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RESEARCH ARTICLE

"A STUDY TO ASSESS THE EFFECTIVENESS OF CRYOTHERAPYAS PAIN MANAGEMENT AFTER THE ADMINISTRATION OF CHEMOTHERAPEUTIC AGENTSAMONG CANCER PATIENTS IN SELECTED HOSPITALSOF GANDHINAGAR."

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Abstract

A Quasi-experimental study was conducted to assess the effectiveness of cryotherapy as pain management after the administration of chemotherapeutic agents amongcancer patients in selected areas of Gandhinagar. The study wasconducted among cancer patients receiving chemotherapy in selected areas ofGandhinagar.

Introduction:-

According to the International association for the study of pain "pain is an unpleasant sensory and emotional experience in association with actual or potential tissue damage." Approximately 30% to 50% with cancer experience pain while undergoing the side effects of cancer treatment such as chemotherapy, radiation therapy, and tumor exerting pressure on nerve, pain arises from any number of situations. Injury is a major cause, but pain may also arise from illness. [3]

Cryotherapy, also known as ice application, is the simplest and oldest way to treat injuries. Its worldwide use spread because of its effectiveness, convenience, low cost and ease of transportation. Ice is believed to control pain by instigating local anesthesia. It also decreases edema, nerve conduction velocities, cellular metabolism and local blood flow. The effect of the cryotherapy depends on the method, the duration, temperature of the ice and the depth of the subcutaneous fat. It can be delivered to just one area, or we can apply for whole body. Localized cryotherapy can be administered in a number of ways, including through ice packs, ice massage, coolant sprays, The theory for whole body cryotherapy is that by immersing the body in extremely cold air for several minutes. In cryotherapy Ice packs are wrapped in dry or moist towel and applied for 10-15 minutes for more superficial areas and 15-20 minutes for areas of deeper tissue.[4] Cold gel packs are kept in cooling unit at temperature of 0-10F. they do not lower skin temperature as much as ice, thus patients may not reach point of anesthesia. Ice immersion is used and water. Temperature range between 13-18 c for treatment, which may last 10-20 minutes. Ice massage Involves rubbing plastic or foam cup (with edges peeled back) of ice over body part to be treated, used mostly for small areas of inflamed tissue or acute muscle guarding, direction should be parallel to muscle fibers, Application is continued for 3-10 minutes until anesthesia is reached and vapo coolant sprays (e.g.,fluoromethane, ethyl chloride).[5]

According to American Nurses Association pain is a feeling of distress, suffering of agony. Pain may also arise from an illness. One of the most important nurses responsibilities to assess the pain and give supportive therapy. Cryotherapy is a complimentary therapy that has potential for use by nurse in a multidisciplinary and management program. One of the best methods that can be used to relieve the pain is cryotherapy. Cryotherapy involve the applicationof cold to relieve the symptoms. It numbs pain, swelling and block nerve impulses to the affected area.[6]

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Need Of Study

According to the worldwide the number of new cases 17 million each year. [7] Cancer prevalence in India is estimated to be around 13.9 million, with over 8 million new cases and 5 million death occurring each year due to this disease. The majority of the patient with cancer were diagnosed at the locally advanced stage for breast (57.0%), cervix (60.0%), Head and neck (66.6%), and stomach (50.8%) cancer, where as in lung cancer, distant metastasis was predominant among males (44.0%) and females (47.6%) in 2020.[8] More than 70% of the casesreport for diagnostic. Treatment services in the advanced stages of the disease, which has led to a poor survival and high mortality rate.In Gujarat 72,169 cases of cancer are estimated in 2018.[9]

According to WHO the incidence of chemotherapeutic extravasation including pain range from 0.5% to 0.6% people die from chemotherapy because it is extremely toxic and ineffective. Most people die from chemotherapy rather than the cancer itself.[10]

Each year about 6,50,000 cancer patients receive chemotherapy in an outpatient oncology clinic and nearly 2/3 of cancer patients needs radiotherapy. [11] The overall survival rate of cryotherapy is 94.4%.[12]

Cryotherapy is the cheapest treatment. Cryotherapy supports cellular regeneration (which means dead cells are replaced quickly with the new ones) and therefore delays the formation of deepening of wrinkles. It relieves muscle pain and speedy healing. The use of over-the counter pain medications, muscle relaxants, nerve blocking injections etc. all offer temporary relief but one of the most invigorating treatments available to treat back pain is cryotherapy.[13]

Objectives:-

1. To assess the level of pain before and after the administration ofcryotherapy among the experimental group of patients with chemotherapy.
2. To assess the level of pain without cryotherapy as pain management after the administration of chemotherapeutic agentamong the control group of patients with chemotherapy.
3. To find the association between the experimental and control group of patientswith chemotherapy.

Hypothesis

H0: There will be no significance difference between level of painandcryotherapy in experimental and the control group.

H1: There will be significant difference between level of painandcryotherapy in experimental and the control group.

Operational Definition

Assess:

In this study, assess refers to evaluate the effect of cryotherapyon painamong cancer patients with chemotherapy.

Effectiveness:

In this study, effectiveness refers to expected relief in painaftercryotherapy.

Cryotherapy:

In this study, cryotherapy refers to the local applicationoficepack on pain site.

Pain:

In this study, pain is an unpleasant sensory and emotionalexperienceassociated with actual or potential tissue damage.

Chemotherapeutic agents:

In this study, chemotherapeutic agents refertodrugs used to kill cells and inhibit the growth of abnormal cells.

Cancer patients:

In this study, cancer patients are those patientswho isreceiving chemotherapy from the oncologist.

Methodology:-

The main aim of the study is to evaluate the effectiveness of cryotherapy as pain management after the administration of chemotherapeutic agents among cancer patients in selected areas of Gandhinagar. The 'general system model' was used as conceptual framework. A quantitative approach with quasi experimental study design was used to achieve the objective of the study.

Result:-

The result shows that cryotherapy given to the patients receiving chemotherapy in experimental group, the level of pain was minimized which was assessed by standardized numerical pain rating scale. In experimental group the pre-test mean is 7.267 and the post-test mean is 4.133, the mean difference was 3.143, standard deviation of pre-test was 1.014 and the post-test was 1.105 which is showingthat the level of pain was minimized. In control group, the pre-test mean is 6.6 and the post- test is 4.93, the mean difference is 1.67, standard deviation of pre- test is 0.855 and of post-test is 1.229. Calculated 't' value is 0.53 which is less than tablevalue at 0.05 level of significance which is showing effectiveness of cryotherapy.

Conclusion:-

The study intends to assess the effectiveness of cryotherapy among thecancer patients receiving chemotherapy. The study reveals that the post- operative pain score is lower than the pre-test pain score.

Table 1:- Description of demographic variables of samples according to age of patients. (N=60).

SR NO	DEMOGRAPHIC VARIABLE	CATEGORIES	EXPERIMENTAL GROUP	CONTROL GROUP
1	AGE OF PATIENT	25-40 YEARS	(26.66%)	(20.00%)
2		41-55 YEARS	(43.33%)	(50.00%)
3		56-70 YEARS	(30%)	(30.00%)

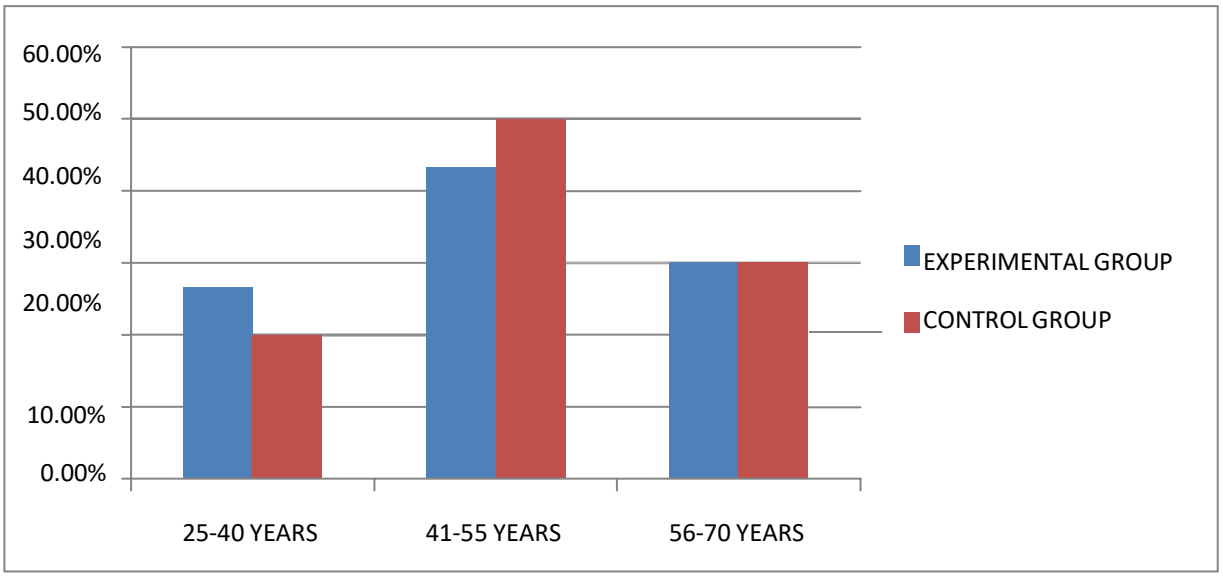

Table 1 Above column graph shows that 26.66% of samples (8) were in the age group of 25-40 years, 43.33% of samples (13) were in the age group of 41-55 years, 30% of samples were in the age group of 56-70 years in experimental group and 20% of samples (6) were in the age group of 25-40 years, 50% of samples (14) were in the age group of 41-55 years, 30% of samples(10) were in the age group of 56-70 years in control group.

Table 2:- Description of demographic variable of samples according to gender of people inselected hospitals in Gandhinagar (N=60).

SR NO	DEMOGRAPHIC VARIABLE	CATEGORIES	EXPERIMENTAL GROUP	CONTROL GROUP
1	Gender of Patient	Male	19(63.33%)	17(36.66%)
2		Female	11(56.66%)	13(43.33%)
3		Other	0%	0%

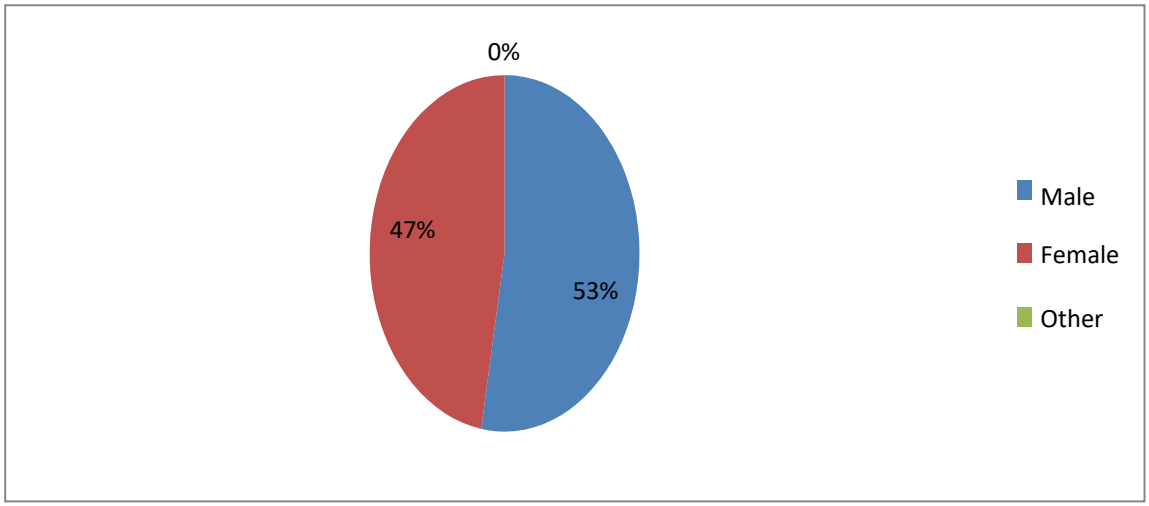

Table 2 Above column graph shows that 63.33% of samples (19) in experimental group and 36.66% of samples (17) in control group were male and 56.66% of samples (11) in experimental group and 43.33% of samples (13) in control group were female.

Table 3:- Description of demographic variable of samples according to marital status ofpeople selected hospitals in Gandhinagar (N=60).

SR NO	DEMOGRAPHIC VARIABLE	CATEGORIES	EXPERIMENTAL GROUP	CONTROL GROUP
1	Marital Status	Married	27(90.00%)	26(83.33%)
2		Unmarried	2(6.66%)	1(3.33%)
3		Others	1(3.33%)	3(10%)

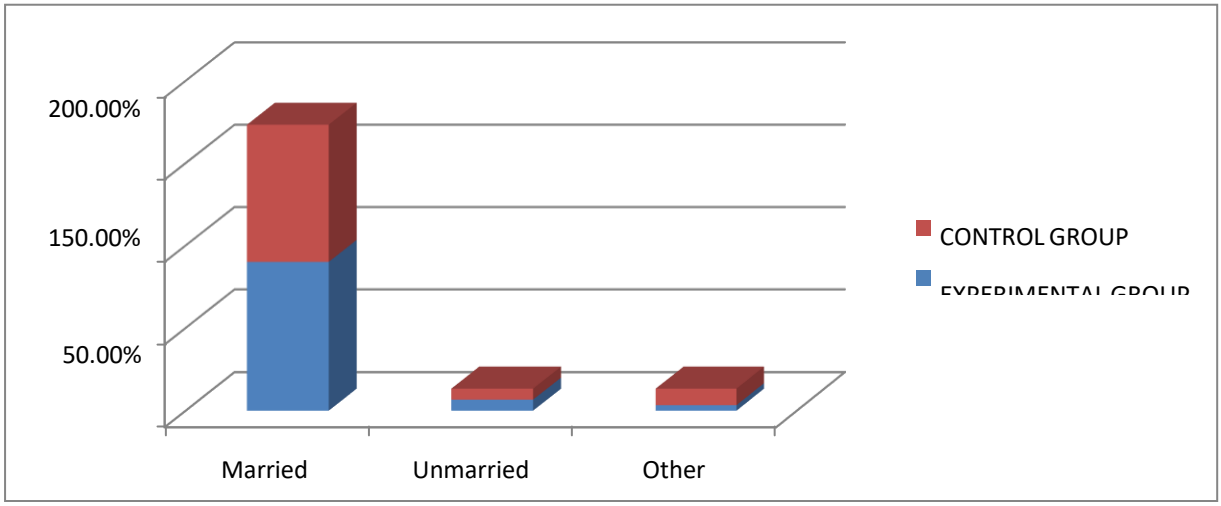

Table 3:- Above column graph shows that 90% of samples (27) in experimental group and 83.33% of samples (26) in control group were married and 6.66% of samples (2) in experimental group and 3.33% of samples (1) in control

group were unmarried and 3.33% of samples (1) in experimental group and 10% of samples (3) in control group were others.

Table 4:- Description of demographic variables of samples according to educational status of people in selected hospital. (N=60)

SR NO	DEMOGRAPHIC VARIABLE	CATEGORIES	EXPERIMENTAL GROUP	CONTROL GROUP
1	Educational status	Illiterate	1(3.33%)	1(3.33%)
2		Primary	7(23.33%)	6(20.00%)
3		Secondary andabove	22(73%)	23(43%)

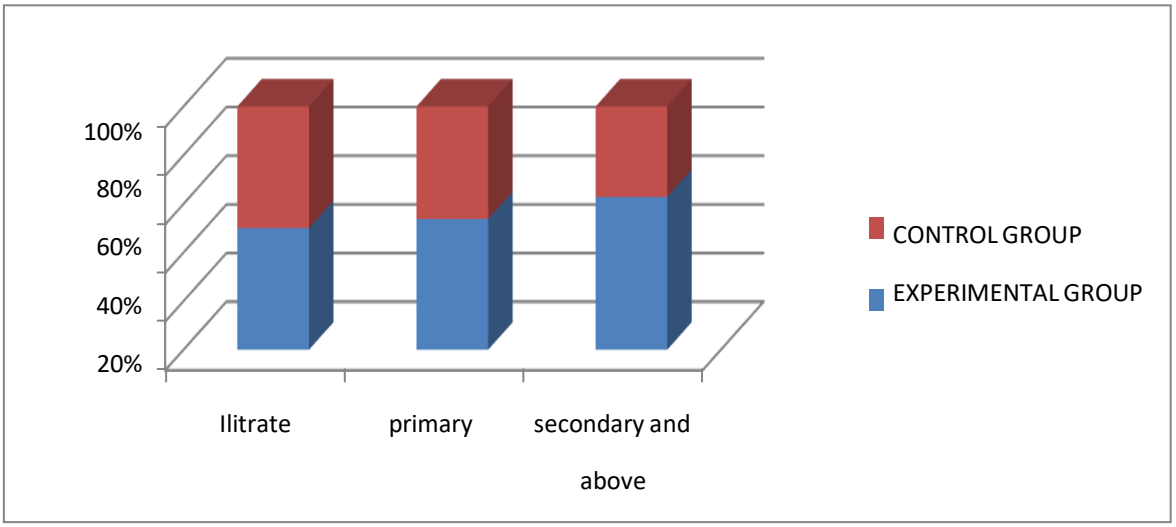

Table 4 Above column graph shows that 3.33% of samples (1) were illiterate, 23.33% of samples (7) have primary education, 73% of samples (22) have secondary education and above in experimental group and 3.33% of samples (1) were illiterate, 20% of samples (6) have primary education, 43% of samples (23) have secondary education and above in control group.

Table 5:- Description of demographic variable of samples according economical status of people in selected hospital of Gandhinagar.

SR NO	DEMOGRAPHIC VARIABLE	CATEGORIES	EXPERIMENTAL GROUP	CONTROL GROUP
1	Economical status	Lower class	7(23.33%)	10(33.33%)
2		Middle class	10(33.33%)	11(36.66%)
3		Higher class	13(43.33%)	9(30%)

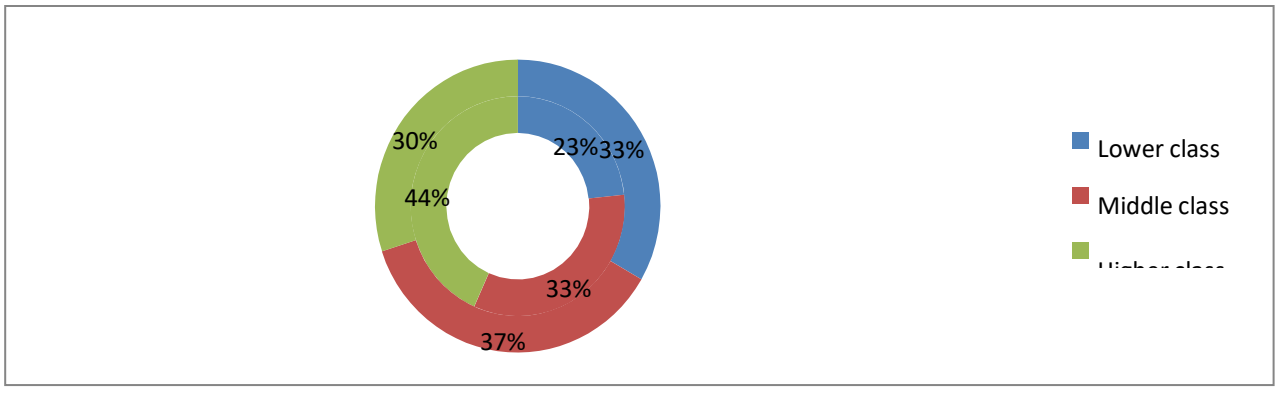

Table 5 Above column graph shows that 23.33% of samples (7) were having lower class, 33.33% of samples (10) were having middle class, 43.33% of samples (13) were having higher class economical status in experimental group and 33.33% of samples (10) were having lower class, 36.66% of samples (11) were having middle class, 30% of samples (9) were having higher class economical status in control group.

Table 6:- Frequency and percentage distribution of the pain scores of the samples before administration of cryotherapy. (N=30)

LEVEL OF PAIN	EXPERIMENTAL GROUP	
	Pre-test	Post-test
Mild (0-3)	0	10(33.33%)
Moderate (4-6)	7(23.33%)	20(66.67%)
Severe (7-10)	23(76.67%)	0
Total	30(100%)	30(100%)

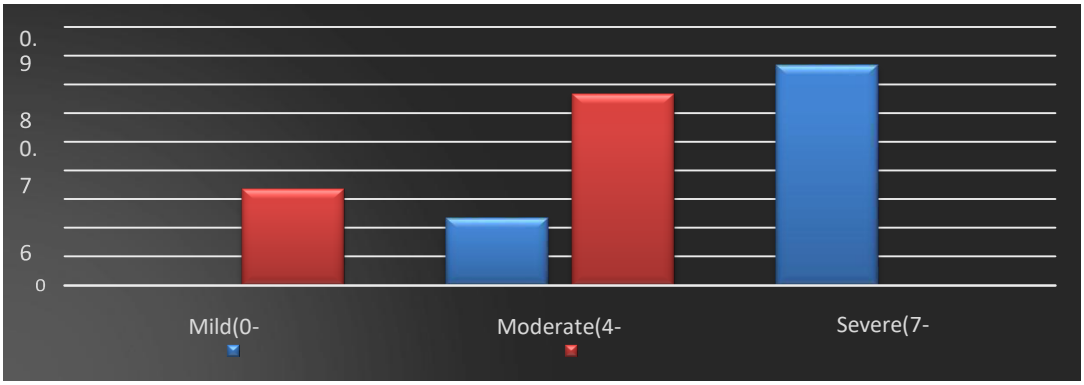

Table 6 The above mentioned chart shows that, in pre-test, 23.33% of samples (7) were having moderate pain, 76.67% of samples (23) were having severe pain. In post- test 33.33% of samples (10) were having mild pain, and 66.67% of samples (20) were having moderate pain.

Table 7:- Frequency and percentage distribution of the pain scores of the samples afteradministration of cryotherapy (N=30).

LEVELOF PAIN	CONTROLGROUP	
	Pre-test	Post-test
Mild (0-3)	0	2(6.67%)
Moderate (4-6)	15(50%)	23(76.67%)
Severe (7-10)	15(50%)	5(16.66%)
Total	30(100%)	30(100%)

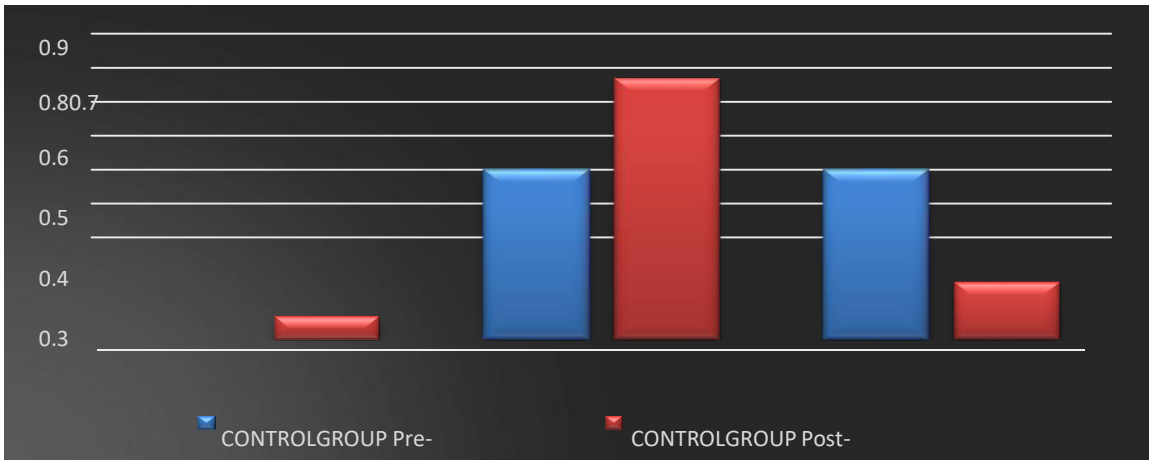

Table 7 The above mentioned chart shows that, in pre-test, 50% of samples (15) were having moderate pain 50% of samples (15) were having severe pain. In post-test 6.67% of samples (2) were having mild pain, and 76.67% of samples (23) were having moderate pain, and 16.66% of samples (5) were having severe pain.

Table 8:- Mean, standard deviation (SD) and 't' test value of experimental and controlgroup showing effective level of pain of samples (N=60)

Groups		Mean	Mean difference	SD	Calcu lated 't' value	Table 't ' value	df	Level of significance
Experim ental Group	Pre test	7.267	3.134	1.01 483 2	0.53	2.00	58	0.05
	Post test	4.133		1.10 588				
Control group	Pre test	6.6	1.67	0.85 500 5				
	Post test	4.93		1.22 989				

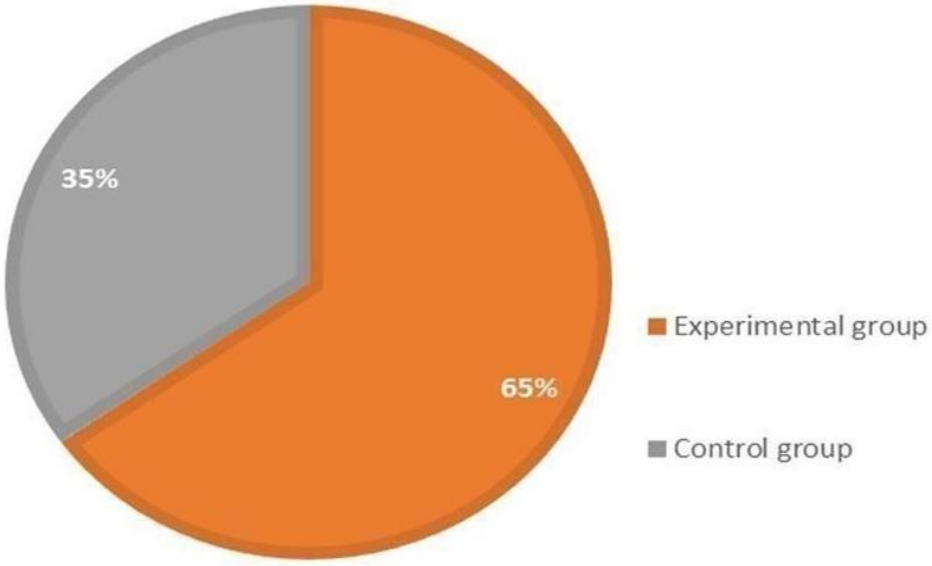

Table 8 Comparison between experimental and control group on pain scores obtained by the respondents regarding cryotherapy on cancer patients shows that the mean in experimental group; pretest score was 7.267 and post test score was 3.134.In control group; pretest score was 6.6 and post test score was 4.93. The mean difference between the experimental and control group was 3.134 and 1.67. The table also shows the standards deviation in experimental group; pretest was 1.014832 and posttest was 1.10588 and in control group, pretest was 0.855005 and posttest was 1.22989. The calculated 't' value was 0.53 and the tabulated 't' value was 2.00 at 0.05 level of significance for 58 df, Above table reveals that the mean posttest experimental group was significantly higher than the mean pretest experimental group. The calculated't'value (t = 0.53) was less than the tabulated't' value (t = 2.00).

Summary

The chapter deals with the summary of the study to assess the effectiveness of cryotherapy to relieve pain among cancer patients among the age 25 to 70 years, in view to provide the cryotherapy.

Conclusion:-

The study intends to assess the effectiveness of cryotherapy as pain managementafter the administration of chemotherapeutic agents among the cancer patients in selected hospitals of Gandhinagar. The study reveals that the

experimental group pain score is lower than the control group pain score regarding the effectiveness of cryotherapy after the administration of chemotherapeutic agents among cancer patientsof selected hospitals of Gandhinagar.

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