

## EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION TECHNIQUE ON PSYCHOLOGICAL SYMPTOMS AMONG PATIENTS RECEIVING CHEMOTHERAPY

**Mrs. Bhawna Gupta\* | Dr. Amandeep Kaur\*\***

\*Ph.D Scholar, Himalayan University, Itanagar, Arunachal Pradesh, India.

\*\*Research Supervisor, Himalayan University, Itanagar, Arunachal Pradesh, India.

### ABSTRACT

WHO reported that cancer killed 5,56,400 people in the country in 2010; (30 to 60 years) age groups accounted for 71% death and in 2010 cancer alone accounted for 8% of the 2.5 million total male deaths and 12% of the 1.6 million total female deaths in the age group (35 to 69 years)<sup>1</sup>. The present study is aimed to assess the effectiveness of progressive muscle relaxation technique on psychological symptoms among cancer patients receiving chemotherapy. A Hamilton anxiety and depression rating scale was used to collect data from a sample of 20 cancer patients receiving chemotherapy, being admitted in a selected hospital of Amritsar in Punjab. 10 patients in experimental group and 10 patients in control group were selected using purposive sampling technique. The results of the study showed that progressive muscle relaxation technique is highly effective in reducing the psychological symptoms among cancer patients receiving chemotherapy in experimental group. The Z value for anxiety between pre-intervention and post-intervention was 1.732 which was found statistically non-significant in experimental group at  $p < 0.05$ . The Z value for anxiety between pre-intervention and post-intervention was 1.000 which was found statistically non-significant in control group at  $p > 0.05$ . Hence, it was concluded that progressive muscle relaxation technique had no effect in both experimental and control group. The Z value for depression between pre-intervention and post-intervention for depression was 2.456 which was found statistically significant in experimental group at  $p < 0.05$ . The Z value between pre-intervention and post-intervention was 0.577 which was found statistically non-significant in control group at  $p > 0.05$ . In control group the symptoms were not relieved. Hence, it was concluded that progressive muscle relaxation technique has significant effect in relieving psychological symptoms.

**Key Words:** Effectiveness, Progressive Muscle Relaxation Technique, Psychological Symptoms, Cancer patients, Chemotherapy.

### About Authors



Author Mrs. Bhawna Gupta is Research Scholar in Himalayan University, Itanagar, Arunachal Pradesh, India. She has attended various Seminars and conferences.



Author Dr. Amandeep Kaur is Research Supervisor in Himalayan University, Itanagar, Arunachal Pradesh, India. She has effective administrative and leadership skills. She is active researcher with many publications in her name. She has attended and organised various National and International conferences.

## INTRODUCTION

According to **WHO (2018)**,<sup>2</sup> cancer is one of the leading causes of morbidity and mortality worldwide, with more or less fourteen million new cases in 2012. The number of recent cases is predicted to rise by concerning seventieth over consequent a try of decades. Cancer is the second most leading reason for deaths globally, and was the cause of 8 (eight) million deaths in 2015. Globally, nearly one in six deaths is because of cancer. Around one third of deaths from cancer are because of the five leading behavioural and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use and alcohol use. Tobacco use is the most significant risk issue for cancer and is the cause of more or less twenty second of cancer deaths. Cancer inflicting infections, like liver disease and human non-malignant tumour virus (hvp), account for up to twenty fifth of cancer cases in low- and middle-income countries. Late-stage detection and inaccessible diagnosing and treatment are common. In 2017, solely twenty sixth of low-income countries reported having pathology services typically accessible within the public sector. Over ninetieth of high-income countries reported treatment services are accessible compared to but half-hour of low-income.

The various treatment modalities for cancer include chemotherapy, radiation therapy, and immunotherapy and so on. Chemotherapy has been recognised as an essential means of treating cancer by providing palliation. This systemic mode of treatment is particularly important to treat the advanced stage of cancer. It can be used alone, or in combination with radiotherapy or surgery. Patients afflicted by cancer receive chemotherapy as a mainstay of treatment. Chemotherapy is the use of anti-neoplastic agents to promote tumour cell death by interfering with cellular functions and division. Although chemotherapy is an important treatment modality, it brings various side effects to cancer patients. The various side-effects of chemotherapy are nausea & vomiting, pain, stomatitis, diarrhoea, constipation, alopecia, thrombocytopenia, leukopenia.<sup>3</sup>

A randomised clinical study was undertaken to assess the effectiveness of progressive muscle relaxation on anxiety, depression and quality of lifetime of cancer patients beneath therapy. Sixty cancer patients within the city medical specialty and medical specialty ward were indiscriminately hand-picked and divided into 2 teams of intervention and management. Anxiety, depression and quality of life dimensions were assessed through Hospital Anxiety and Depression Scale and European Organisation for analysis and Treatment of Cancer Quality Of Life (EORTC QLQ- C-30) form. When finishing the form by all participants, case cluster were trained for progressive muscle relaxation in cluster with 3 to 6 persons every. One and 3 months when interventions, form was completed once more by each teams. There was no important distinction between scales of case and management teams when progressive muscle relaxation when one month ( $p>0.05$ ). but when 3 months anxiety, depression and different dimensions were significantly improved. This showed that progressive muscle relaxation improves the comfort of the patient.

## NEED FOR THE STUDY

The editor of a people's medical journal Lancet, Asia's cancer rate could jump by nearly 6 to 7.1 million new cases a year by 2020. Cancer incidence is higher within the industrialised nations of the planet that are developed countries. Cancer could be a sickness related to ageing, 76% of cancer diagnosing happens at 55 years and beyond. It is calculable that concerning nine million new cancer cases are diagnosed each year and over 4.5 million individuals die of cancer annually within the world.

One of the talents that are extremely necessary to be told and implement into your lifestyle is relaxation. Relaxation is often extremely useful if practiced habitually in one's standard of living. Techniques involving relaxation are wide employed by individuals to cut back anxiety and deal with stress-related issues. Relaxation medical care is initiated and schooled to peoples however is practiced primarily within the client's own atmosphere. There are numberless strategies accustomed come through relaxation, however the procedures that are most ordinarily practiced within the clinical setting are Jacobson's (1938) Progressive Muscular Relaxation. As progressive muscle relaxation is found effective, safe, non- pharmacologic, non- invasive, price effective technique in different conditions like anxiety, depression, stress and pain.

To meet this challenge the nurse should realistically set goals which will be earned. Optimizing the management of treatment-induced nausea and reflex ought to be a high priority for all health care suppliers concerned within the care of patients with cancer. Measures in reducing nausea and reflex embrace reduction of harmful stimuli like odours, turning away of spicy greasy foods, distraction through reading and relaxation. Relaxation techniques will facilitate to decrease stimuli tributary to symptoms. Progressive muscle relaxation technique considerably reduces therapy elicited nausea and reflex.

The investigator herself, throughout her clinical expertise amount, has encounter several patients receiving therapy experiencing differing kinds of facet effects in their life. This intended the investigator to undertake the study to ease

the physical symptoms among patients receiving therapy. The depth of review and additionally the data accessible concerning new advancing various therapies to boost the comfort created the investigator to double her interest towards the utilization of progressive muscle relaxation to ease the physical symptoms of patients receiving therapy.

#### **PROBLEM STATEMENT**

A Quasi-experimental Study to assess the effectiveness of Progressive Muscle Relaxation Technique on psychological symptoms among Patients receiving chemotherapy in a selected Hospital of Amritsar, Punjab.

#### **OBJECTIVE**

To compare the pre-interventional and post- interventional psychological symptoms of experimental and control group among patients receiving chemotherapy

#### **RESEARCH METHODOLOGY**

**Research approach:** Quantitative approach

**Research design:** Experimental design

**Research setting:** The study was set to be conducted in a Hospital of Amritsar, Punjab.

**Population:** The population of gift study were aiming to be cancer patients receiving therapy in hospital

**Sample:** Cancer patients receiving chemotherapy

**Sample Size:** The sample was 20 patients who can receive therapy (10 in experimental cluster and 10 in control group).

**Sample Technique:** Purposive sampling technique

#### **Description of tools:**

**Part A:** Socio-demographic profile

This part included items for obtaining personal information of the cancer patients like age, gender, monthly income, duration of illness, type of cancer, staging of cancer, cycle of chemotherapy.

Part B: Hospital Anxiety and Depression Rating Scale (HADS) is used to measure anxiety and depression. The scales score of less than 7 indicate non- cases.

#### **Criterion Measures**

Level of anxiety and depression	Scores
Mild	08 - 10
Moderate	11 - 14
Severe	15 - 21

#### **Modified version of progressive muscle relaxation technique:**

Jacobson E (2000) stated that Progressive muscle relaxation technique is a technique for reducing anxiety by alternating tensing and relaxing the muscles. Jacobson argued that since muscle tension accompanies anxiety, one can reduce anxiety by learning how to relax the muscle tension. Progressive Muscle Relaxation is a physical and mental component. The physical component involves the tensing and relaxing of muscle groups over the legs, abdomen, chest, arm, and face. With the eyes closed and in a sequential pattern, a tension in a given muscle group is purposefully done for approximately 10 seconds and then released for 20 seconds before continuing with the next muscle group.<sup>5</sup>

The researcher firstly learnt the progressive muscle relaxation technique and got herself certified by Neuro-psychiatrist to practice it on the patients.

Take a comfortable position on the bed. Lie down on the bed as comfortably as you can on your back, with all parts of your body loose, light and free. Be calm and comfortable. Keep your eyes closely lightly. Now let us start the practice as you go on doing it concentrates on the feelings from within your muscles and body. Observe the changes: tightness and development of light soothing sensations within. Avoid stray thoughts as best as you can and be calm and quiet, on the bed. Avoid extra movements of the body. Now make your body completely loose, light and free.

## ARTICLES

Step 1: Clench your right fist as tightly u can tighter and tighter. Observe the tightness or tension within your palm muscles. Hold it for sometime, slowly release it. Make it completely loose and light. Now observe the soothing sensation within. Feel the lightness in your palm. Repeat it again.

Step 2: Clench your left fist as tightly u can tighter and tighter. Observe the tightness or tension within your palm muscles. Hold it for sometime, slowly release it. Make it completely loose and light. Now observe the soothing sensation within. Feel the lightness in your palm. Repeat it again. Keep the body still more light and free concentrate the feeling from within.

Step 3: Now clench but fists at a time as tightly as u can. Feel the tension and slowly release them. Observe the difference feel the lightness in your palms and be relaxed. Do it once again. Observe the lightness going in your hands and more relaxed.

Step 4: Now clench your fists and bend your arms tight your arm muscles as tightly as you can. Feel the tightness of your straight, free and light. Observe the lightness feeling in your arms, feel the lightness in your hands and be relaxed. Repeat it again.

Step 5: Now straighten your hands as tightly as you can. Make them stiff and press them by the side of your body. Feel the tension in your arms and forearms. Now make it loose and light. Repeat it again. Breathe freely and gently, be relaxed keep the body completely still and light. Shrink more into your bed; observe the lightness growing in your hands.

Step 6: Now wrinkle your forehead push your eyebrows upwards as tightly as you can. Feel the tension in your forehead and slowly sooth it out. Now observe the comfortable sensation in your forehead and be relaxed. Do it once again still more tightly.

Step 7: Now twitch your eyebrows as if you are frowning on someone. Feel the tension between your eyebrows. Slowly soothe it out. Feel the lightness in forehead and be relaxed. Repeat it again tightly. Still more relaxed.

Step 8: Now close your eyes tightly observe the tension within your eyeballs and make them loose and light. Now observe the soothing sensation. Do it again. Feel the tension and slowly release it. Observe the difference. Be calm and relaxed.

Step 9: Now press your tongue at the roof palate of your mouth in a flat manner. Don't coil your tongue press it as tightly as can be possible. Observe the tension in your tongue and be relaxed. Repeat it again. Feel the tension and slowly loosen it. Observe the difference. Be calm and relaxed.

Step 10: Now bite your teeth tightly (pressing of jaws) as hard as you can. Feel the tension in your cheeks muscles and slowly make it loose and light. Repeat it again.

Step 11: Now press your lips against each other (don't bite) as hard as you can, the tension within and slowly release them. Make them loose and free. Observe the lightness from your lightness within and be relaxed. Do it once again. Good feel the tension and slowly release it. Keep the entire face loose, light and free. Observe the soothing sensation spreading from hands to face. Be deeply relaxed.....still more.....go deeper and deeper into relaxation.

Step 12: Now bend your head forward and let your chin touch the chest. Turn your face to the right as tightly as possible and observe the tension in your neck muscles, and now turn it into the left...again bring into the middle. Touch the chest and slowly keep it back on the bed. Make it loose, light and free. Repeat it again.

Step 13: Now bend your head backwards and turn into left and right, observe the tension and slowly release it. Do it again.

Step 14: Now bend your shoulders upward in arc like manner as tightly as you can. Keep the body loose and light. Repeat it again

Step 15: Now bending your shoulders backwards press them against your bed as tightly as you can. Feel the tension and slowly release it. Observe the difference. Concentrate on the growing lightness in your neck and shoulders.

## **Repeat it again**

Step 16: Now move your shoulders in the circular manner. Observe the tension within and make them loose and light. Feel the soothing sensation. Repeat it again.

Step 17: Now bend your upper part of your backbone upwards. Observe the tension and slowly release it. Feel the lightness in your back muscles. Repeat it again.

Step 18: Now take a deep breath and expand your chest as best as you can. Feel the tension in your chest and slowly release it. Observe the comfortable sensation within. Breathe tightly and gently. Now be relaxed. Do it once again.

Step 19: Now shrink your belly with air (abdomen) still more tightly. Feel the tension all over your abdominal muscles. Slowly make it loose and free. Breathe freely. Observe the lightness in your abdomen and be relaxed. Repeat it again.

Step 20: Now shrink your belly as tightly as you can. Feel the tension and slowly make it loose and light. Observe the difference and do it again.

Step 21: Now lighten your abdominal muscles with a jerk. Feel the tension and slowly release it. Be still more relaxed it.

## **Repeat it again**

Step 22: Now bend the lower part of the backbone from your waist in an arc like manner, upward, keep your hips touch the bed. Feel the tension and slowly straighten it. Observe the feel the soothing sensation within be calm and relaxed deeply relaxed. Repeat it again.

Step 23: Now tighten your thigh muscles as tightly as possible. Feel the tension and slowly release it. Keep the entire body loose and loose. Do it again.

Step 24: Now bend you're heels down and tighten your calf muscles. Feel the tension within and slowly release them. Make them completely loose and free. Be calm and relaxed. Repeat it again.

Step 25: Now bend your toes upwards feel the tension in your legs and toes and slowly release them. Make them completely loose and free. Observe the soothing sensation and be completely relaxed. Repeat it again. Observe the soothing sensation in your toes and legs.

Step 26: Now slowly draw in a deep breath and slowly release it. Keep the entire body loose and light. Concentration on growing lightness in your hands, face, neck, shoulders, chest, abdomen, back thighs and legs. Shrink more into your bed. Be deeply relaxed. More and more.....relax.....relax.....relax.

## **Termination**

Now you are calm, comfortable and relaxed. Count from one to four and four to one. Now start....one....good... (After completion of 10-1) slowly open your eyes. Now slowly get up and sit for a while. You are completely relaxed, fresh and comfortable. Good....well done.....thank you.

## **Data collection procedure:**

Prior to filling the research tool, investigator gave self-introduction to the patients and explained the purpose of gathering information; a good rapport was established with the subjects. They were assured that their responses would be kept confidential and the information would be used only for the research purpose. Written consent was taken from the patients. Firstly data from the control group was collected and after that data from experimental group was collected. Pre-interventional assessment of anxiety and depression was done by using rating scale by the researcher. Researcher took an average of 15 minutes for the pre-interventional assessment. After assessing the symptoms patients were taught to perform progressive muscle relaxation technique before chemotherapy for 3 days for the time-period of 30-35 minutes by the researcher herself. On the 4th day, the post-interventional psychological symptoms were assessed.

## SECTION – 1

## SAMPLE CHARACTERISTICS

Table - 1

Frequency and percentage distribution of sample characteristics

N= 20

Sl. No.	Demographic Variables		Experimental group (n=10)		Control group (n=10)		df	$\chi^2$
			N	%	N	%		
1.	Age (In Years)	18-27	0	0	0	0	1	0.833 <sup>NS</sup>
		28-37	0	0	0	0		
		38-47	3	30	5	50		
		≥48	7	70	5	50		
2.	Gender	Male	6	60	5	50	1	0.202 <sup>NS</sup>
		Female	4	40	5	50		
3.	Monthly Income (In Rupees)	≤5000	0	0	0	0	1	0.833 <sup>NS</sup>
		5001-10,000	3	30	4	40		
		10,001-15,000	7	70	6	60		
		≥15,001	0	0	0	0		
4.	Type of Cancer	Respiratory	3	30	3	30	2	0.311 <sup>NS</sup>
		Gastro-intestinal	3	30	2	20		
		Circulatory	0	0	0	0		
		Reproductive	4	40	5	50		
		Others	0	0	0	0		
5.	Duration of Illness (In Years)	≤2	5	50	2	20	2	2.095 <sup>NS</sup>
		3-5	3	30	4	40		
		6-8	2	20	4	40		
		>8	0	0	0	0		
6.	Staging of Cancer	Stage 1	2	20	3	30	2	0.400 <sup>NS</sup>
		Stage 2	5	50	5	50		
		Stage 3	3	30	2	20		
		Stage 4	0	0	0	0		
7.	Cycle of Chemotherapy	2-3 cycle	0	0	2	20	2	2.234 <sup>NS</sup>
		4-5 cycle	6	60	5	50		
		6-7 cycle	4	40	3	30		

Table 1 reveals the frequency and percentage distribution of characteristics of the study subjects. The total sample was 20 patients admitted in selected hospital of Amritsar, Punjab was studied to assess the effectiveness of Progressive Muscle Relaxation Technique. Among 20 cancer patients receiving chemotherapy, 10 patients were in the experimental group and 10 patients were in the control group.

According to **age**, it was revealed that majority (70%) of cancer patients were in age group of  $\geq 48$  years in experimental group followed by (30%) had age group of 38-47 years and in control group half of (50%) were in the age group of  $\geq 48$  years followed by (50%) age group of 38-47 years. As per **gender**, in experimental group, majority (60%) of patients were male followed by (40%) were females and in control group half (50%) of cancer patients were females was followed by half of (50%) males.

In context of **Monthly Income (in rupees)**, in experimental group majority(70%) of subjects were having income  $\geq$  Rs.10,001-15,000 followed by (30%) having monthly income Rs.5,001-10,000 and in control group majority (60%) were having monthly income Rs.10,001-15,000 followed by (30%) having monthly income Rs.5,001-10,000. According to **Type of cancer**, in experimental group majority (40%) were having reproductive cancer followed by (30%) having gastro-intestinal cancer and (30%) having respiratory type of cancer and in control group majority (50%) of subjects having reproductive cancer followed by (30%) having respiratory cancer and (20%) having gastro-intestinal type of cancer. As per **Duration of illness** majority (50%) of subjects in experimental group were having  $\leq 2$  years followed by (30%) having 3-5 years and (20%) having 6-8 years of illness and in control group equal (40%) having 3-5 years and 6-8 years followed by (20%) having  $\leq 2$  years of illness.

According to **Staging of cancer**, in experimental group majority (50%) belongs to stage 2 followed by (30%) in stage 3 and (20%) in stage 1 and in control group majority (50%) belongs to stage 2 followed by (30%) in stage 1 and (20%) in stage 3. As per **Cycle of chemotherapy**, majority (60%) of subjects in experimental group lied in 4-5 cycle followed by (40%) having 6-7 cycle of chemotherapy and in control group majority (50%) lied 4-5 cycle followed by (30%) having 6-7 and (20%) having 2-3 cycle of chemotherapy.

The above description showed that the sample in experimental and control group were homogenous in characteristics which was well proved with application of chi-square which and found non-significant at  $p > 0.05$ .

Hence, it was concluded that maximum number of subjects were in the age group  $\geq 48$  years and were male and maximum monthly income was Rs.10,001- 15,000. The maximum subjects were suffering from reproductive cancer with  $\leq 2$  years of illness having stage 2 level of cancer and most of them were taking 4-5 cycle of chemotherapy.

**Table - 2**

**Comparison of the pre-interventional and post-interventional psychological symptoms of experimental group related to anxiety among patients receiving chemotherapy.**

**N=10**

Level of Anxiety	Pre-intervention		Post-intervention		Z
	n	%	n	%	
Mild Anxiety	7	70	10	100	1.732 <sup>NS</sup>
Moderate Anxiety	3	30	0	0	
Severe Anxiety	0	0	2	0	

**Maximum Score = 56**

**p > 0.05; non-Significant**

**Minimum Score = 0**

It depicts pre- intervention and post-intervention physical symptoms of experimental group. In pre-intervention, majority (70%) had mild anxiety and in post-intervention all (100%) had mild anxiety. The Z value between pre-intervention and post-intervention was 1.732 which was found statistically non-significant in experimental group at  $p < 0.05$ .

Hence, it was concluded that progressive muscle relaxation technique had no effect in both pre-intervention and post-intervention.



**Table 3**

**Comparison of the pre-interventional and post-interventional psychological symptoms of control group related to anxiety among patients receiving chemotherapy**

**N=10**

Level of Anxiety	Pre-intervention		Post-intervention		Z
	n	%	n	%	
Mild Anxiety	6	60	6	60	1.000 <sup>NS</sup>
Moderate Anxiety	4	40	4	40	
Severe Anxiety	0	0	2	0	

**Maximum Score = 56**

**p > 0.05; Non-Significant**

**Minimum Score = 0**

It depicts pre- intervention and post-intervention physical symptoms of experimental group. In pre-intervention, majority (60%) had mild anxiety and (40%) had moderate anxiety and in post-intervention all (100%) had mild anxiety. The Z value between pre-intervention and post-intervention was 1.732 which was found statistically non-significant in experimental group at p<0.05.

Hence, it was concluded that progressive muscle relaxation technique had no effect in both experimental and control group.

**Table 4**

**Comparison of the pre-interventional and post-interventional psychological symptoms of experimental group related to depression among patients receiving chemotherapy**

**N=10**

Level of depression	Pre-intervention (n=10)		Post-intervention (n=10)		Z
	N	%	N	%	
Mild	0	0	0	0	2.456 <sup>*</sup>
Moderate	8	80	6	60	
Severe	2	20	4	40	

**Maximum Score = 51**

**p < 0.05; Significant**

**Minimum Score = 0**

It depicts pre-intervention and post-intervention physical symptoms of experimental group. In pre-intervention, majority (80%) had moderate depression and (20%) had severe depression and in post-intervention all (60%) had moderate depression and (40%) has severe depression. The Z value between pre-intervention and post-intervention was 2.456 which was found statistically significant in experimental group at p<0.05.

Hence, it was concluded that progressive muscle relaxation technique had effect in experimental group.



Table 5

Comparison of the pre-interventional and post-interventional psychological symptoms of control group related to depression among patients receiving chemotherapy

N=10

Level of depression	Pre-intervention (n=10)		Post-intervention (n=10)		Z
	N	%	N	%	
Normal	0	0	0	0	0.577 <sup>NS</sup>
Mild	7	70	8	80	
Moderate	3	30	2	20	
Severe	0	0	0	00	

Maximum Score = 51

p > 0.05; Non-Significant

Minimum Score = 0

It depicts pre- intervention and post-intervention physical symptoms of experimental group. In pre-intervention, majority (70%) had moderate depression and (30%) had severe depression and in post-intervention all (80%) had moderate depression and (20%) has severe depression. The Z value between pre-intervention and post-intervention was .577 which was found statistically non-significant in control group at p> 0.05.

Hence, it was concluded that progressive muscle relaxation technique had no effect in control group.

### CONCLUSION

It was concluded that progressive muscle relaxation technique is effective in reducing the psychological symptom due to chemotherapy. So, it is important to teach the patients about the progressive muscle relaxation technique so that the survival rate will be more.

### RECOMMENDATIONS

Similar study can be undertaken on a large sample for making more valid generalization. A true experimental study can be conducted using random sampling technique. Time series study can be conducted to evaluate long term effect of progressive muscle relaxation technique in relieving the physical symptoms due to chemotherapy.

### REFERENCES

1. The Hindu .Cancer Killed 5.56 lacs in India in 2010. Cancer facts and figures. 2012 March. Available from: <http://www.W.H.O.int>. Accessed in 2012.
2. WHO. (2017 feb). Fact sheet on *cancer* providing key facts and information on figures, causes, risk factors, prevention, early diagnosis, treatment, palliative care. Available at: <http://www.W.H.O.int>.
3. Smeltzer CS, Bare GB, Hinkle LJ, Cheever HK. Brunner and Suddarth's. Text book of medical surgical nursing. 10<sup>th</sup> ed. New Delhi (India): Lippincott Company. 2008; p. 383
4. Kermani A, Robert A, Gordon A. (February 2010). Efficacy of PMRT on anxiety, depression and quality of life in cancer patients undergoing chemotherapy. Iranian journal of psychiatry and clinical psychology, 16(3):272-73.
5. Redd WH. Jacoboson Behavioural intervention in comprehensive cancer care. Hand book of health psychology. Lawrence Erlbaum Associates. 2000.