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RESEARCH ARTICLE

“A STUDY TO ASSESS THE EFFECTIVENESS OF BOX BREATHING ON PAIN AMONG POST OPERATIVE PATIENTS IN SELECTED HOSPITALS OF GANDHINAGAR.”

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Abstract

A quasi-experimental study to assess the effectiveness of box-breathing on pain among post operative patients in selected hospitals of Gandhinagar. The study was conducted among post operative patients in selected areas of Gandhinagar. The main aim of the study is to evaluate the effectiveness of box breathing on pain among post-operative patients in selected hospitals 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. The result shows that box breathing given to the post-operative patients 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 6.08 and the post-test mean is 3, the mean difference was 3.08, standard deviation of pretest was 1.25 and of posttest was 1.38 which showing that level of pain was minimized. In control group, the pretest mean is 6.24 and the posttest is 4.96, the mean difference is 1.28, standard deviation of pretest is 1.45 and of posttest is 1.81. Calculated ‘t’ value is 5.51 which is more than table value at 0.05 level of significance. So null hypothesis is rejected and research hypothesis is accepted which showing effectiveness of box breathing exercise. This study therefore, offers an encouraging solution towards improvement of post operative patient’s condition and change in pain score after providing box breathing exercise. The study intends to assess the effectiveness of box breathing on pain among post operative patients in selected hospitals of Gandhinagar. The study reveals that the post test pain score is lower than the pretest pain score.

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Introduction:-

Background Of The Study

Pain is a distressing feeling often caused by intense or damaging stimuli. The International Association for the study of pain defines pain as “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage”. In medical diagnosis, pain is regarded as a symptoms of an underlying condition. There are two types of pain: acute and chronic. Acute pain usually comes on suddenly, because of a disease, injury or inflammation. It can often be diagnosed and diagnosed and treated. It usually goes

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away, though sometimes it can turn into chronic pain. Chronic pain lasts for a long time, and can cause severe problems.¹

Post operative pain is defined as a condition of tissue injury together with muscle spasm after surgery. Post operative pain is considered a form of acute pain due to surgical trauma with an inflammatory reaction and initiation of an afferent neuronal barrage. Postoperative pain can either acute or chronic. Acute pain is experienced immediately after surgery and pain which lasts more than 3 months after the injury is considered to be chronic. Acute and chronic pain can arise from deep somatic, cutaneous or visceral structures.²

Box breathing is a powerful, yet simple, relaxation technique that aims to return breathing to its normal rhythm. This breathing exercise may help to clear the mind, relax the body, and improve focus. The technique is also known as “resetting the breath” or four-square breathing. It is easy to do, quick to learn, and can be a highly effective technique for people in stressful situations. Box breathing is a simple technique that a person can do anywhere, including at a work desk or in a café. Before starting, one should sit with their back supported in a comfortable chair and their feet on the floor.

1. Instruct the person to close the eyes and breath in through the nose while counting to four slowly. Now feel the air enter the lungs.
2. Now ask the person to hold the breath inside while counting slowly to four. Try not to clamp the mouth or nose shut. Simply avoid inhaling or exhaling for 4 seconds.
3. Now slowly begin to exhale for 4 seconds.
4. Instruct the person to repeat the steps for 1 to 3 at least three times. Ideally, repeat the three steps for 4 minutes, or until calm returns.³

Need For The Study

Based mostly on in-hospital evidence, data suggests that up to 80% patients experience pain after surgery, with over 70% of these patients describing their pain as moderate to severe. Around 1.5 billion people suffer from chronic pain globally. 17% to 40% patient suffer from moderate to severe post operative pain worldwide. In India, 84.17% people suffer from post operative pain after fifth hour, 92.5% on second day, 96.66% on third day.⁴

Box breathing exercise can be beneficial to anyone, especially those who want to meditate or reduce pain. Thing about breathing exercise is that they are easy to learn. Patients can do them whenever they want, and they don't need any special tools or equipment. Patients can also try out different breathing exercise to see which work best. The slow holding of breath allows CO₂ to build up in blood and increased blood CO₂ enhances the cardio inhibitory response of the vagus nerve when you exhale and stimulate your parasympathetic system. This produces a calm and relaxed feeling in the mind and body. The study of diaphragmatic breathing exercise shows that after total knee replacement surgery, patients often experience intense levels of pain, stress and anxiety that can adversely affect postoperative recovery. Diaphragmatic breathing exercise may help patients manage pain and emotional distress.⁵

Objectives:-

1. To assess the level of pain among post operative patients before and after providing box breathing.
2. To assess the level of pain among post operative patients in control group.
3. To compare the level of pain among post operative patients in both experimental and control group.

Hypothesis

1. H₀: There will be no significant difference between level of pain and box breathing in experimental and control group at 0.05 level of significance.
2. H₁: There will be significant difference between level of pain and box breathing in experimental and control group at 0.05 level of significance.

Operational Definition

1. **Assess:** In this study, assess refers to evaluate the effect of box breathing on pain among post operative patients.
2. **Effectiveness:** In this study, effectiveness refers to the ability to produce desired output after providing box breathing to post operative patients.
3. **Box breathing:** In this study, box breathing refers to a technique that can help to slow down breathing which minimizes pain after surgery.

4. **Pain:** In this study, pain refers to an unpleasant sensory and emotional experience associated with actual or potential tissue damage due to surgery which will be measured through numerical pain rating scale.
5. **Post operative patients:** Post operative patients refers to the patients who are recently undergone with a surgery and admitted in selected hospitals of Gandhinagar, Gujarat.

Methodology:-

Research methodology indicated the general pattern of organizing the procedure for gathering valid and reliable data for investigation. The content of this chapter includes research approach and its rationale, description of setting and population, description of samples, tool of selection, construction, description and rationale of tool, procedure of data collection, data analysis and statistically method use.

Table 1:- Frequency and percentage wise distribution of samples of experimental group based on demographic variables. [N=50].

SR NO.	DEMOGRAPHIC VARIABLES	FREQUENCY(F)	PERCENTAGE (%)
1	Age a) 21-30 years b) 31-40 years c) 41-50 years d) 51-60 years	7 5 7 6	28% 20% 28% 24%
2	Gender a) Male b) Female c) Transgender	13 12 0	52% 48% 0
3	Educational status a) Illiterate b) Primary education c) Secondary education d) Higher secondary education e) Graduation and above	6 10 2 3 4	24% 40% 8% 12% 16%
4	Do you have any knowledge regarding box breathing? a) Yes b) No c) Maybe	4 16 5	16% 64% 20%
5	Post operative hours a) 2 to 10 hours b) 11 to 19 hours c) 20 to 28 hours d) 29 to 37 hours e) 38 to 46 hours	11 11 2 1 0	44% 44% 8% 4% 0

Table 1: Shows that out of 50 samples 7(28%) samples are of 21-30 years, 5(20%) samples are in the age group of 31-40 years, 7(28%) samples is in 41-50 years of age group, 6(24%) samples is in 51-60 years of age group. In gender, 13(52%) samples were male and 12(48%) samples were female. In educational status, 6(24%) of samples are illiterate, 10(40%) samples had completed primary education, 2(8%) samples had completed secondary education, 3(12%) samples had completed higher secondary education and 4(16%) samples had completed graduation and above. In knowledge of patients regarding box breathing, 4(16%) samples knows about box breathing, 16(64%) samples have no idea regarding box breathing and 5(20%) samples have some idea regarding box breathing. In post operative hours, 11(44%) samples are from 2-10 hours, 11(44%) are from 11-19 hours, 2(8%) samples are from 20-28 hours, 1(4%) samples are from 29-37 hours.

Table 2:- Frequency and percentage wise distribution of samples of control group based on demographic variables. [N=50].

SR NO.	DEMOGRAPHIC VARIABLES	FREQUENCY (F)	PERCENTAGE (%)
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1	Age e) 21-30 years f) 31-40 years g) 41-50 years h) 51-60 years	6 6 4 9	24% 24% 16% 36%
2	Gender d) Male e) Female f) Transgender	11 14 0	44% 56% 0
3	Educational status f) Illiterate g) Primary education h) Secondary education i) Higher secondary education j) Graduation and above	6 9 3 4 3	24% 36% 12% 16% 12%
4	Do you have any knowledge regarding box breathing? d) Yes e) No f) Maybe	6 15 4	24% 60% 16%
5	Post operative hours f) 2 to 10 hours g) 11 to 19 hours h) 20 to 28 hours i) 29 to 37 hours j) 38 to 46 hours	12 10 2 1 0	48% 40% 8% 4% 0

Table 2: Shows that out of 50 samples 6(24%) samples are of 21-30 years, 6(24%) samples are in the age group of 31-40 years, 4(16%) samples is in 41-50 years of age group, 9(36%) samples is in 51-60 years of age group. In gender, 11(44%) samples were male and 14(56%) samples were female. In educational status, 6(24%) of samples are illiterate, 9(36%) samples had completed primary education, 3(12%) samples had completed secondary education, 4(16%) samples had completed higher secondary education and 3(12%) samples had completed graduation and above. In knowledge of patients regarding box breathing, 6(24%) samples knows about box breathing, 15(60%) samples have no idea regarding box breathing and 4(16%) samples have some idea regarding box breathing. In post operative hours, 12(48%) samples are from 2-10 hours, 10(40%) are from 11-19 hours, 2(8%) samples are from 20-28 hours, 1(4%) samples are from 29-37 hours.

Table 3:- Frequency and percentage distribution of the pain scores of samples in experimental and control group. [N=50].

LEVEL OF PAIN	EXPERIMENTAL GROUP		CONTROL GROUP	
	Pre-test	Post-test	Pre-test	Post-test
Mild(0-3)	0	17(68%)	0	4(16%)
Moderate(4-6)	16(64%)	08(32%)	14(56%)	15(60%)
Severe(7-10)	9(36%)	0	11(44%)	6(24%)
Total	25(100%)	25(100%)	25(100%)	25(100%)

Table 3: Experimental group shows that, samples in pretest are 16(64%) are having moderate pain and 9(36%) samples are having severe pain. In post test 17(68%) samples are having mild pain, 8(32%) samples are having moderate pain. Control group shows that, samples in pretest are 14(56%) are having moderate pain and 11(44%) samples are having severe pain. In post test 4(16%) samples are having mild pain, 15(60%) samples are having moderate pain and 6(24%) samples are having severe pain.

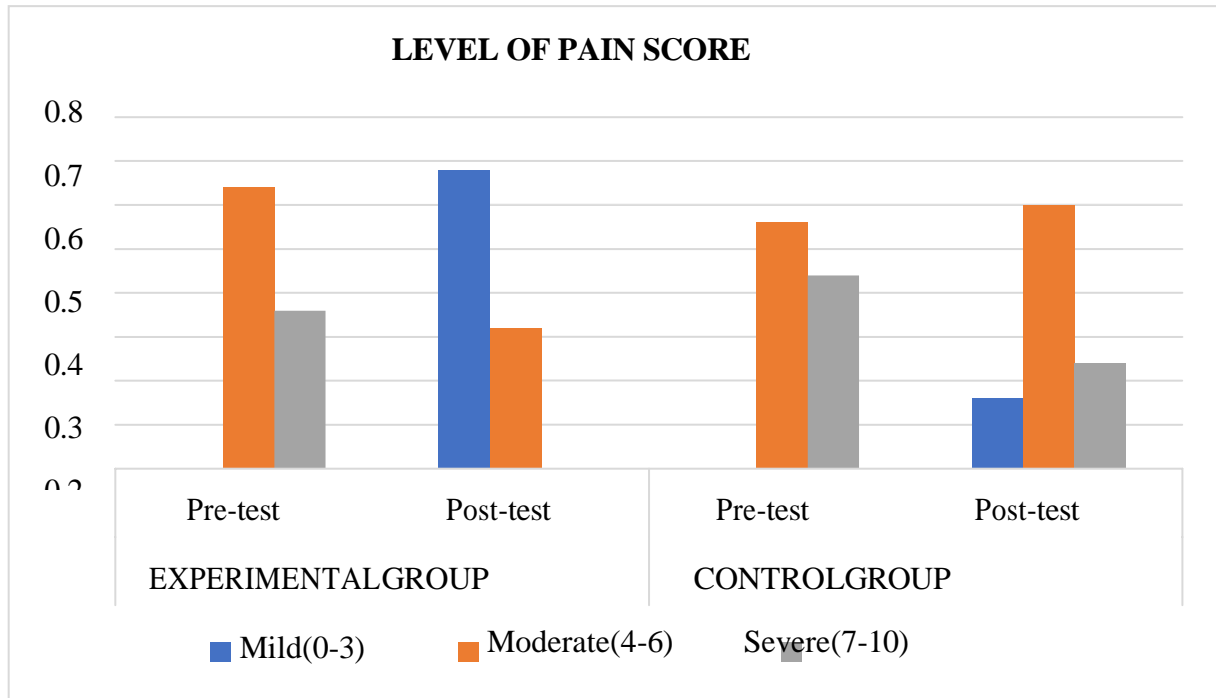


Figure 1:- Column graph shows description of pain score of samples according to level of pain.

Table 4:- Mean, mean difference, standard deviation (SD) and 't' test value of the pre-test and post-test pain score of samples. [N=50].

Groups		Mean	Mean difference	SD	Calculated 't' value	Table 't' value	df	Level of significance
Experimental group	Pre test	6.08	3.08	1.25	5.51	2.00	48	0.05
	Post test	3		1.38				
Control group	Pre test	6.24	1.28	1.45				
	Post test	4.96		1.81				

Table 4: Comparison between experimental and control group on pain scores obtained by the respondents regarding box breathing exercise on post operative patients shows that the mean in experimental group; pretest score was 6.08 and post test score was 3. In control group; pretest score was 6.24 and post test score was 4.96. The mean difference between the experimental and control group was 3.08 and 1.28. the table also shows the standards deviation in experimental group; pretest was 1.25 and posttest was 1.38 and in control group, pretest was 1.45 and posttest was 1.81. The calculated 't' value was 5.51 and the tabulated 't' value was 2.00 at 0.05 level of significance for 48 df, Above table reveals that the mean posttest experimental group was significantly higher than the mean pretest experimental group. The calculated 't' value ($t = 5.51$) was greater than the tabulated 't' value ($t = 2.00$). So, Null hypothesis is rejected and research hypothesis is accepted. Thus, Investigator concluded that box breathing exercise was effective in post operative patients and the pain score was reduce in experimental group.

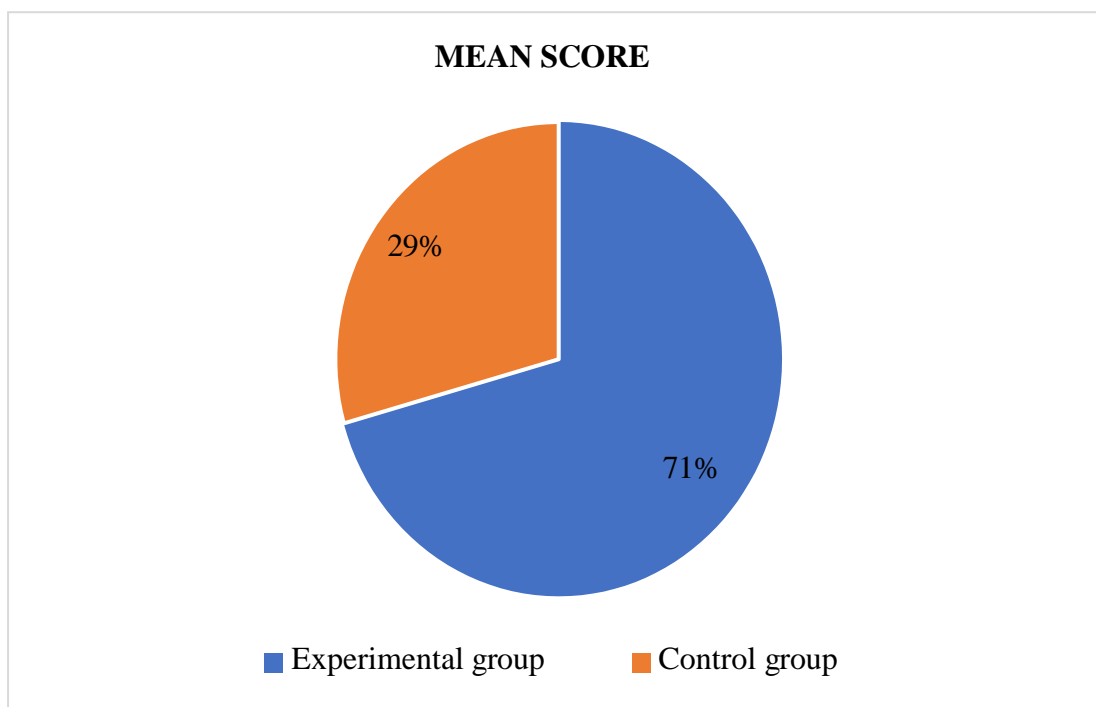


Figure 2:- A pie chart showing mean score of samples before and after giving box breathing exercise on post operative patients in experimental & control group.

Summary

The aim of the study on uses of box breathing exercise and its association with selected variable in terms of pain level among the post operative patients.

Based on the objective extensive research for literature was need to determine and develop the conceptual framework, research approach and methodology to conduct the study. Conceptual framework based on general system model was used to assess the knowledge of samples.

Research approach used for the study was quasi experimental. Present study was undertaken at Gandhinagar. Numerical pain rating scale was used by reviewing the literature and under the expert guidance of lecturer from Apollo Institute of Nursing, Gandhinagar.

The study comprises of total 50 patients was selected at Apollo Hospitals International Limited, Gandhinagar.

The investigator collected data by establishing rapport with subjects and confidentiality of their responses are assured. The data was analyzed and interpreted in terms of objectives of the study. Descriptive statistics are utilized for data analysis.

Conclusion:-

The study intends to assess the effectiveness of box breathing exercise on pain among post operative patient in selected hospitals of Gandhinagar. The study reveals that the post-test pain score is lower than the pre-test pain score regarding post-operative pain among patients of selected hospitals of Gandhinagar.

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