



A QUASI-EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF PIN-TRICK METHOD ON PAIN DURING INTRAMUSCULAR INJECTION AMONG PATIENTS IN OUTPATIENT DEPARTMENT IN SELECTED HOSPITAL OF AMRITSAR PUNJAB

Mrs. Deepti Sharma*

*Nursing Tutor, Khalsa College of Nursing, Amritsar, India.

<https://doi.org/10.47211/idcij.2026.v13i01.007>

ABSTRACT

A study was undertaken to assess the efficacy of the Pin-Trick method in alleviating pain during intramuscular injections among patients in the outpatient department of Atlantis Hospital, located in Amritsar, Punjab. A quasi experimental, quantitative approach with post-test control group was conducted among 232 patients (116 patients in experimental group and 116 patients in control group) who were selected through purposive sampling technique. The conceptual framework selected for this study was based on Von Bertalanffy general system theory. In the experimental group, the investigator utilized the pin-prick method during intramuscular injections and assessed pain levels using a numerical pain rating scale. Meanwhile, in the control group, the investigator administered regular intramuscular injections without any intervention. The gathered data were analyzed using descriptive and inferential statistical methods. The results revealed a statistically significant decrease in pain levels during intramuscular injections following the intervention, with a t value of 1.341 at a significance level of $p < 0.005$. The average and standard deviation of post-interventional pain levels were 4.42 ± 1.750 in the experimental group and 3.75 ± 1.964 in the control group. Therefore, it is evident that the Pin-Trick method has a notable effect on pain. As a result, the null hypothesis was accepted.

Key words: Pin-Trick Method, level of pain, outpatient department patients.

AUTHOR'S PROFILE:



Author Mrs. Deepti Sharma, is a Nursing tutor, Khalsa college of Nursing, Amritsar, India. She has attended various national and international conferences and workshops.



INTRODUCTION

Every human being in the world has experienced some type of pain. An individual experiencing pain feels discomfort or distress and seeks alleviation. Pain is a primary motivator for seeking healthcare services, as it can be an intensely unpleasant and subjective sensation. It can occupy an individual's thinking, direct all activities and alter an individual life, yet pain may be a scary concept for a patient to communicate; a medical staff neither sees nor feels the patient's pain.¹

Pain is the physiological mechanism that protects the individual from harmful stimuli and serves as a warning to tissue damage. Acknowledging the importance of pain, it is deemed as the fifth vital sign and necessitates meticulous assessment. Pain is experienced by all and is a subjective experience that can be influenced by sensory, affective, behavioural, cognitive, socio-cultural, and physiologic components.²

Routes for administering medication are commonly classified according to the site of drug delivery, such as orally or intravenously. The choice of administration route depends on convenience, patient compliance, and the drug's pharmacokinetic and pharmacodynamic profiles. Consequently, understanding the characteristics and techniques of different routes is essential. Numerous healthcare team members from various professions participate in administering medications to patients.³

A quasi-experimental study was undertaken to assess the efficacy of the pin-trick method in alleviating pain during intramuscular injections at Konguand Hospitals in Coimbatore. The study involved 60 outpatients selected through convenience non-probability sampling. The findings revealed that the post-test mean values in experimental and control groups were 1.62 ± 1.27 and 4.63 ± 1.16 respectively. The t value was 9.75 which is greater than table value at 1% level of significance. It is evident by this study that pin-tick method is effective in pain during intramuscular injections.⁴

NEED OF THE STUDY

According to different studies, every year, there are more than 12 billion injections given globally. A survey conducted in India revealed that 96% of injections administered by healthcare providers comprised antibiotics, vitamins, and pain relievers. Furthermore, 48% of patients reported feeling disturbed by needle injections, while 62% expressed fear specifically related to intramuscular injections. Needle phobia impacts a minimum of 10% of the total population and it also led to avoidance of medical care. People do not come forward to any invasive procedures because of pain which leads to greater intensity.⁵

After examining the literature and reflecting on personal experiences gained during clinical rotations at the hospital, the investigator observed that a significant number of patients in the outpatient department receive intramuscular injections as prescribed by physicians, often reporting pain during administration. While various references suggest the Pin-Trick method as an effective means to alleviate pain during intramuscular injections, this technique is not consistently utilized in hospital settings.

RESEARCH PROBLEM

A Quasi-experimental study to assess the effectiveness of Pin-Trick method on pain during Intramuscular injection among patients in Outpatient department in selected Hospital of Amritsar Punjab.

AIM OF STUDY

The study was aimed to assess the effectiveness of Pin-Trick Method during intramuscular injection on pain among patients.

OBJECTIVES

1. To assess the post-interventional pain during intramuscular injection among patients in the experimental and control group.
2. To compare the post-interventional pain during intramuscular injection among patients in experimental and control group.
3. To find the association of post-interventional pain during intramuscular injection in experimental and control group with selected socio-demographic variables.

HYPOTHESIS

H₀- There will be no significant effect of pin-trick method on pain during intramuscular injection among patients of experimental group and control group at $p < 0.05$ level of significance.



RESEARCH METHODOLOGY

Research approach: Quantitative research study approach

Research design: Quasi experimental design, posttest control group design.

Research setting: Atlantis Hospital (a unit of health care) G.T road, putlighar, Amritsar. Punjab.

Population: those who were administrated IM injection in outpatient department of Atlantis Hospital (a unit of health care) G.T road, putlighar, Amritsar. Punjab

Sample: 232 patients those who were administrated IM injection in outpatient department of Atlantis Hospital (a unit of health care) G.T road, putlighar, Amritsar. Punjab.

Sample size: The sample size was 232 patients (116 in control group and 116 in experimental group) for Hot water foot bath.

Sample technique: Purposive sampling technique.

DESCRIPTION OF TOOL

The tool was divided into two parts.

Part A: Identification data

This part consisted of 6 items for obtaining personal information of subjects such as age (in years), body mass index, site of intramuscular injection, position during intramuscular injection.

PART B: Standardized numerical pain rating scale was used.

Standardized Numerical pain Rating scale was used to assess the level of pain. Scale included a horizontal 0-10 number line in which the left end (0) indicates no pain and right end (10) indicate severe pain. The subjects were asked to place the mark on the scale where current pain of subjects lie. Level of pain was categorized into four levels that is no pain, mild pain, moderate pain, severe pain.

CRITERION MEASURES

Level of pain Score

No pain 0

Mild pain 1-3

Moderate pain 4-6

Severe pain 7-10.

Objective wise Analysis and Interpretation

Objective 1: To assess the post-interventional pain during intramuscular injection among patients in the experimental and control group.

Table 1: Frequency, Percentage and Mean of patients in the experimental and control group according to post interventional pain during intramuscular injection N=232

Level of Pain	Experimental group (n=116)				Control group (n=116)			
	n	%	Mean	SD	n	%	Mean	SD
No Pain	7	6.03	0	0	9	7.7	0	0
Mild Pain	68	58.6	2.62	0.547	53	45.6	2.6	0.599
Moderate Pain	32	27.5	4.88	0.871	42	36.2	5.05	0.764
Severe Pain	9	7.7	7	0	12	10.34	7.08	0.289

Maximum score=10

Minimum score=0

Table 1 depicts the frequency, percentage and mean distribution of post-interventional level of pain among patients of outpatient department in experimental and control group. In the experimental group, 58.6% patients had mild pain while 27.5% had moderate pain and 7.7% had severe pain whereas remaining 6.03% patient had no pain. In the control group, nearly half (45.6%) of patients had mild pain while 36.2% had moderate pain, 10.34% had severe pain and remaining 7.7% had no pain.

Hence, it can be concluded that majority of patients had in the experimental group and in the control group had mild pain.



Objective 2: To compare the post interventional pain during intramuscular injection among patients in experimental and control group.

Table 2: Comparison of post interventional pain during intramuscular injection in experimental and control group among patients of outpatient department. N=232

Intervention	Experimental group		Control group		df	T
	Mean	SD	Mean	SD		
Post-interventional score	4.42	1.750	3.75	1.964	230	1.341*

Maximum score: 10

*= Significance at p<0.05

Minimum score: 0

Table 2 depicts the comparison of post-interventional mean score in experimental and control group. The mean and standard deviation of post interventional level of pain in experimental group was 4.42±1.750 and in control group, it was 3.75±1.964. The comparison of post interventional level of pain during intramuscular injection was statistically significant with t value 1.341* at p<0.05 level of significance.

CONCLUSION

The research aimed to assess the impact of the pin-trick method on pain experienced during intramuscular injections among outpatient department patients at Atlantis Hospitals, Amritsar. Findings revealed that the pin-trick method effectively reduced pain among patients receiving intramuscular injections in the experimental group. However, no significant associations were observed between pain levels and age, injection site, position during injection, or body mass index in the experimental group.

RECOMMENDATION

- A similar study can be conducted with large group.
- A similar study can be conducted in various settings to identify the factors that influences pain during intramuscular injection.
- A similar study can be done with adjunctive therapy.
- A comparative study can be done to determine the effectiveness of pin-trick method versus diversional technique/ non-pharmacologic method.
- A comparative study can be done to determine the effectiveness of pin-trick method versus tactile or other cutaneous stimulation method.
- A comparative study can be done to determine the effectiveness of pin-trick method versus sensory stimulation method.

REFERENCES

1. Berman, Snyder, Kozier, Erb. Kozier & Erb's Fundamental of Nursing Concepts, Process, and Practice. 8th ed. Patporganj, Delhi; Dorling Kindersley.2008.
2. Potter, Perry, Stockert, Hall. Potter and Perry's fundamentals of nursing. 9th ed. Gurgaon, ELSEVIER Publishers. 2017.
3. Neil J. Medication administration 1: understanding routes of administration. Nursing Times. [Internet] available at: www.nursingtimesnet. Cited on 10-05-2023.
4. Ms. J. Geethachitra. A study to evaluated the effectiveness if pin-trick method on pain during intramuscular injection among patient in outpatient department at kongunad hospital, Coimbatore. [thesis of final year Ms.C] 2015.Reg.No.3 01312852.
5. Kottapalli P, Podduturi NCR, Aswini G, Jyothi S, Naveen A.GMS Hyg Infect Control. 2023 Jan 27;18: Doc03.