AN EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF COLD APPLICATION BEFORE ADMINISTERING INTRAMUSCULAR INJECTION ON THE REDUCTION OF NEEDLE STICK PAIN AMONG THE PATIENT'S IN SELECTED PRIMARY HEALTH CENTRE AT JALNA, MAHARASHTRA.

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ABSTRACT: A true experimental study was conducted to assess the effectiveness cold application before administering intramuscular injection on the reduction of needle stick pain among patients in selected Primary Health Centre, at Jalna, Maharashtra, India. Data was collected Primary Health Centre, Panives at Jalna. The study design used for study was Post test only control group design. A total 40 samples were selected by Convenience sampling technique. After collected the data Intervention was given as cold application for 1-2 minutes before administering intramuscular injection. Then, post-test done immediately after intervention to assess effectiveness of cold application by using Visual Analogue Scale.The statistical test used for analysis were The study was concluded, that the cold application is effective to reduce needle stick pain.

INTRODUCTION: Pain is defined as "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" was recommended by the subcommittee on taxonomy and adopted by International association for the study of pain (IASP) council in 1979.

According to American pain society, Pain is referred as "The fifth vital sign" to stress it's significance and to improve attention of health care professionals about the importance of effective pain management

strategy as well as continuous assessment. When small diameter nerve fibre carry pain stimuli through a gate mechanism but large diameter nerve fibre going through the same gate can inhibit transmission of the smaller nerve carrying the pain signals and then pain is occur.

Pain can be experience by an individual due to any disease process and also by the diagnostic test and treatment modalities. Pain occur after the basic treatment or procedure like intradermal injection, intramuscular, Intravenous (IV) Infusion, suturing, post operative pain etc. all these services are provided at Primary Health centre .

NEED FOR STUDY: Individual gets hospitalize for a wide range of acute illness and injuries. So, nurses are advocates for patient's safety. They must do what is in the patient's best interest while causing the least harm or distressed. Pain management is a challenge at every nurse must face, regardless of the practice setting. Every patient has the right to be free from pain. It is responsibility of nurses to do everything possible to alleviate the patient's pain. Where as knowledge of alternative techniques to reduce pain improve patient's satisfaction.

There are a number of pharmacological and Non –pharmacological measures to reduce pain .Now, the Non–pharmacological interventions are gaining popularity. Among those Non-pharmacological measures there are different kinds of therapies. e.g. Diversional therapy, Playing or Listening music, Watching TV, Painting, Playing games, Drawing etc. Cold application reduces the ability of pain fibres to transmit pain impulses and studies have shown that cold application has the ability to reduce the pain associated with various types of injection.

Cold application one of the most effective method is that the use of cold application to reduce needle stick pain during intramuscular injection. The preparation of cold application is easy and feasible to use in the hospital and more adaptive to the patients can apply easily this method in setting, while providing nursing care.

Cold application works by reducing blood flow to a particular area, which can significantly reduce inflammation and swelling that causes, pain, especially around a joint or a tendon. It can temporarily reduce nerve activity, which can also relieve pain.

Cold application blocks the nerve impulse, constrict blood vessels, decrease swelling and numb the pain, so the pain was reduced. Cold application is a feasible or cheapest method. The nurses can apply easily this method in setting while providing nursing care.

STATEMENT OF PROBLEM

An experimental study to evaluate the effectiveness of Cold Application before administering intramuscular injection on the reduction of needle stick pain among patient's in a selected Primary Health Centre at Jalna, Maharashtra.

OBJECTIVES:

- To assess the post-test level of needle stick pain among patient's receiving cold application before administering intramuscular injection in the experimental group at primary health centre.
- To determine the post-test level of needle stick pain among patients receiving intramuscular injection in control group.
- To compare the post-test level of needle stick pain among patient receiving intramuscular injection both in the experimental group and control group.
- To find out the association between the post- test level of needle stick pain among patients who receiving Intramuscular injection in experimental group with selected demographic and clinical variables such as Age, Gender, Occupation, Education, Marital status etc.

HYPOTHESES:

H1:- There is a significant reduction in the intensity of needle stick pain cause by intramuscular injection among patients who receive local cold application than those who do not receive cold application prior to intramuscular injection.

H2:- There is a significant association between the post- test level of needle stick pain among patients in both experimental group and control group with selected demographic variables. .

METHODOLOGY:

Research methodology is the overall plan for addressing the research problem. It covers multiple aspects of the study's structure. It acts as a guide for planning, implementation and analysis of the study. It include description of the research approaches, research design, dependent and independent variables, sampling and design, sampling criteria, description of the tool, pilot study and planned format for data collection and a plan for data analysis .

Research approach:- It is defined the approach as a general set of orderly discipline procedure use to acquire information the quantitative approach was used in the study.

Research design: - Research design is the plan an strategy of investigation for answering the research question. It is an overall blue print, with the researcher selected to carry out this study.

The research study adapted for present study is True experimental design (Post – Test only control group design). It provides accurate account of the characteristics of particular problems and situation of group.

POPULATION:

The target population of study include all the patients who receiving intramuscular injection in selected Primary health centre.

SAMPLING:

Sampling technique: Convenience sampling technique would be use to select sample.

Sample size: The sample size for the study would be 40 patients who are intended to get intramuscular injection were 20 of them will be consider at experimental group and 20 are control group.

3.8 CRITERIA FOR SELECTION OF SAMPLES

•**Inclusion criteria**

- Male and female Age group of 21 – 40 years

- Clients who are willing to participate in study

- The client who are understand the language of Hindi, Marathi ,English

- The clients who were receiving intramuscular injection in deltoid muscles, dorsogluteal muscle and ventrogluteal muscles, at Panives Primary health Centre, Jalna.

•**Exclusion criteria**

- Above the age of 40 years.

- Patients who are unconscious.

- Patients who are not able to understand the language of Hindi, Marathi, English.

• Patient receiving intravenous, intradermal, subcutaneous and other injection.

VARIABLES:-

- **Independent variables :** Effectiveness of Cold application

- **Dependent variable:** Level of needle stick pain associated with intramuscular injection.

DISCRIPTION OF THE TOOL:

The tool consist of 2 sections

- **Section A:** Demographic and clinical variables
  This section consist of questions which seek information regarding demographic data such as Age, gender, Educational Status, Marital status , Occupation, Taken intramuscular injection before at Primary Health Centre, Type of Medication for giving intramuscular injection at Primary Health Centre, Clinical Diagnosis, Symptoms developed after intramuscular injection.

  Section B: VISUAL ANALOGUE SCALE: - The visual analogue scale was first introduced in 1921 By two employees of the Scott Paper Company (Hayes and Patterson,1921). They developed the scale as a method for supervisors to rate their workers. The "Visual Analogue Scale (VAS)" is validated measures for acute or chronic pain. Score are recorded by making s handwritten mark on a 10 cm line that represents a continuum between "No Pain" and "Worst Pain".

Fig. visual analogue scale

Description	Rating	Score
No pain	0	O
Mild pain	1-3	1
Moderate pain	4-6	2
Severe pain	7-10	3
Worst pain	Above 10	4

SCORE INTERPRETATION :

It comprised of only one item. This item has 5 score respectively, No pain, mild, moderate, severe, worst pain. The score was interpreted as 0, 1, 2, 3 and 4 respectively. The minimum score is 1 and maximum score is above 10.

TECHNIQUES OF DATA COLLECTION: Data collection is the process of gathering and measuring information on variables of interest in an established systematic fashion that enables one to answer stated research questions, test hypothesis and evaluate outcome. The data collected by using demographic variables and using Visual Analogue Scale. Sampling technique use for data collection is convenience sampling technique

INTERVENTION: Cold Application Therapy is practiced for 1 – 2 Minutes**.**

- ➢ Introduction to cold application**.**

- ➢ Provide explanation to the patient regarding the procedure of cold application.

- ➢ Wash hands.

- ➢ Place ice cubes in a plastic bag (ice bag). You can also substitute ice with a bag. It's best to use. So, the bag will sit well on your skin.If you do need to use a bag of ice. Fill up ice cube trays in the meantime that way, you have backup when the bag of ice bag thaws out.

- ➢ Place the ice bag on the site of intramuscular injection (Deltoid Muscle of the arm and ventrogluteal muscle of the hip). For 1-2 minutes.
- ➢ Dry the area with a cotton after 1-2 minutes. Then immediately give intramuscular injection to the patient.
- ➢ Then assess the intensity of needle stick pain after intramuscular injection.

METHOD OF DATA ANALYSIS:

1. Unpaired T test:
2. Chi square test:
   PILOT STUDY:

The pilot study was conducted at a Pilot study among 6 samples who receiving Intramuscular injection in Primary Health Centre Panives,Jalna. A sample of 20 patients who met the inclusion criteria are selected by convenience sampling technique. The investigator introduced him to the subjects and socio-demographic data is collected from this subjects. Cold application is given 2-3 minutes. The post – test is conducted for both experimental and control group per day to the experimental group.The result is analyzed based on the scores obtaining using Visual Analogue Scale The purpose was to find out the feasibility of the study. It was found to be feasible. Reliability of the tool is tested by using split half Method by Karl Pearson's correlation coefficient formula for estimation of reliability. To obtain reliability of the tool, split half method was used involving following steps:

The total items were divided into two equal parts through grouping into first half and second half. Administer tow subparts of the tool simultaneously, scored them independently and compute the correlation coefficient on two separate scores

The obtained r value was 0.91, followed by the r value was computed in Spearman Brown prophecy formula for calculating reliability of anxiety scale

$$r_c = 2r/1+r$$
$$\mathbf{r_c = 0.95}$$

The obtained r value was 0.91, hence it is above 0.70, and tool was found reliable

METHODS OF DATA COLLECTION:

DATA COLLECTION PROCEDURE:

The data collection procedure was done for a stipulated period of 7 days in Primary Health Centre Panives Jalna. Permission to conduct the study was obtained from the Medical Officer of the Primary Health Centre. The samples were informed by the researcher about the nature and the purpose of the study. Informed consent was taken from the patient. After explaining the study, cold application was applied from 1-2 minute prior to Intramuscular Injection. At the end of this period Intramuscular Injection was given during which pain assessment will be done among patients in experimental group within1 minute by using Visual Analogue Scale. The pain assessment among control group was done without the intervention.

PLAN FOR DATA ANALYSIS:

The data was analyzed by using descriptive inferential statistics. The demographic variables were analyzed by using descriptive measures (frequency and percentage). The pain was analyzed by using descriptive statistics (mean, standard, deviation). The effect of cold application on pain associated with Intramuscular Injection analyzed by using **"Unpaired 't' test"**. Association between pain associated with Intramuscular Injection and the selected demographic and clinical variables were analyzed by using **"chi-square test"**.

Result:

- Most of the samples 8(40%) patients were between the age group of 36-40 years.
- The many of the 15(75%) patients were male.
- The majority of the 11(55%) patients were educated at up to school level.
- Most of the 14(70%) patients was Unmarried.
- The majority of the 9(45%) patient's occupation was professionals.
- The most of the 11(55%) patients taken intramuscular injection before at Primary Health Centre..
- The majority of the 16(80%) patients taken intramuscular injection at site of deltoid muscle.
- Most of 13(65%) patients taken intramuscular injection in Tetanus type of medications.
- The majority of 6(30%) patients were ante-natal mother.
- The majority of 10(50%) patients had developed the symptoms of pain.

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TOOLS:

SECTION A: Visual Analogue Scale

SECTION B:

Level of needle stick pain score	Score Range	Level of needle stick pain score	
		Experimental Group (n₁ = 20)	Control Group (n₂ =20)
No Pain	0	6(30%)	0(0%)
Mild Pain	1-3	13(65%)	15(75%)
Moderate Pain	4-6	1(5%)	5(25%)
Severe Pain	7-10	0(0%)	0(0%)
Worst Pain	>10	0(0%)	0(0%)
Minimum score		0	1
Maximum score		4	4
Mean pain score		1.20 ± 1.10	2.85±0.87

SCORE INTERPRETATION:

- ➢ **No pain = Smiling Face(score 0)**
- ➢ **Mild pain= Frowning face (score 1)**
- ➢ **Moderate pain= Frowning and wailing (score 3)**
- ➢ **Severe pain= Wailing with eyes close and tears (score 4)**
- ➢ **Worst pain= Frowning with eyes close with tears wailing and mouth turned down (score 4)**