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Effectiveness of progressive muscle relaxation theraphy on reduction of pain among patients with abdominal surgery at Shri Vinoba Bhave Civil Hospital, Silvassa

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Abstract
Surgical interventions occurs in every setting from the most resource rich to the most resource limited, and the need has increased greatly with the shifting patterns of disease. It is estimated that 234 million operations performed yearly. Pain is the most common problem after surgery in all clients. It has been postulated that relaxation training can be used to decrease muscle tension, a source of postoperative pain. The aim of the study was evaluate the effectiveness of Progressive muscle relaxation technique on level of pain among patients with abdominal surgery. A Quasi experimental repeated measures design (Nonrandomized control group pre-test post-test design) was adopted and 60 subjects were selected by using a non-probability convenient sampling technique. Overall result of the present study proved that the mean pain score on second post-operative day was less compared to mean pain score on the first post-operative day, which is interpreted as pain was reduced as day passes and during comparison of Post-test level of Pain, of control and experimental group the post-test mean difference of 1st day Pain is 0.633, 2nd day pain is 1.033, at 0.05 level of significance. Hence the study concluded PMR is an effective method to decrease the pain level among patients with abdominal surgery.

Keywords: effectiveness, progressive muscle relaxation technique (PMR), pain, abdominal surgery, post-operative day

Introduction

Surgery is an indivisible, indispensable part of health care which has made a remarkable gains in global health, It is estimated that 234 million operations performed yearly. 77,332 surgical admissions (80% at private hospitals) were recorded, Patients undergoing surgery require care as per the phases they are in, like, preoperative, intra operative and post-operative period, collectively called perioperative care.

During Postoperative care pain is the most common complaint of every patient. There may be a risk like patients cannot return to normal activities within seven days because of worst pain experience at 48 hours after day surgery. Evidence suggests that surgical pain suppresses the immune system and that this suppression is proportionate to the invasiveness of the surgery. Hence, proper pain management is necessary to help patients recover quickly during postoperative care.

The Progressive relaxation technique used in the post-operative period results in an improved comfort level of patients, decrease in abdominal muscle tension, reduction of distress caused by painful sensation.

Objectives of the study

1. To assess the level of pain among patients with abdominal surgery
2. To assess the effectiveness of progressive muscle relaxation technique on level of pain among patients with abdominal surgery.
3. To find the association of pre-test level of pain with selected demographic variables of patients with abdominal surgery.
4. To find the association of pre-test level of pain with clinical variables of patients with abdominal surgery.

Methodology

Reasearch approach: Quantitative (Quasi Experimental) Research approach.

Reasearch Design: Quasi Experimental Repeated Measure Design.

Reasearch Setting: Surgical and Gynaecological unit of Shri Vinoba Bhave Civil Hospital, Silvassa.

Population: In the present study it includes patient who are subjected for elective abdominal surgery

Sample and Sample Size: The study includes patients who are subjected for elective abdominal surgery 60 patients (30 in control group and 30 in experimental group) in in Shri Vinoba Bhave Civil Hospital, Silvassa.

Sampling Technique: Samples were obtained through Non Probability purposive sampling techniques.

Sampling Criteria

The study included subject who are Male or female within age of 18 -60 years who able to communicate in Hindi or English and who stays at least for 3 days after surgery. It excluded subject who developed post-operative complications, those posted for emergency surgery patients with multiple trauma and physical and mental disability.

Description of Tool

1. Section A

a. Demographic variables
b. Clinical data

2. Section B

Pain numerical scale (10 point)

Ethical Considerations

Ethical clearance was obtained from the institutional ethical committee of Shri Vinoba Bhave Civil Hospital, Silvassa, and informed consent was obtained from study participants.

Results

Table 1: Frequency and percentage distribution of subjects based on demographic variables.

N=60

Sr. No.	Demographic Data	Control Group		Experimental group	
		f	%	f	%
1.	Gender				
	Male	15	50	8	26.7
	Female	15	50	22	73.3
2.	Age in years				
	20-29	11	36.6	5	16.7
	30-39	5	16.7	10	33.3
	40-49	8	26.7	10	33.3
	50-59	6	20	5	16.7
3	Marital status				
	Married	26	86.7	28	93.3
	Unmarried	4	13.3	2	6.7
4	Education				
	Illiterate	8	26.7	17	56.7
	Primary school	2	6.7	2	6.7
	Middle school	3	10	4	13.33
	Secondary School	10	33.3	1	3.33
	Higher secondary/diploma	2	6.6	2	6.7
	Graduate	5	16.7	4	13.3
5.	Occupation				
	Labour	4	13.3	0	0
	Self-employee	7	23.3	8	26.7
	Private employee	8	26.8	10	33.3
	Homemaker	10	33.3	12	40
	Unemployed	1	3.3	0	0
6.	Diet				
	Vegetarian	3	10	5	16.7
	Mixed	27	90	25	83.3
7.	Type of family				
	Bachelor	0	0	1	3.3
	Nuclear	30	100	20	66.7
	Joint	0	0	9	30
8.	History of surgery				
	Yes	12	40	8	26.7
	No	18	60	22	73.3

The above table indicates that the majority of subjects 22 (73.3%) were females in experimental and in control group both were equal in number 15 (50%) were males and 15 (50%) females. Most of the subjects10 (33.3%) were aged between 30-39 years & 40 - 49 years in experimental group while 11 (36.6%) in control group aged between 21-29 years. Majority of the subjects were married both in experimental 28 (93.3%) and control 26 (86.6%). Majority of subjects were Homemaker 12 (40%) in experimental group and 10 (33.3%) were Private employee in control group. Majority of subjects both in experimental 25 (83.3%) and in control 27 (90%) group were taking mixed diet.

Table 2: Distribution of subjects based on Clinical variable

N=60

Sr. No.	Clinical variables	Control Group		Experimental group	
		f	%	f	%
1.	Height in cm				
	151-155	6	20	8	26.7
	156-160	11	36.7	18	60

	161-165	13	43.3	4	13.3
2.	Weight in kg				
	36-45	2	6.6	2	6.6
	46-55	18	60	11	36.7
	56-65	5	16.7	11	36.7
	66-75	5	16.7	6	20
3	BMI				
	18-22	25	83.3	17	56.7
	23-26	5	16.7	12	40
	27-30	0	0	1	3.3
4.	Surgery				
	Appendectomy	11	36.7	10	33.3
	TAH	10	33.3	13	43.3
	Epigastric hernia	1	3.3	2	6.7
	Ovarian cyst	1	3.3	0	0
	Ectopic pregnancy	1	3.3	2	6.7
	Peritonitis	4	13.3	2	6.7
	Oophorectomy	1	3.3	1	3.3
	Iliostomy	1	3.3	0	0
5.	Site of surgery				
	MC Burney point	12	40	10	33.3
	Lower abdomen	11	36.7	16	53.3
	Transverse incision	4	13.3	2	6.7
	Epigastric	2	6.7	2	6.7
	Right lower quadrant incision	1	3.3	0	0
6.	History of Medical illness				
	Yes	5	16.7	1	3.3
	No	25	83.3	29	96.7
7.	Frequency of Analgesia				
	BD	8	26.7	11	36.7
	TDS	22	73.3	19	63.3

The above table indicates that majority of the subject's BMI in experimental group 17 (56.7) and 25 (83.3%) in the control group were between 18-22. The majority of patients have undergone appendectomy 10 (33.3%) in experimental 11 (36.7%) in the control group.

Regarding to Site of surgery, majority of patients in the experimental group was lower abdomen 16 (53.3%) and in the control group was MC Burney point 12 (40%). Majority of samples both in experimental 29 (96.7%) and control group 25 (83.3%) has no any previous medical history. Majority of samples both in experimental 19 (63.3%) and control group 22 (83.3%) were taking analgesics thrice a day.

Table 3: Comparison of Pre and Post Level of anxiety among experimental Group

Pain	Pre test		Post test		Mean difference	T value	Inference
	Mean	SD	Mean	SD			
1st day	8.63	0.615	7.37	0645	1.267	10.11	S
2nd day	7.17	0699	5.80	0.468	1.67	12.84	S

Table indicates that: The mean difference of 1st day Pain is 1.267, 2nd day pain is 1.367. The calculated t- value of 1st day pain is 10.11, 2nd day pain is 12.84, which is greater than the critical value (2.0010) which shows that progressive muscle relaxation is effective.

Table 4: Comparison of Post Level of pain between control and experimental Group

N=60

Pain	Control Group		Experimental Group		Mean difference	T value	Inference
	Mean	SD	Mean	SD			
1st day	8	0.830	7.37	0645	0.633	3.298	S
2nd day	6.83	0.791	5.80	0.468	1.033	4.84	S

The above table indicates that: The post-test mean difference of 1st day Pain is 0.633, 2nd day pain is 1.033 which greater than the critical value (2.0010) at 0.05 level of significance, the stated hypothesis, there is a significant mean difference in the level of pain among experimental group and control group patients on practicing progressive muscle relaxation technique is accepted at 0.05 level of significance.

Table 5: Association between Pre-test level of pain with selected demographic variables of patients with abdominal surgery

Sr. No.	Demographic Variables	Chi square Value	df	Critical Value*	Inference
1	Gender	1.6359	1	3.84	NS
2	Age	2.7966	3	7.82	NS
3	Marital status	0.1129	1	3.84	NS
4	Education	5.7627	5	11.07	NS
5.	Occupation	2.37	4	9.49	NS
6.	Diet	0.1564	1	3.84	NS
7.	Type of family	0.2033	2	5.99	NS
8.	Histroy of surgery	0.5081	1	3.84	NS

Table indicates that: The calculated value of demographic variables is less than the critical value of $p<0.05$ level of significance. The stated hypothesis "There is a significant association between pain, of patients with abdominal surgery with their selected demographical variables" is rejected at $p < 0.05$ level of significance. Hence, there is no significant association between pain and demographic variables of patients with abdominal surgery.

Table 6: Association between Pre-test level of Pain with Clinical variables of patients with abdominal surgery

Sr. No.	Clinical variables	Chi square	df	Critical Value*	Inference
1.	Height in cm	2.5722	2	5.99	NS
2.	Weight in kg	1.0870	3	7.82	NS
3	BMI	0.4358	2	5.99	NS
4.	Name of the surgery	1.890	7	14.07	NS
5.	Site of surgery	1.7565	4	9.49	NS
6.	History of Medical illness	0.1129	1	3.84	NS
7.	Frequency of Analgesia	0.4712	1	3.84	NS

The table indicates that: The calculated value of variables are less than the critical value at $p<0.05$ level of significance. The stated hypothesis "There is significant association between pain of patients with abdominal surgery with their selected clinical variables" is rejected at $p < 0.05$ level of significance. Hence, there is no significant association between pain and clinical variables of patients with abdominal surgery.

Interpretation and Conclusion

The overall findings of the study clearly showed that the relaxation technique reduces pain after surgery which was evidenced by mean values of pain between the control and experimental group. On the basis of the present study, it can be concluded that pain among patient with abdominal surgery was reduced due to progressive muscle relaxation technique. Hence, PMR technique is a safe, better and inexpensive measure which brings about a higher level of relaxation and reduction of pain. Patients have greater comfort during the post-operative period and healing hastens by reducing the number of days of hospitalization.

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