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Effectiveness of Progressive Muscle Relaxation Techniques in Reducing Post–Operative Pain

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ABSTRACT

Pain is a distressing unpleasant, sensory and emotional experience often caused by intense or damaging stimuli. It is usually transitory and lasts till the noxious stimulus is removed or the underlying pathology has healed. The degree of post-operative pain depends on the site of the surgery. Surgery on thorax and upper abdominal region are usually more painful. Progressive Muscle Relaxation Techniques offers excellent results. A Quantitative true experimental study was conducted in SVMCH& RC hospital with 40 Undergoing abdominal surgery samples. 20 in experimental and 20 in control group are chosen by simple random sampling technique. Pre test and post test was conducted in both groups. Progressive Muscle Relaxation Techniques was provided to experimental group for I week. The post test mean and SD of experimental group was 1.50 ± 0.68 with't' value of 6.78 which was significant at p<0.05 level. It was proven that the Progressive Muscle Relaxation Techniques is effective for post – operative pain.

Keywords*: Abdominal Surgery, Progressive Muscle Relaxation Techniques, Post–operative pain.*

PROBLEM STATEMENT

"An experimental study to assess the effectiveness of Progressive Muscle Relaxation Techniques in reducing Post-Operative Pain among the patients undergoing abdominal surgery at SVMCH&RC, Puducherry."

OBJECTIVES OF THE STUDY

1) To assess the level of pain among the patients undergoing abdominal surgery in SVMCH&RC.
2) To evaluate the effectiveness of Progressive Muscle Relaxation Techniques in reducing the pain among the patients undergoing abdominal surgery in SVMCH and RC.
3) To find out the association between level of pain with the selected demographic variables among patients undergoing abdominal surgery in SVMCH&RC.

HYPOTHESES

1) **H_1:** There will be a significant relationship between the level of pain and progressive muscle relaxation techniques among patients undergoing abdominal surgery.
2) **H_2:** There will be a significant association between the levels of pain with the selected demographic variables among patients undergoing abdominal surgery.

METHODOLOGY

Quantitative true experimental pre test - post test design was adopted for the study. The study was conducted in Sri Venkateshwara Medical College Hospital and Research Centre, Ariyur, Puducherry. The sample of this study comprises of patients with abdominal surgery. The 40 patients, 20 in experimental and 20 in control group were selected by Simple Random sampling technique. Clients with

undergoing abdominal surgery for I to V post-operative day. Clients who are unable to do progressive muscle relaxation techniques, clients who are is not able to perceive pain, clients with post-operative complications were excluded from this study. The tool was developed in English after thorough literature reviews. It consist of Demographic and Clinical variables like age, gender, education, employment, income, marital status, religion, dietary pattern, duration of illness and place of residence, pain duration, types of pain killer, types of surgery, status of wound, types of suture, post operatives day. Post-operative pain was measured by using Numerical Pain Rating Scale and asking the patient to verbalize the severity of the pain on the scale (Figure 1).

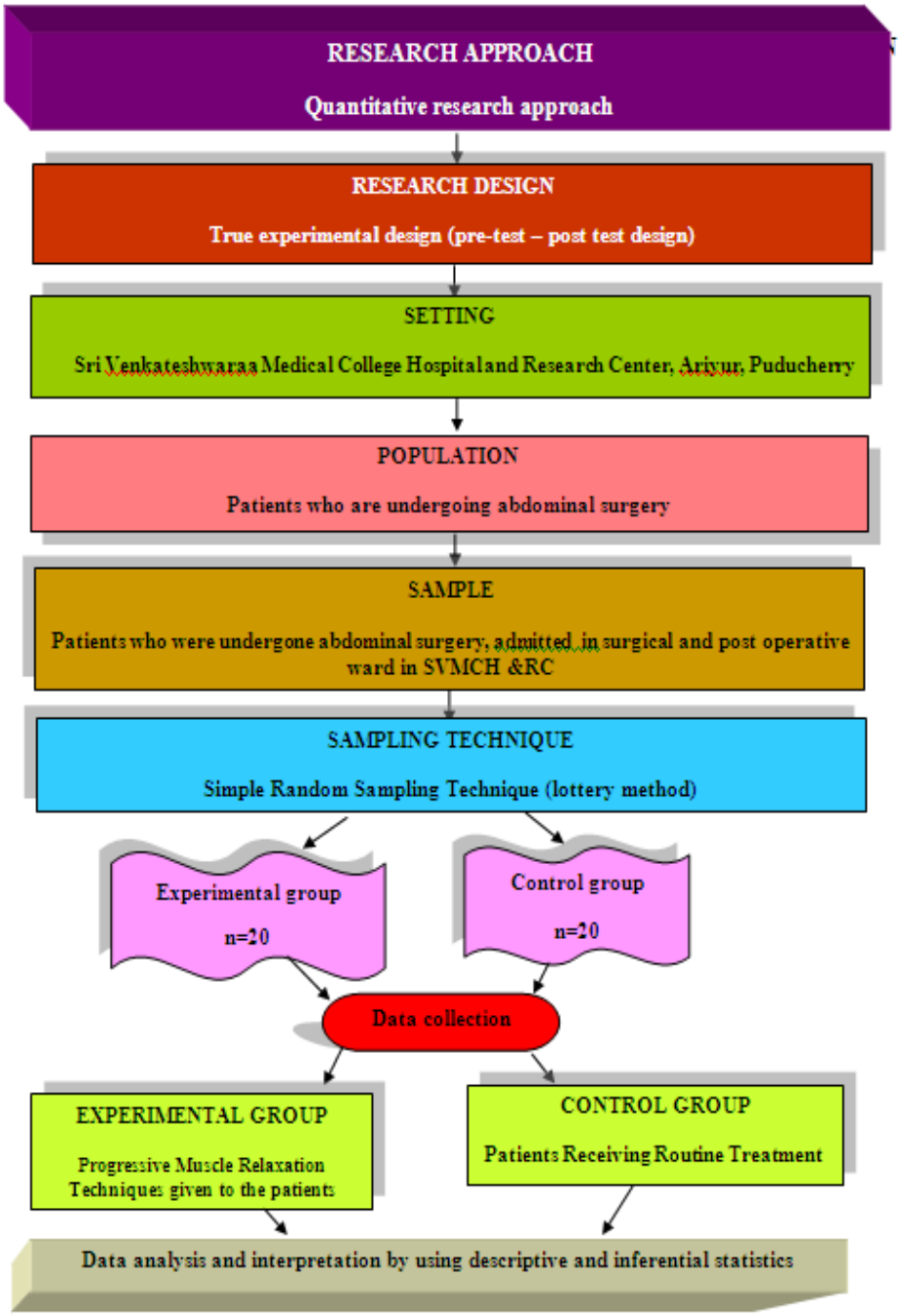

Fig 1. Schematic Presentation of Research Design

Grading of Scores

The obtained scores were to be computed for 10 and the intensity of the post-operative pain will be graded as follows:

LEVEL OF PAIN	SCORE
No pain (0)	1
Mild pain (1-3)	2
Moderate pain (4-7)	3
Severe pain (8-10)	4

Validity of the tool was obtained from 2 experts in the field of Medical Surgical Nursing. The tool was found adequate and the reliability of the tool was computed using karlpearson's coefficient of correlation. Coefficient of correlation between the split half, r = 0.68. Thus the tool was reliable preceded for pilot study. Prior to the collection of data written permission was obtained from the Ethical committee. Pilot study was conducted. The post – operative pain was measured by using Numerical Pain Rating Scale and assessed the effectiveness. It proves that the reliability and feasibility for the study.

The data was collected over a period of four weeks after obtaining consent from authorities, Pre test and Post test was conducted in both experimental and control group. Experimental group patients received Progressive Muscle Relaxation Techniques. While in control group patient received only routine treatment. The intervention was given for I post-operative days the post test was conducted for both the groups on the V post-operative day of the intervention by Numerical Pain Rating Scale. The collected data was analyzed and tabulated by descriptive and inferential statistics.

Appropriate statistical technique such as descriptive statistics was used to analyze demographic and clinical variables. Inferential statistics ('t' test) was used to assess the significance in reducing post - operative pain status score in experimental and control group and to assess the effect of Progressive Muscle Relaxation Techniques. Chi-square test was used to find the relationship between the selected demographic and clinical variables with final post – operative pain status scores.

RESULTS AND DISCUSSION

Distribution of patients according to their demographic and clinical variables in experimental and control group

Demographic variables with respect to age, in experimental group 10(50%) of them were aged between 41-45 years and control group 8 (40%) of them were aged between 41-45 years. With regards to gender 13(65%) were males in experimental group and control group. In education experimental group 10(50%) were had secondary school education and in control group 4 (20%) were graduate. Regarding employment 5(25%) were working as government employee in experimental group and 11(55%) were working as private employee in control group. Regard to income 4(20%) were getting salary less than Rs 5000 per month in experimental group and 5(25%) were getting less than Rs 15000 per month in control group. On marital status 20(100%) were married in experimental and control group. Regard to religion in experimental group 9 (45%) and control group 14(70%) were Hindu. On dietary pattern, majority 10(50%) and 13(65%) were prefer mixed diet in experimental group and in control group respectively. In duration of illness 6 (30%) were in experimental had illness for below 6 month and 3(15%) in control group were suffered more than one year. In place of residence 11(55%) were residing at rural in experimental group and 5(25%) in control were residing in urban.

Regarding the clinical variables, majority of 13(65%) had pain for more than 4 hours, in types of pain killer 19(95%) of

experimental group and 12(60%) of control groups got injectable analgesics. In case of types of surgery 20(100%) of experiment group and control group were undergone major surgeries. In status of wound 20(100%) were healthy in experimental and control group. In regard to post-operatives day 20(100%) of experimental group and 12(60%) of control group were in first post-operative day.

Pre test, majority of the patient 17 (85%) had severe pain in experimental group and 18(90%) had severe pain in the control group (Figure 2). Post test, majority 14(70%) had no pain in experimental group and 13(65%) had severe pain in the control group (Figure 3).

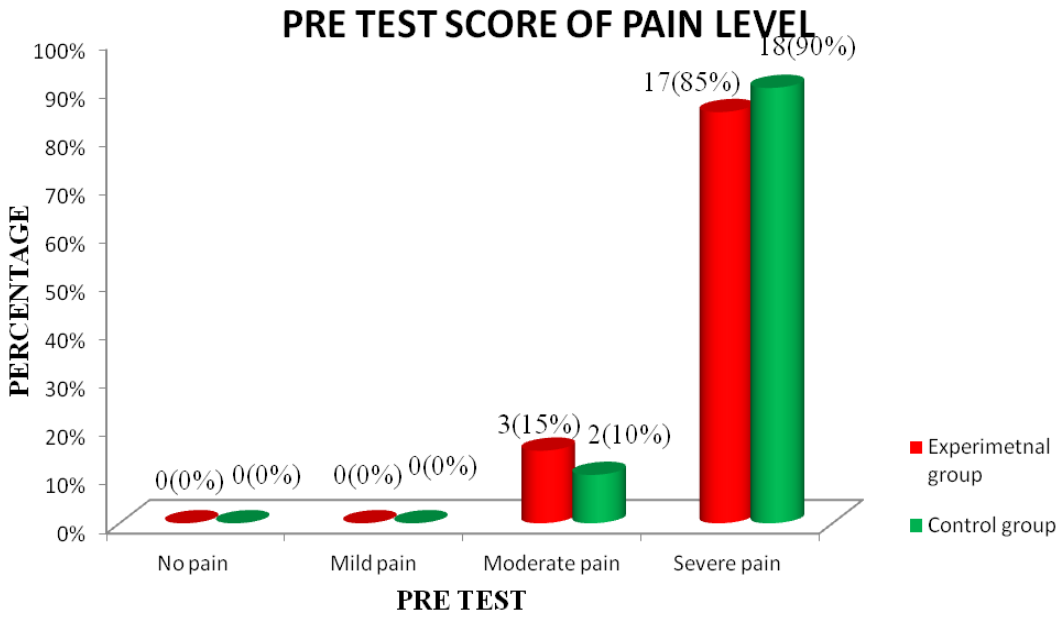

Fig.2.Pre-test Level of Post Operative Pain Status in Experimental and Control Group

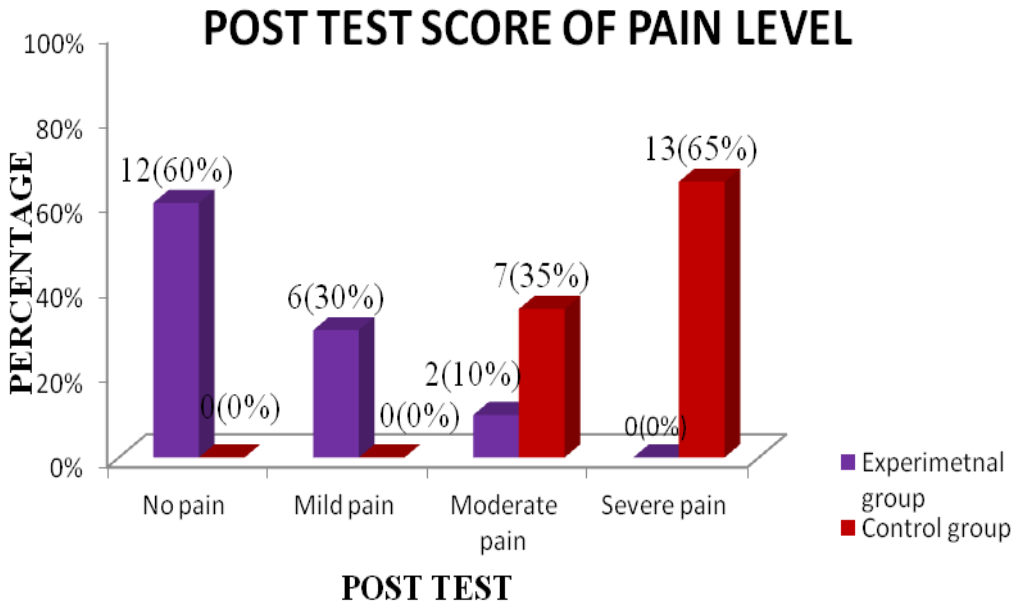

Fig.3.Post Test Level of Post Operative Pain Level Status on Experimental and Control Group.

Effectiveness of Progressive Muscle Relaxation Techniques on level of post–operative pain in experimental and control group

S. No.	Group	Mean	SD	't' value	p value
1.	Experimental	1.50	0.68	6.7878	P < 0.05
2.	Control	3.20	0.89		

The post test Mean and SD on level of post–operative pain among undergoing abdominal surgery patient in experimental group was 1.50±0.68 and in control group was 3.20±0.89. The Calculated't' value of 6.7878 which was statistically significant at p<0.05 level. It was proven that the Progressive Muscle Relaxation Techniques is effective for reducing post–operative pain.

ASSOCIATION BETWEEN THE LEVEL OF PAIN WITH THE SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES.

Chi-square test on level of pain with the selected demographic variables.

(n=40)

S.No	Demographic Variables	Pain level			Chi-Square Test
		Mild	Moderate	Severe	
1.	**AGE IN YEARS**				
	a.41- 45 years	2	7	11	6.290 NS P<0.05
	b.46- 50 years	3	5	6	
	c.51- 55 years	0	0	6	
	d.56- 60 years	0	0	6	
2.	**GENDER**				
	a.Male	3	6	19	2.449 NS P<0.05
	b.Female	2	5	5	
3.	**EDUCATION**				
	a. Non formal education	2	2	2	6.117 NS P<0.05
	b. Primary	3	2	8	
	c. Secondary	2	1	10	
	d. Graduates	0	1	7	
4.	**EMPLOYMENT**				
	a. Government	2	5	5	6.006 NS P<0.05
	b.Private	3	5	14	
	c.Self-employee	0	0	2	
	d.None	0	0	4	
5.	**INCOME**				
	a.Less than 5000 per month	2	3	4	6.656 NS P<0.05
	b.Less than 10000 per month	1	2	13	
	c.Less than 15000 per month	0	4	10	
	d.Less than 25000 per month	0	0	1	
6.	**MARITAL STATUS**				
	a.Single	0	0	0	0.456

	b.Married	4	6	30	NS P<0.05
	c.Unmarried	0	0	0	
	d.Widow	0	0	0	
7.	**RELIGION**				
	a.Hindu	2	3	19	2.855 NS P<0.05
	b.Christian	1	2	6	
	c.Muslim	2	2	4	
	d.Others	0	0	0	
8.	**DIETARY PATTERN**				
	a.Vegetarian	1	2	2	5.971 NS P<0.05
	b. Non vegetarian	1	1	10	
	d.Both	1	2	20	
9.	**DURATION OFILLNESS**				
	a.Below 6 month	1	5	13	6.522 NS P<0.05
	b.6 Months to one year	2	3	10	
	c.More than one year	2	3	1	
10.	**PLACE OF RESIDENCE**				
	a.Slum	0	0	0	0.141 NS P<0.05
	b.Rural	2	3	21	
	c.Urban	1	2	11	
CLINICAL VARIABLES					
1.	**PAIN DURATION**				20 S* P<0.05
	a.One hour	0	0	0	
	b.Two hour	0	0	0	
	c.Three hour	5	5	6	
	d.More than four hours	0	0	24	
2.	**TYPES OF PAIN KILLER**				
	a.Tablet	3	3	3	23.636 S* P<0.05
	b.Injection	0	0	31	
	c.Jell application	0	0	0	
	d.Spray	0	0	0	
3.	**TYPE OF SURGERY**				
	a.Major	2	3	35	0.092 NS P<0.05
	b.Minor	0	0	0	
4.	**STATUS OF WOUND**				
	a.Healthy	3	4	33	0.084 NS P<0.05
	b.Whoozing	0	0	0	
	c.Intacted	0	0	0	
5.	**TYPES OF SUTURE**				
	a.Observable	0	0	0	0.011 NS P<0.05
	b.Non observable	3	4	33	
	c.Clip	0	0	0	
6.	**POST-OPERATIVE DAY**				0.071 NS P<0.05
	a.First day	3	4	25	
	b.Second day	1	1	6	

	c.Third day	0	0	0	
	d.Fourth day	0	0	0	
	e.Fifth day	0	0	0	

From the table shows that there is a significant association found with duration of pain and types of pain killer. There is no significant association found with other demographic and clinical variables.

CONCLUSION

An experimental study was conducted to assess the effectiveness of Progressive Muscle Relaxation Techniques in reducing post-operative pain among the patients undergoing abdominal surgery in Sri Venkateshwaraa Medical Hospital and research center. The result of this study showed that Progressive Muscle Relaxation Techniques were effective in reducing post-operative pain among the patients undergoing abdominal surgery. There is significant association found between the level of pain with duration of pain and types of pain killer. There is no significant association found between other demographic and clinical variables.

IMPLICATIONS

1) The findings of the study have the following implications in the various areas of nursing.
2) Early identification of the risk factors and prevention of post-operative complications.
3) Encouraging the patients to follow medication, proper diet and exercise program to reduce the post-operative pain.
4) The field of Medical Surgical Nursing has greater responsibility to protect the health of the post-operative pain in undergoing abdominal surgery.
5) The nurses should be equipped with updated knowledge regarding post-operative pain among patients undergoing the abdominal surgery.
6) CNE program can be conducted regarding post-operative pain management.
7) More researches can be done to establish effectiveness of Progressive Muscle Relaxation Techniques.

RECOMMENDATIONS

1) A similar study can be conducted on a larger scale to generalize the study findings.
2) A similar study can be conducted to find out the effectiveness of other therapies like yoga, muscle relaxation technique, and other non-pharmacological management.
3) A comparative study can be done between aerobic exercise and isometric exercise for pain management.
4) A study can be conducted to evaluate the knowledge and attitude of nurses regarding
5) Progressive Muscle Relaxation Techniques in post-operative pain management.

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