subcutaneous route because the muscle has greater vascularity. There are several factors which influence person experience of pain during Intra muscular injection for example anxiety, culture, age, gender, and expectation of pain relief. These factors may increase or decrease perception of pain during intramuscular injection.

(Wise E. A, *et al.*, 2013) A pain producing stimulus sends an impulse across a peripheral nerve fibre. The pain fiber enters the spinal cord and travels one of several routes until ending within the gray matter of the spinal cord. There the pain message interacts with inhibitory nerve cells and preventing the pain stimulus from reaching the brain to the cerebral cortex. Once a pain stimulus reaches the cerebral cortex the brain interprets the quality of pain and processes information about past experience, knowledge and cultural associations in the perception of pain.

(Sparks L *et al.*, 2013) Injection for vaccination, the most common source of iatrogenic pain in childhood. It is administered repeatedly to almost all children throughout infancy, childhood and adolescence. The pain associated with such injections is a source of distress for children, their parents and those administering the injection. If not addressed, this pain can lead to pre procedural anxiety in the future, needle fear and health care avoidance with vaccination schedules. It is estimated that up to 25% of adults have a fear of needles, with most fear developing in childhood. About 10% of population avoids vaccination and other needle procedure because of pain.

(Fishman S, Ballantyne J, Bonica JJ, 2014) Helfer skin tap technique is tapping over the intramuscular site with the palmar aspect of finger 16 times before and the 3 counts during the procedure. Skin tapping in the area close to the site of an immunization injection will activate A-beta neuron which will close the gate. Transmission of pain signals arising from the injection site will, therefore, be inhibited at the 3 level of the spinal cord. The proximity of tapping and injection site would be expected to facilitate gating for the appropriate spinal neurons.

(Taddio A, Chambers CT, Halperin SA, 2014) Innovative Evidenced Based Nursing interventions for minimizing pain during child hood vaccination can help to prevent distress, development of needle fear and subsequent health care avoidance behaviors such as non- adherence with vaccination schedule. Most positive experience during vaccine injection also maintains and promotes trust in health care providers.

OBJECTIVES

1. To assess the level of pain experienced by infants during IM injection with routine technique.
2. To assess the level of pain experienced by infants during IM injection with Helfer Skin Tap technique.
3. To compare the level of pain experienced by infants during IM injection in experimental and control group.
4. To find out the association between the level of pain experienced by children during IM Injection in experimental and control group with the selected demographic variables.

REVIEW OF LITERATURE

Review of literature is an important step in the development of any research project. A thorough literature review provides a foundation upon which to base new knowledge and generally is conducted well before any data are collected in a quantitative study.

Polit and Hungler (2004) stated that literature review is a critical summary of research on a topic of interest, often prepared to put a research problem in context or as the basis for an implementation projects.

This chapter deals with the review of published and non-published studies related to the present study. A research literature review is a written summary of the state of evidence on a research Problem. Literature review can inspire new research ideas, and help to lay the foundation for studies. A literature is a crucial early task for most quantitative researchers. The investigator has divided the review of literature under the following headings:

- a) Literature related to pain perception during IM Injection.
- b) Literature related to effects of Helfer skin tap technique during IM Injection.

LITERATURE RELATED TO PAIN PERCEPTION DURING IM INJECTION

Dilek Kara, Suerari., (2013) conducted a comparative study on dorso gluteal or ventro gluteal site is more painful in intramuscular injection among 70 adults in state hospital in Turkey by using visual analog scale. The study revealed that the average pain score of patients after injections to the ventro gluteal site was less than comparing to dorso gluteal site. The study concluded that intramuscular injection of diclofenac sodium administered to the ventro gluteal site would feel less painful than administered to the dorso gluteal site.

Emel Tugreel, Leyla Khorshid., (2013) conducted a quasi experimental study on effect of pain intensity of injection sites and speed of injection associated with intramuscular penicillin among 60 patients in Turkey by using numerical pain scale. The study revealed that no difference in pain was perceived by participant between the two injection duration at either the dorso gluteal or ventro gluteal site. The study concluded that intramuscular penicillin can be administered to either site over 5 s/ml or 10 s/ml duration.

Inman SL, Faut.Callahan M, Swanson BA, Fillingim RB., (2012) conducted an experimental study on sex differences in pain responses to intramuscular injection for low back pain among 57 patients (37 women 20 men) in American pain clinic of regional medical center by using standardized Nordic questionnaire. The study revealed that no sex difference in the magnitude of treatment responses emerged however specific dimensions of pain coping were associated with treatment response in sex dependent manner. The study concluded that the pain coping was differently associated with outcomes after intramuscular injection in women and men.

Prayga Pathak, Raman Kalia, Bhavneet Bharathi.,(2012) conducted an experimental study on effect of needle gauge on perception of pain intensity among 320 adults receiving Hepatitis vaccination in India by using numerical pain scale. The study revealed that there is a significant difference in the response to pain was observed

among adults in the two groups. The study concluded that 23G needle causes less pain as compared to 25G needle.

LITERATURE RELATED TO EFFECTS OF HELPER SKIN TAP TECHNIQUE DURING IM INJECTION

Roopa Z, Vassilopoulos A, et al. (2013) conducted an experimental study on effect of Helper skin tap technique on pain perception after intramuscular injection among 60 adults patients in India by using visual analogue scale and verbal rating scale. The study revealed that the pain perception of patient in terms of pain scores without Heifer skin tap was found to be significantly higher than pain perception of patients with skin tap. Thus Helper skin tap can be used as an intervention to reduce pain after administration of intramuscular injection.

Christina D, Hinmikaiye, Eunice I.Bamishaiye., (2012) conducted an experimental study on Helper skin tap and its effect on procedural pain among 40 adults in USA by using numerical pain scale. The study revealed that the pain perception of patients in terms of pain score without Helper skin tap was found to be significantly higher than pain perception of patients with skin tap. The study concluded that the Heifer skin tap technique was shown to be significant in reducing procedural pain.

(Romanò CL, Cecca E,2015)An experimental study was conducted to determine the effectiveness of tactile stimulation on pin prick pain among infant during immunization in primary health center in Mumbai. The pain level was measured by Modified Behavioral Pain Scale (MBPS). A total of 212 infants receiving DTaP-IPV-Hib and PCV immunization were randomly assigned to two groups of 106 patients each. During the injection procedure multiple blunt plastic pins are pressed on to the skin at the injection site prior and during the penetration of the injection needle into the skin. There was a significant reduction of pain in the treatment group compared with control group after immunization (Modified Behavioral Pain Scale (MBPS): $(5.16 \pm 1.37$ v/s $1.90 \pm 1.27)$). This study explored the effect of tactile stimulation over the skin on pain reduction during immunization.

RESEARCH METHODOLOGY

Research approach- For the present study the quantitative approach was considered to be the most appropriate to accomplish the objectives.

Research Design-The research design selected was experimental post-test only control group design. In the experimental approach the investigator studies the cause and effect relations by exposing the experimental group to the treatment and then compares the result with the findings of the control group which was not exposed to the treatment.

Variables under the study

- Independent variable refers to the variable that is believed to cause or influence the dependent variable, in experimental research, the manipulated treatment variable.
- Dependent variable refers to the response, behaviour, or outcome that is predicted or explained in research changes in the dependent variable are presumed to be caused by independent variable.
- In the present study, the independent variable was Helper skin tap technique during IM Injection and the dependent variable was the level of pain experienced by infants during IM Injection.

Setting- For the present study the pilot study was conducted in the Under- five clinic of Holy family hospital, New Delhi and the final study was conducted also in Under-five clinic of Holy Family Hospital, Delhi.

Population-In the present study, population was infants receiving IM Injection.

Sample-In the present study, sample consisted of infants receiving IM Injection in a selected Hospital of Delhi.

Sample technique-In the present study, probability sampling technique (simple random sampling) was used. The samples were assigned to experimental group and control group using a chit method.

Sample Size- In the present study, sample size was 60 infants (30 in experimental group and 30 in control group) receiving IM Injection at under-five clinic of selected Hospital of Delhi.

Inclusion and Exclusion Criteria

Inclusion criteria:

- a) Infants attending under- five clinics.
- b) Parents who were will willing to participate in the study.

Exclusion criteria:

- a) Child with any other chronic medical conditions.

Content validity of tool

In order to measure the content validity, the tool was given to 10 experts (4 experts are pediatrician, 5 experts from Child health Nursing 1 expert from community health Nursing) suggestions given by the experts were incorporated in the tool and modified accordingly.

Reliability of the tool-The reliability coefficient of the standardized tool (FLACC pain scale) using cronbach's alpha was 0.88.

Try out- Pre testing of the tool was done on 5 patients in the Under-five clinic of Holy family hospital, Delhi. This was done to check the clarity feasibility and practicability of the tool. Average time taken for completion of interview schedule and assessment of pain was 15 minutes. It was found that items were clear and unambiguous. There was no problem in the tryout.

Ethical Consideration

- a) Formal ethical permission was taken from the Ethical committee of Holy Family Hospital New Delhi to conduct research study.
- b) Formal Administrative permission was taken from Holy Family Hospital New Delhi.
- c) Written informed consent was taken from the participants.
- d) Anonymity and confidentiality of the participants was maintained while carrying out the study.
- e) Parents have full autonomy to participate in the research study and to withdraw from the study at any point of time.

Pilot Study- Pilot study refers to the smaller version of a proposed study conducted to develop and define the methodology, such as the treatment instruments or data collection process to be used in the larger study. After obtaining the ethical clearance from the ethical committee of Holy family hospital, New Delhi, the pilot study was conducted to find out the feasibility of conducting the final study and decide on the plan for statistical analysis. The pilot study was conducted in the injection room of Holy family hospital, New Delhi from After obtaining the ethical clearance from the ethical committee of Holy family hospital, New Delhi, the pilot study was conducted to find out the feasibility of conducting the final study and decide on the plan for statistical analysis. The pilot study was conducted in the well- baby clinic of Holy family hospital, New Delhi on 18th to 23rd November 2021.

Total sample- 20 Infants, divided in to two group i.e. experimental group:- (10), control group :- (10) included in the pilot study after obtaining their parents written consent. The purpose of the study was explained to the sample and confidentiality of their response was assured, the findings of the pilot study revealed that it was feasible to conduct the study.

Data Collection Procedure

After obtaining the ethical clearance from the ethical committee of Holy family hospital, New Delhi, the final study was conducted to find out the feasibility of conducting the final study and decide on the plan for statistical analysis. The pilot study was conducted in the injection room of Holy family hospital, New Delhi from after obtaining the ethical clearance from the ethical committee of Holy family hospital, Data collection was done 24th December to 9th January. Self-introduction was given and purpose of the study was explained to the sample and the confidentiality of their response was assured. A total of sixty samples were randomly assigned into 2 groups (30 in experimental group and 30 in control group) through probability sampling technique (simple

random sampling) using chit method. Formal consent was obtained from the sample who met the inclusion criteria. Structured interview schedule was used to assess the selected variables (demographic variables and clinical health data) of the sample. The IM injection was administered in to the vastus lateralis using Helfer skin tap technique in the control group. Immediately after the administration of IM Injection, the post- test pain score of the experimental group as well as of the control group was obtained using FLACC pain scale.

Plan of data analysis- The data obtained was analyzed using the following plan of analysis

Section I: - Description of sample characteristics.

- a) Frequency and percentage distribution of demographic variables of experimental group and control group.
- b) Frequency and percentage distribution of clinical health data of experimental group and control group.

Section II: Assessment of level of pain during IM Injection in experimental group and control group.

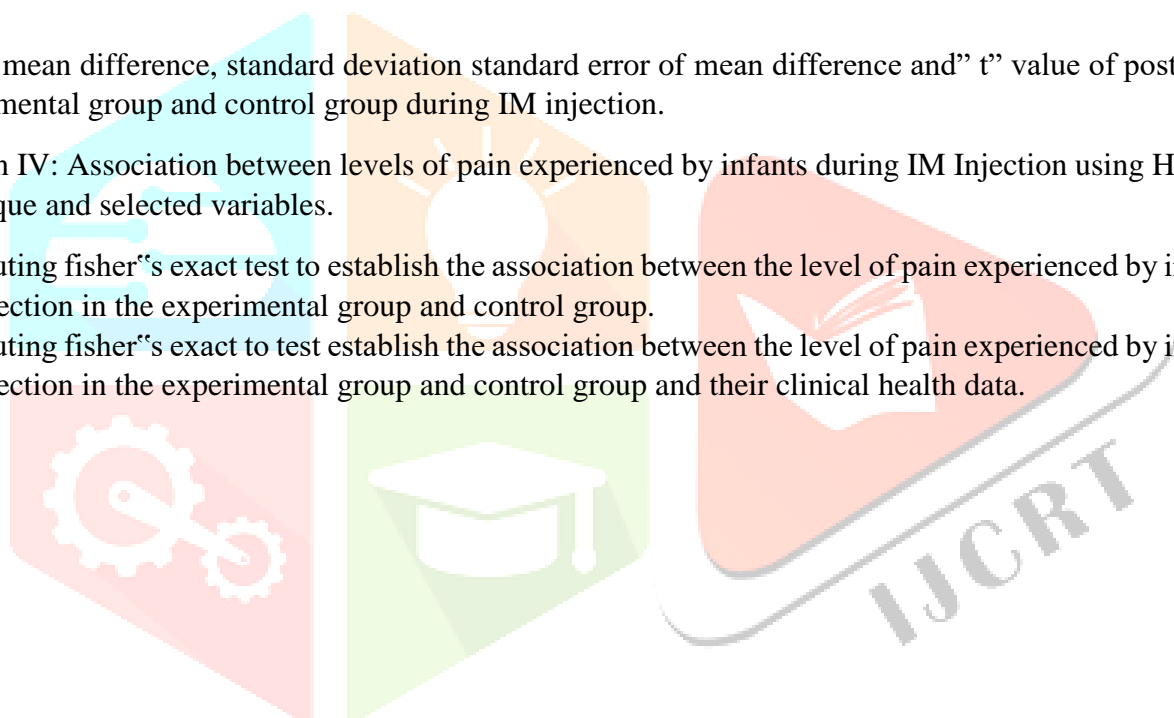
- a) Frequency and percentage distribution of level of pain during IM Injection in experimental group and control group.

Section III: Effectiveness of Helfer skin tap technique on the level of pain during IM Injection.

- a) Mean, mean difference, standard deviation standard error of mean difference and” t” value of post test score of experimental group and control group during IM injection.

Section IV: Association between levels of pain experienced by infants during IM Injection using Helfer skin tap technique and selected variables.

- a) Computing fisher’s exact test to establish the association between the level of pain experienced by infants during IM Injection in the experimental group and control group.
- b) Computing fisher’s exact to test establish the association between the level of pain experienced by infants during IM Injection in the experimental group and control group and their clinical health data.



RESULTS

SECTION I

DESCRIPTION OF SAMPLE CHARACTERISTICS

In order to determine the homogeneity of the groups, the frequency and percentage distribution of infants of experimental and control group were computed.

Table-1

Frequency and percentage distribution of Demographic Variables of experimental group and control group

n1+n2=60

Demographic variables	Experimental group (n1=30)		Control group (n2=30)	
	f	%	f	%
Age(in months)				
a.6-8	11	36.66%	12	46.66%
b. 8-10	11	36.66%	10	33.33%
c. Above 10	8	26.66%	8	26.66%
Gender				
a. Male	16	53.33%	17	56.66%
b. Female	14	46.66%	13	43.33%
c. others	0	0%	0	0%
Weight of Infants (In kgs.)				
a. less than 5	11	36.66%	14	46.66%
b. 6-8	10	33.33%	9	30%
c. 8-10	9	30%	7	23.33%
Name of the IM Injection				
a. Inj. MMR	7	23.33%	6	20%
b. Inj. Influenza	5	16.66%	7	23.33%
c. Inj. DPT	6	20%	5	16.66%
d. Inj. PCV Booster	9	30%	9	30%
e. Inj. Hepatitis	3	6.66%	3	6.66%
5. Informant:				
a. Mother	17	56.66%	14	46.66%
b. Father	13	43.33 %	16	53.33%
c. other specify-----	0	0%	0	0%

Data presented in table 1 reveals that:

- a) In the experimental group, majority of the sample 11(36.66%) were in the age group of 6-8 years, 11(36.66) were in the age group 8-10years and at least 8(26.66%) were in the age group of above10 years.
- b) In the experimental group, majority of the sample 16(53.33%) were in the gender of male, 14 (46.66%) were in the gender female.
- c) In the experimental group, majority of the sample 11(36.66%) were in the weight of infants (in kgs) of less than 5, 10(33.33%) were in the weight of infants (in kgs.) of 6- 8 months, 9(30%) were in the weight of infants (in kgs) of 8-10 .
- d) In the experimental group, majority of the sample 9(30%), were in the PCV booster, 7(23.33%) were in the inj.MMR,6(20%) were in the Inj.DPT,5(16.66%) were in the Inj.influenza,3(6.66%) were in the Inj.Hepatiis.
- e) In the experimental group, majority of the sample, 17(56.66%), were in the mother, 13(43.33%) were in the father.
- f) In the control group, majority of the sample 12(46.66%) were in the age group of 6-8 years, 10(33.33%) were in the age group 8-10years and at least 8(26.66%) were in the age group of above10 years.
- g) In the control group, majority of the sample 17(56.66%) were in the gender of male, 13 (43.33%) were in the gender female.
- h) In the control group, majority of the sample 14(46.66%) were in the weight of infants (in kgs) of less than, 9(30%) were in the weight of infants (in kgs.) of 6-8 months, 7(23.33%) were in the weight of infants (in kgs) of 8-10 .
- i) In the control group, majority of the sample 9(30%), were in the PCV booster, 7(23.33%) were in the Inj. Influenza, 6(20%) were in the Inj. MMR, 5(16.66%) were in the Inj.DPT 3(6.66%) were in the Inj.Hepatiis.
- j) In the control group, majority of the sample, 16(53.33%), were in the mother, 14(46.66%) were in the father.

SECTION II

ASSESSMENT OF LEVEL OF PAIN DURING INTRAMUSCULAR INJECTION IN
EXPERIMENTAL GROUP AND CONTROL GROUP

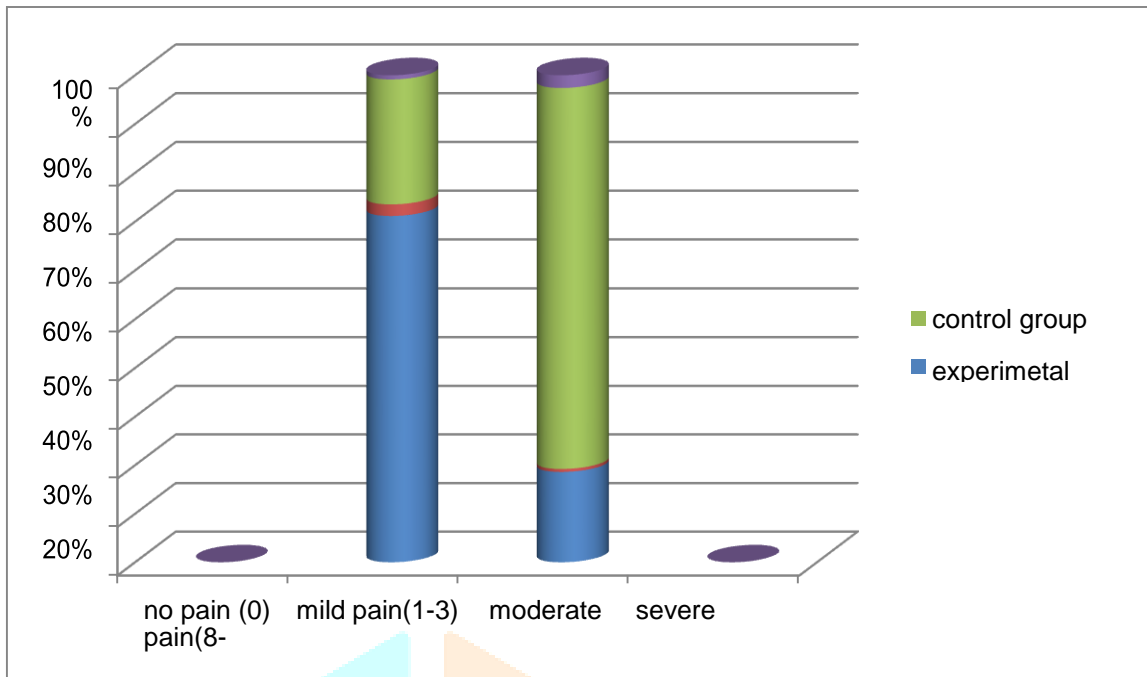
This section deals with analysis and interpretation of the level of pain assessed immediately after the administration of intramuscular injection.

Table-2

Frequency percentage distribution of pain scores of experimental and control group

n₁+n₂=60

Pain scores	(30) Experimental Group f %		(30) Control group f %	
	No pain 0	0	0%	0
Mild pain 1 – 3	25	83.33%	9	30%
moderate pain 4 - 6	5	16.66%	21	70%
evere pain 8 - 10	0	0%	0	0%



Data presented in table 2 figure 4 and figure 5 reveals that.

- a) Majority of the sample in the experimental group 25(83.33%) perceived mild pain, 5(16.66%) perceived moderate pain, 0(0%) perceived no pain,0(0%) perceived severe pain.
- b) Majority of the sample in the control group 21(70%) perceived moderate pain, 9(30%) perceived mild pain, 0(0%) perceived no pain,0(0%) perceived severe pain.

SECTION III

EFFECTIVENESS OF HELPER SKIN TAP TECHNIQUE ON THE LEVEL OF PAIN DURING INTRAMUSCULAR INJECTION

This section deals with analysis and interpretation of data collected to determine the effectiveness of Helfer skin tap technique on the level of pain during intramuscular injection among antenatal mothers.

H1: There will be a significant mean difference in pain score during IM injection among infants in experimental group with Helfer skin tap technique and control group with routine technique at 0.05 level of significance.

H2: There will be a significant association between the level of pain experienced among Infants during IM Injection with selected demographic variables at 0.05 level of significance.

Data represented in figure 6 shows that:

TABLE- 3

deviation, and t- value of post -test pain score of experimental and control group during IM Injection

n=60

Group	mean	Mean difference	Standard deviation	Standard error of mean deviation	“t”value
Experimental group	2.6	1.6	1.26	0.23	34.88
Control group	4.2		1.64	0.29	

Data presented in table 5 shows that:

Mean post- test pain score of the experimental group was lower than mean post- test pain score of the control group with a mean difference 1.6

The calculated t value of 34.88 was lesser than table “t” value 2.000 at $p < 0.05$.

Hence the research hypothesis H1 was accepted resulted indicated that Helper skin tap technique was effective in reducing the level of pain during IM Injection among Infants

SECTION IV

ASSOCIATION BETWEEN LEVEL OF PAIN EXPERINECED BY INFANTS DURING INTRMUSCULAR INJECTION USING HELFER SKIN TAP TECHNIQUE

Table-3

**Association between level of pain experienced by infants during IM Injection in the experimental group
and their demographic variables**

n=30

S.NO	SELECTED VARIABLES	NO PAIN	MILD PAIN	MODERA- TE VALUE	Chi square VALUE	P- VALUE
1.	Age(in months) a.6-8 b. 8-10 c. Above 10	0 0 0	9 9 7	2 2 1	1.159	0.560
2.	Gender Male Female others	0 0 0	14 11 0	2 3 0	6.438**	0.042
3.	Weight of infants (in kgs.) a. less than 5 b. 6-8 c. 8-10	0 0 0	9 9 7	2 1 2	0.538	0.764
4.	Name of the IM Injection Inj. MMR Inj. Influenza Inj. DPT Inj. PCV Booster Inj. Hepatitis	0 0 0 0 0	2 6 5 5 7	1 1 0 1 2	26.826**	0.0012

Table-4

Association between level of pain experienced by infants during IM Injection in the control group and their selected demographic variables

n=30

S.NO	SELECTED VARIABLES	NO PAIN	MILD PAIN	MODERA-	Chi square value	Tabulated value
1.	Age(in months) a.6-8 b. 8-10 c. Above 10	0 0 0	3 5 2	8 6 6	1.159	0.560
2.	Gender Male Female others	0 0 0	5 5 0	11 9 0	0.067	1.000
3.	Weight of Infants(in kgs.) a. less than 5 b. 6-8 c. 8-10	0 0 0	4 3 3	7 7 6	0.095	0.953
4.	Name of the IM Injection Inj. MMR Inj. Influenza Inj. DPT Inj. PCV Booster Inj. Hepatitis	0 0 0 0 0	0 3 0 2 5	3 4 5 4 4	6.286	0.001

Data represented in table 4:-

- a) Significant association between the level of pain and gender, Name of IM Injection at $p < 0.05$.
- b) Non- significant association between the level of pain experienced by infants during IM Injection using Helfer skin tap technique and other selected variables (Age, Weight of infants) in experimental group= n1 and also in control group= n2 (Age,Weight,Gender,Name of injection)
- c) Hence the research hypothesis H2 was partially accepted as significant association was found between the level of pain experienced by infants during IM injection using Helfer skin tap technique and selected variables such as gender and Name of IM Injection but no significant association was found with other selected variables such as (age, weight)

FINDINGS OF THE STUDY

Section I:- Description of sample characteristics

- a) In the experimental group, majority of the sample 11(36.66%) were in the age group of 6-8 years, 11(36.66) were in the age group 8-10years and at least 8(26.66%) were in the age group of above10 years.
- b) In the experimental group, majority of the sample 16(53.33%) were in the gender of male, 14 (46.66%) were in the gender female.
- c) In the experimental group, majority of the sample 11(36.66%) were in the weight of infants (in kgs) of less than 5, 10(33.33%) were in the weight of infants (in kgs.) of 6-8 months, 9(30%) were in the weight of infants (in kgs) of 8-10 .
- d) In the experimental group, majority of the sample 9(30%), were in the PCV booster, 7(23.33%) were in the inj.MMR,6(20%) were in the Inj.DPT,5(16.66%) were in the Inj.influenza,3(6.66%) were in the Inj.Hepatiis.
- e) In the experimental group, majority of the sample, 17(56.66%), were in the mother, 13(43.33%) were in the father.
- f) In the control group, majority of the sample 12(46.66%) were in the age group of 6-8 years, 10(33.33%) were in the age group 8-10years and at least 8(26.66%) were in the age group of above10 years.
- g) In the control group, majority of the sample 17(56.66%) were in the gender of male, 13 (43.33%) were in the gender female.
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- j) In the control group, majority of the sample, 16(53.33%), were in the mother, 14(46.66%) were in the father.

Section II: - Assessment of level of pain during IM injection in experimental group and control group.

- a) Majority of the sample in the experimental group 25(83.33%) perceived mild pain, 5(16.66%) perceived moderate

pain, 0(0%) perceived no pain, 0(0%) perceived 0(0%) severe pain.

- b) Majority of the sample in the control group 21(70%) perceived moderate pain, 9(30%) perceived mild pain, 0(0%) perceived no pain, 0(0%) perceived 0(0%) severe pain.

Section III: - effectiveness of Helfer skin tap technique on the level of pain during IM injection.

- a) The Mean post- test pain score of the experimental group was 2.6 with the standard deviation of ± 1.26 .
- b) The Mean post- test pain score of the control group 4.2 with the standard deviation of ± 1.64
- c) Mean post- test pain score of the experimental group was lower than mean post- test pain score of the control group with a mean difference 1.6
- d) The calculated t value of 1.26 was lesser than table "t" value 2.000 at $p < 0.05$. the research hypothesis H1 was partially accepted resulted indicated that Helfer skin tap technique was effective in reducing the level of pain during IM Injection among Infants

Section IV:- Association between level of pain experienced by infants during intramuscular injection using Helfer skin tap technique

- a) H1: There will be a significant mean difference in pain score during IM injection among Infants in experimental group with Helfer skin tap technique and control group with routine technique at 0.05 level of significance.
- b) H2: There will be a significant association between the level of pain experienced among Infants during IM Injection with selected demographic variables at 0.05 level of significance.
- c) In order to determine the association between the level of pain experienced by infants during intramuscular injection using Helfer skin tap technique and selected variables, fisher's exact test was used.

DISCUSSION

The present study aimed to assess the effectiveness of Helfer skin tap technique on the level of pain during IM injection among infants. The findings of the present study have been discussed in relation to the observations made by the other studies which the investigator reviewed.

The present study found that in the experimental group ,Majority of the sample in the experimental group 25(83.33%) perceived mild pain, 5(16.66%) perceived moderate pain, 0(0%) perceived no pain, 0(0%) perceived 0(0%) severe pain., Majority of the sample in the control group 21(70%) perceived moderate pain, 9(30%) perceived mild pain, 0(0%) perceived no pain, 0(0%) perceived 0(0%) severe pain. These finding were similar to the study findings of Cherian AT * who reported that out of 40 sample, majority 33 (82.55%) reported mild pain, 5 (12.5 %) reported Pain and 2 (5%) reported moderate pain after receiving intramuscular injection with rhythmic skin tapping whereas majority of the sample 25 (62.5%) reported mild pain and (37.5%) reported moderate pain after receiving intramuscular injection without rhythmic skin tapping. The present study findings were also consistent with the findings of VAP. who found that out of 100 hospitalized patients majority 63 (63%) reported Moderate pain and 37 (37%) reported severe pain during intramuscular injection with routine technique

whereas majority of the sample 75 (75%) reported auld pam and 25 (25%) reported no pain during intramuscular injection with Helfer skin tap technique it was found in the present study that the mean post- test pam score of the experimental Group (1.13) was lower than the mean post- test pam score of the control group $p < 0.05$ which indicated that Helfer skin tap technique was effective in reducing the level of pain during IM injection among infants. The above findings were consistent to the study findings of Vathani , Kumari MJ, Pandit VR” who reported that the mean post- test pain score of patients in the experimental group (0.67) receiving intramuscular injection using Helfer skin tap technique was lower than the mean post -test pain score of patients in the control group (4.95) receiving intramuscular injection using routine technique and the calculated „t” value 15.43 was found significant at $p < 0.00$ which indicated that Helfer skin tap technique was effective than routine technique to reduce pain during intramuscular injection. the present study found that there were no significant association was found with other selected variables such as (age, weight) The above finding was consistent with the study findings of Cherian AT° who found that there was no significant association between the level of pain associated with intramuscular injection with selected variable such as previous experience of intramuscular injection, 8% the calculated Fisher’s exact value 0.375 was found non-significant at $p < 0.05$. The present study that were Significant association between the level of pain and gender , Name of IM Injection at $p < 0.05$. Non- significant association between the level of pain experienced by infants during IM Injection using Helfer skin tap technique and other selected variables (Age, Weight of infants) in experimental group= n1 and also in control group= n2 (Age,Weight,Gender,Name of injection) . The above findings were inconsistent to the study findings of Dhanalakshasi T.” who reported that no significant association between pain score of post- operative adult orthopaedic patients receiving Helfer skin tap technique and the selected demographic variables such as gender , IM injection was found as the calculated chi square value 11.81 and 7.75 respectively was non-significant at $p < 0.05$. The present study findings revealed that there was no significant association between the level of pain experienced by infants with Helfer skin tap technique and selected variables such as age and educational status as the calculated Fisher’s exact test value 6.438 and 26.826 respectively was found non-significant at $p < 0.05$. The above findings were inconsistent with the study findings of V AP.® who found that there was significant association between the level of pain associated with intramuscular injection with selected demographic variables of Hospitalized adult patients such as age and educational Status as the calculated chi square value 11.85 and 8.07 was found significant at $p < 0.05$.

CONCLUSION

The findings of the study proved that Helfer skin tap technique was effective than routine technique in reducing the level of pain during IM injection among infants and it can be implemented as a useful measure to reduce the pain related to administration of IM injection Helfer skin tap technique works on the theoretical basis of gate control theory.

IMPLICATIONS OF THE STUDY

Nursing Practice

- a) Nurses play a major role in the management of pain among the patients by adopting appropriate pain management technique.
- b) The effectiveness of Helfer skin tap technique in reducing IM Injection pain proved through the present study is a source for evidence based practice
- c) This technique can be easily incorporated in to clinical practice in the hospital as well in the community settings without added cost or time.
- d) This technique can improve the quality and standards of care given to the patients by reducing the pain while giving IM injection.

Nursing Education

- a) Education plays an important role in the modification of behavior and practice among the nurses as well as student nurses.
- b) Procedure of using Helfer skin tap technique for intramuscular injection can be included into the curriculum of nursing students.

Nursing Administration

- a) Nurse Managers can update the procedure of intramuscular injection by applying Helfer skin tap technique.
- b) Nurse Administrators can take initiative to teach nurses about this technique through in-service training and education programs.
- c) Nursing Administrators may encourage nurses to apply Helfer skin tap technique in their clinical practice.

Nursing Research

- a) The findings of the present study have added knowledge to the already existing literature and implication for nursing research are given in the form of recommendation.
- b) This technique can be easily incorporated into clinical practice in the Hospital as well as in the community setting without added cost or time.
- c) This technique can improve the quality and standards of care given to the patents by reducing the pain while giving intramuscular injection.
- d) Nurse Researcher can conduct study to verify the scientific justification / physiology behind the effect of Helfer skin tap technique.
- e) Randomized clinical trials could be conducted so that the validity of the results can be increased and it can be incorporated into the evidence based nursing practice
- f) This study can provide insight to develop other non-pharmacological measures for pain associated with Intramuscular injection.

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