

Effect of Progressive Relaxation Therapy among Orthopaedic Trauma Patients

Sathiya K

Adopting the right attitude can convert a negative stress into a positive one.

-Hans selye

Abstract

With urbanisation there has been phenomenal increase in mortality and morbidity due to orthopaedic trauma. Often the survivors are under much stress. In this study, it was therefore sought to assess the effectiveness of Progressive Relaxation Therapy among in-patients of orthopaedic ward of selected hospitals of Chennai. The results showed that perceived stress scores were remarkably high among orthopaedic patients suggesting that nurses should increase their awareness about stress management techniques for the benefit of patients of orthopaedic trauma.

Post-traumatic Stress Disorder (PTSD) is a mental illness that can occur after injury. It was first described among soldiers who had been in combat and experienced severe emotional or physical trauma. It is part of the body's response to a horrible situation. Orthopaedic nurses should thoroughly evaluate all patients for PTSD by looking for changes in patient's normal behaviour including anger, agitation, feeling numb or detached from the accident, flashbacks, headache, insomnia, irritability, lack of interest in daily activities and nightmares. A serious PTSD can have a negative impact on their quality of life.

The physical component involves the tensing and relaxing of muscle groups over the legs, abdomen, chest, arms and face. In a sequential pattern, with eyes closed, the individual places a tension in a given muscle group purposefully for approximately 10 seconds and then releases it for 20 seconds before continuing with the next muscle group. This exercise will help you to lower your overall tension and stress levels, and help you relax when you feel anxiety. It can also help reduce physical problems such as stomach aches and headache, as well as improve your sleep.

The progressive long-term benefits of muscle relaxation include: reduction of salivary cortisol levels and generalised anxiety, decreased blood pressure, heart rate, decreased headaches, better man-

agement of cardiac rehabilitation, improvement of quality of life of patients after bypass surgery, and otherwise.

The prevalence of PTSD after orthopaedic traumas in different studies has been reported high although there is diversity in its magnitude in different areas. In a study in Los Angeles, 10 patients experienced PTSD. In another study in Germany, patients experienced PTSD after six months. In another study in the United States, nine patients with orthopaedic traumas had PTSD. Also in another four months follow-up of the orthopaedic patients, the prevalence of PTSD was reported to be 23 percent.

Objectives

The study was carried out with the following objectives to:

- ❑ Assess the level of stress among patient subjected to orthopaedic trauma,
- ❑ Assess the effectiveness of progressive relaxation therapy on stress among patients subjected to major orthopaedic trauma, and
- ❑ Associate the level of stress with selected background variables among patients subjected to major orthopaedic trauma.

Review of literature

In a randomised clinical trial conducted by Emery et al (2006), 55 trauma survivors after motor vehicle accident were assigned to 25 minutes progres-

The author is Lecturer in Sri Ramachandra University, Faculty of Nursing, Porur, Chennai (Tamil Nadu).

sive muscle relaxation condition. Following the brief intervention, participants completed self-report questionnaire. Result indicated progressive muscle relaxation condition and significant decrease in post-traumatic stress as against non-intervention patients. Result supported the efficacy of progressive muscle relaxation in reducing post-traumatic stress disorder providing further evidence of the utility of behavioural stress management strategies.

Brown, Sterling and Hanley (2006) conducted randomised controlled trial of progressive muscle relaxation training in stress management. Training in relaxation technique was provided to 69 patients among earthquake survivors for a period of six weeks. Level of post-traumatic stress was measured by detailed assessment of post-traumatic stress. Results showed significant reduction in post-traumatic stress symptoms (at $p \leq 0.001$).

Barbe RP, et al (2012) showed that patients with post-traumatic stress disorder had significantly higher Injury Severity Scores ($p=0.04$), a higher sum of Extremity Abbreviated Injury Scores ($p=0.05$) and a longer duration since the injury than those without post-traumatic stress disorder ($p<0.01$). However, none of these three variables demonstrated a good or excellent ability to discriminate between patients who had post-traumatic stress disorder and those who did not. The response to the item, "The emotional problems caused by the injury have been more difficult than the physical problems," was significantly associated with the presence of post-traumatic stress disorder ($p<0.0001$) and showed a fair ability to identify patients with the disorder. The emotional problems caused by the injury have been more difficult than the physical problems," may meet diagnostic criteria for this disorder

Mohammad Reza Fayyazi Bordbar, Ali Reza Hootkani, Ali Akbar Samari (2010) attempted to determine the prevalence of post-traumatic stress disorder among patients following an orthopaedic traumatic injury and to identify changes in vital signs and demographic variables associated with the disorder among 100 in-patients of orthopaedic clinic in Imam Reza Hospital. The study revealed that after one month, 5 patients (8.3%) and after three months 6 patients (12.8%) had complete PTSD criteria and 10 patients (16.7%) after one month and 6 patients (12.8%) after three months developed sub-syndromal PTSD. Presence of high pulse rate, high intensity of the tolerated pain, more somatisation symptoms and more anxiety symptoms predicted the development of PTSD after one month.

According to a study undertaken by Harvard School of Public Health and WHO, the road traffic accidents rank third among all diseases which shall cause death all over the world by the year 2020. Now it is world's ninth most important health problem. According to WHO report (August 2000) on the global road safety crisis in 2020, an estimated 1.26 million people world-wide died as a result of road traffic injuries accounting for 2.2 percent of global mortality and were responsible for 25 percent of all deaths due to injury.

The number of road accidents in India per 1000 vehicles is almost twice that in the UK. Every 5 minutes one life was lost on the Indian roads in the year 2006. According to Tamil Nadu traffic police, in 2007 there were 9275 fatal accidents involving 9,560 persons; the seriously injured persons in the accidents were 6173.

Methodology

The conceptual frame work was based on the modified Roy's Adaptation Model. The research design used was single group quasi experimental design. The study was conducted in orthopaedic ward of the selected hospitals of Chennai. Sample was collected from Sri Ramachandra Hospital, Porur (Chennai). The study population consisted of orthopaedic trauma patients in Sri Ramachandra Hospital, and the study sample consisted of patients admitted in orthopaedic ward with various orthopaedic trauma like both bone fracture in lower limb, femur fracture and pelvic bone fracture.

Inclusion criteria: Both male and female patients above 25 years of age, admitted in the orthopaedic ward with both bone fracture in lower limb, femur fracture and pelvic bone fracture, able to speak and understand Tamil / English and those who were willing to participate in the study, were included.

The technique used was random sampling; patients fulfilling the criteria were selected using lottery method.

Tools used: (i) Background variables such as age, sex, type of family, occupation, socioeconomic status, frequency of trauma and duration of hospital stay and (ii) Perceived stress scale was adapted and reproduced by special permission of the publisher. It has 10 items, each carrying maximum 5, minimum 0; it is like 4-point Likert's scale. The score was interpreted like 1-13 mild stress, 14-26 moderate and 27-40 considered as severe stress.

While preparing for relaxation, distraction to five senses was minimised and practicing after big heavy meals was avoided.

Table 1: Frequency and percentage distribution of background variable among patients subjected to major orthopaedic trauma

S.No	Background variables	Frequency	Percentage
1	Age (in years)		
	a. 21-30	15	50
	b. 31-40	7	23
	c. 41-50	8	27
2	Sex		
	a. Male	25	83
	b. Female	5	17
3	Occupation		
	a. Daily wage worker	7	23
	b. Private	15	50
	c. Government	3	10
	d. Self employed	5	17
4	Duration of hospitalisation		
	a. < 2 weeks	9	30
	b. 2-4 weeks	20	67
	c. > 4 weeks	1	3
5	Type of family		
	Nuclear	18	60
	Joint	12	40
6	Income (Rs / month)		
	a. < 2000	5	17
	b. 2001-4000	13	43
	c. > 4001	12	40
7	Frequency of trauma		
	a. < 2 times	13	43
	b. 2- 4 times	15	50
	c. > 4 times	2	7
8	Marital status		
	Married	6	40
	Unmarried	18	60

Table 2: Percentage and frequency distribution of subjects in relation to stress

S.No.	Level of stress	Pre-test		Post-test	
		Frequency	%	Frequency	%
1	Mild	-	-	3	10
2	Moderate	9	30	20	67
3	Severe	21	70	7	23

Steps

1. Place the patient in comfortable position for relaxation, ask the patient to slow down breathing and give him / her permission to relax.
2. Instruct the patient when you are ready to begin, tense the muscle group in all parts of body muscles except fracture area. Assure that the patient can feel the tension and keep the muscle tensed for approximately 5 seconds.
3. Relax the muscles and keep it relaxed for approximately 10 seconds. It may be helpful to say something like 'Relax' while relaxing the muscle.
4. After completing the relaxation procedure, ask patient to remain seated for a few moments allowing oneself to become alert.

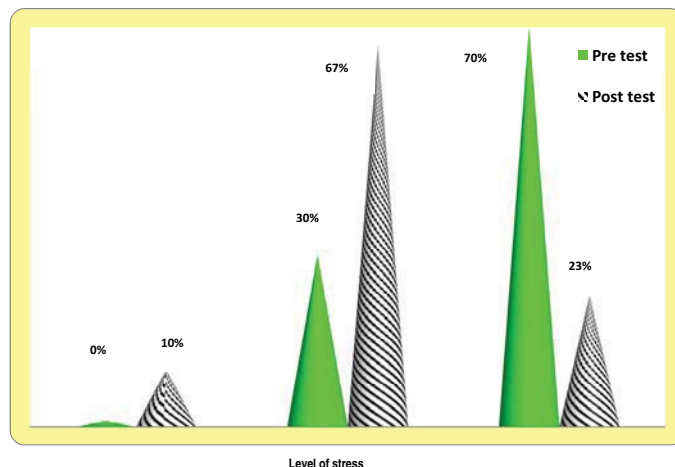
Result and Discussion

Table 1 reveals the percentage distribution of patients according to the background variables such as age, sex, occupation, duration of hospital stay, type of family, income, frequency of trauma and marital status. Regarding age, 15 (50%) patients belonged to 21-30 years of age group, 7 (23%) 31-40 years and 8 (27%) patients were 41-50 years of age; 25 (83%) patients were male and 5 (17%) patients were female. As for occupation, 7 (23%) patients were doing daily wage work, 15 (50%) patients were doing private jobs, 3 (10%) were in government jobs and 5 (17%) patients were self-employed. With regard to period of hospitalisation, 9 (30%) patients were hospitalised for less than 2 weeks, 20 (67%) patients were hospitalised for 2-4 weeks and 1 (3%) patients for >4 weeks.

Regarding type of family, 18 (60%) patients were from nuclear family and 12 (40%) patients from joint family. As for monthly income, 5 (17%) of them earned less than Rs. 2000 per month, 13 (43%) earned Rs. 2001-4000 per month and 12 (40%) earned more than Rs. 4001 per month. With respect to frequency of trauma, 13 (43%) patients had < 2 times, 15 (50%) patients had 2-4 times and 2 (7%) of them had > 4 times; 6 (40%) of them were married and 24 (60%) were unmarried.

In the pre-test group, out of 30 subjects 9 (30%) had moderate stress and 21 (70%) subjects had severe stress (Table 2 and Fig 1). The group post-test shows that out of 30 subjects with orthopaedic trauma, 3 (10%) had mild stress, 20 (67%) had moderate stress and 7 (23%) subjects had severe stress. The scores for the level of stress were significantly low in post-test when compared to pre-test.

The comparative effectiveness of progressive relaxation therapy in pre-test post-test showed that in the pre-test, stress mean was 17.63 and



standard deviation was 1.75. In the post-test, the stress mean was 8.13 and standard deviation was 2.88.

Comparison of pre-stress score before and after progressive relaxation therapy showed that the stress pre-test post-test difference in mean to be 9.50, difference in standard deviation is 2.31 and 't' value was 22.47, which was statistically significant at the level of $p < 0.001$.

Association between the level of post-test stress with background variables

There was no association between age, sex, type family, occupation, marital status, frequency of hospitalisation and duration of hospital stay with selected background variables.

Implications

Nursing Practice: Nurses play a vital role in health care system and act as a liaison officers among patient, family members and health care team members. The use of PRT has least complication and diverts the patients mind thereby decreasing the level of stress. The nurse can implement such cost effective intervention to the patients with alternative and complementary therapy. They should update their knowledge by participating in in-service education and workshops regarding progressive relaxation therapy.

Nursing Education: The Nurse educator educates nursing students on managing stress with alternative therapy among orthopaedic patients through evidence-based practice in different methods of teaching.

Nursing Administration: Provision of facilities regarding PRT for the nurses will help them implement evidenced-based practice. The Nurse Administrator can organise in-service education to facilitate Nurses in understanding the stress and conduct separate sessions for orthopaedic staff based on the needs of the patients.

Nursing Research: The practicing Nurses need to be encouraged to conduct research based on the issues faced while rendering care to the patients. The

Nursing experts and mentors must motivate and support the Nurses and nursing students to conduct the research and utilise the research findings into practice.

Recommendations

Similar study can be conducted on a large sample. A comparative study can be done among male and female subjects. Similar study can be done for longer period to note effectiveness of progressive relaxation therapy.

Conclusion

Perceived stress scores were remarkably high among orthopaedic patients. This may be due to lack of information to patients and family members about prognosis. Evidence-based nursing practice must take a higher profile to increase awareness of various stress management techniques to the patients. Nurses have a vital role in teaching the patients the coping strategies both in hospital and community settings.

References

1. Brewin CR, Andrews B, Valentine JD. Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *The Journal of Consult Clinical Psychology* 2013; 68(5): 748-66
2. Charney D. Psychobiological mechanisms of resilience and vulnerability - Implications for successful adaptation to extreme stress. *The American Journal Orthopaedics* 2012; 161(2): 195-216
3. Starr AJ, Smith WR, Frawley WH, Borer DS, Morgan SJ, Reinert CM, et al. Symptoms of posttraumatic stress disorder after orthopaedic trauma. *The Journal of Bone Joint Surgery* 2013; 86(3): 1115-21
4. Ongecha-Owuor FA, Kathuku DM, Othieno CJ, Ndeti DM. Post-traumatic stress disorder among motor vehicle accident survivors attending the orthopaedic and trauma clinic at Kenyatta National Hospital. *Africa Medical Journal* 2013; (8): 362-66
5. Mason S, Turpin G, Woods D, Wardrope J, Rowlands A. Risk factors for psychological distress following injury. *The British Journal of Clinical Psychology* 2006; 45(2): 217-30

Attention Advertisers !

Advertisers of the Admission Notices in the *Nursing Journal of India* for the academic year 2015-2016 for Schools / Colleges of Nursing are required to submit the copy of Indian Nursing Council (INC) recognition certificate along with the advertisement and payment, otherwise the advertisement shall be summarily rejected.

- Chief Editor