

Effect of Relaxation Training Techniques And Psychoeducational Program on Depression And Anxiety Among Cancer Patients.

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Abstract: Non-pharmacological treatment for depression or anxiety involves several approaches, including different modalities of psychotherapy, education, and supportive measures. Several behavioral methods such as progressive muscle relaxation, breathing exercises, have been successfully used in the treatment of depression and anxiety disorders among cancer patients. Therefore this study aimed to evaluate the effect of relaxation training techniques and psychoeducational program on depression and anxiety among cancer patients. A quasi experimental pretest-posttest controlled design was utilized. Subject was included all cancer patients attending the out patients clinic or in patients departments at South Egypt Cancer Institute at Assiut city during six months period. Patients were assessed through; the demographic data questionnaire, DASS (depression, anxiety, and stress scale). **Results:** Majority of the participants were females, housewives, living in rural area, married and illiterate or read and write diagnosed with breast cancer and received chemotherapy. There were no significant differences in the mean scores of all items of DASS scale among experimental and control groups before program implementation. There were decrease in mean scores of depression, anxiety and stress at one month and two month after implementation of the relaxation and psychoeducational program. **Conclusion:** Relaxation technique and psychoeducational program were effective to improve anxiety and depression in cancer patients. **Recommendation:** Relaxation training and psychoeducational program have to be part of treatment programs of cancer patients.

Key Words: -Relaxation, Psychoeducational ,Program, Depression and Anxiety, Cancer patients.

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I. Introduction

Anxiety and depression are the most common psychological problems encountered in patients with cancer. Anxiety can be defined as an unpleasant subjective experience associated with the perception of real or imagined threat and is a common symptom in association with cancer (Ahlberget al., 2004). The incidence of anxiety disorders in cancer patients is commonly reported to be in the range of 10%–30%. However, the prevalence data are limited due to the use of different scales and criteria for anxiety, a lack of prospective data, and small study sample sizes, (Roy, 2008). Among emotional factors that associated with oncological disease, depression is most studied. It occurs between 1.5 to 57% of cancer patients, and can affect patients at any phase of the disease (Massie, 2004 & Trask, 2004). Psychological interventions for cancer patients have included psychoeducational strategies, supportive psychotherapy, cognitive restructuring, relaxation training, problem-solving and social skills training, biofeedback, and hypnosis, interventions that have been conducted in individual, group, or family formats (Antoni et al., 2001).

In this respect Khuraman (2014), stated that, Patients with cancer may benefit from psychoeducational programs that are planned to increase understanding and knowledge about cancer and associated issues as opposed to learning techniques to reduce anxiety and cope with stress or pain, which is the primary focus of most psychosocial interventions in a study of the effects of psychoeducational interventions on cancer patients at different stages (initial learning about the diagnosis, early treatment, post treatment). Relaxation training, which promotes muscle relaxation and regulates dysfunction caused by muscle tension, involves systematically repeated cycles of tension and relaxation exercises.

Also, Hua Song et al., (2013) reported that, relaxation techniques slow heart and respiratory rates, decrease muscle tension, and can alleviate negative emotions. Activity enhancement and psychosocial interventions are two non-pharmacological interventions with strong evidence for the treatment of fatigue. Regular exercise leads to a decrease in fatigue, depression, and anxiety both during and after cancer treatment in

cancer patients. However, there is also some evidence that dietary management and sleep therapy can relieve fatigue symptoms (*Mustian et al.,2007;Wode et al.,2009&Schmitz et al.,2010*). There is clear evidence that psychosocial interventions are effective in reducing distress and promoting adjustment of patients with breast cancer and other types of cancer. Effective symptom management is associated with better quality of life, improved psychological adjustment, and improved understanding of the disease, decision making, adherence with treatment, and response to treatment. (*Institute of Medicine, 2007., Rashid ,2011& Valentine, 2011*).

In addition *Wadie&Narouz(2017)* reported that, most of patients were categorized as having severe and very severe depression according to the Hamilton depression scale, *Batrawi et al.,(2017)*, found that, Egyptian female with breast cancer survivors the prevalence of anxiety was 70.0% and that of depression was 63.3%. Also, *El Sayed1 &Badr(2014)* found that more than half of the participants with breast cancer had psychological distress, such as anxiety and depression. Also, *El Missiry et al.,(2011)* found that, Egyptian anxiety disorders and mood disorders to be the most prevalent diagnoses among breast cancer patients. *Aly et al.,(2017)* found among Females with Breast Cancer nearly half of them reported depression, anxiety, or both (46.87%, 49.96% and 32.29%, respectively)

Significance of the study

Depression and anxiety are common psychological distress in cancer patients. The relaxation techniques as deep breathing and progressive muscle relaxation may help in reducing cancer distress. Psychoeducational programs that are designed to increase understanding and knowledge about cancer. The role of nurse is to meet the complex physical and psychosocial needs of patients with cancer and their families, using empathy, knowledge and experience to assess and alleviate the psychosocial suffering of cancer patients. So the present study tries to clarify the effect of psychological interventions for cancer patients proposed that, it might have positive effects in reducing symptoms of depression and anxiety.

The study aimed to

Evaluate the effect of relaxation training technique and psychoeducational program on depression and anxiety among cancer patients at South Egypt Cancer Institute.

Research design

Aquasi experimental pretest-posttest controlled research design was utilized.

Setting

The study was carried out at South Egypt Cancer Institute at Assiut city. The institute provides services for eight governorates : Aswan, Luxor, Qena, Sohage, Assiut, El Minia, New Valley and Red sea. This institute includes departments for inpatients to provide free services and another economic sector provide service with payment either by governmental support or personal expense. Also, a one day treatment regimen clinic, for which patients admitted to receive treatment and leave institute after receiving it.

Sample

The sample included all cancer patients attending the out patients clinic or were admitted to the inpatients departments with the following criteria:

- 1- Non metastasis cancer.
- 2- Eighteen years and older from both gender.
- 3- Accept to participate in this study.

The study was carried out at South Egypt Cancer Institute at Assiut city, during six months period from beginning of August 2015 to the end of January 2016; accordingly 165 patients were included in the study.

Exclusion criteria:

Patients with apparent cognitive impairment or bad general health that interferes with patient's cooperation

Tools of the study

Each participant was evaluated through the following tools:

- Personal and demographic characteristics
- Depression, anxiety and stress scale (DASS)

1-Personal and demographic characteristics which include:

Patient code, gender, age, education, occupation, diagnosis, type of treatment that the patient received.

2- Depression, Anxiety, and Stress scale (DASS) (*Lovibond&Lovibond 1995*)

This scale used to measure depression, anxiety, and stress. It'sself report inventory that yields 3 factors: depression, anxiety and stress. This screening and outcome measure reflects the past 7 days. It consists of 42 items measured on points (0-3). The sum of the scores for each of questions completed by each participant, in each of the sub-scales are then rated at the end of subscale as the severity- rating index. According to this subscale score individual was classified as the following:

Depression subscale which includes 14 questions; patient with score ranged between 0-9 was considered as having no depression, score ranged between 10-13 was considered as mild depression, score ranged between 14-20 was considered as moderate depression, score ranged between 21-27 was considered as having severe depression, and those with score equal to or more than 28 were considered as having extremely severe depression.

Anxiety subscale which includes 14 questions; patient with score ranged between 0-7 was considered as having no anxiety, score ranged between 8-9 was considered as mild anxiety, score ranged between 10-14 was considered as moderate anxiety, score ranged between 15-19 was considered as severe anxiety, score equal to or more than 20 were considered as extremely severe anxiety.

Stress subscale which include 14 questions; patients with score ranged between 0-14 was considered as having no stress, score ranged between 15-18 was considered as mild stress, score ranged between 19-25 was considered as moderate stress, score ranged between 26-33 was considered as severe stress, score equal to or more than 34 were considered as extremely severe stress.

Reliability of the Arabic version of this scales were found to be 0.93 for depression, 0.92 for anxiety and 0.94 for stress (*Mohamed et al., 2009*).

Planning and settings

- 1- After approval of the study by the ethical committee of the faculty of nursing of Assiut University, a letter from the faculty of nursing at Assiut University was submitted to the Dean of South Egypt Cancer Institute to give permission to conduct the study.
- 2- Before starting data collection, the aims of the study were explained to the patients. Patients were informed about what will be done for them.
- 3- Informed written or oral consent was taken from patients who were reassured about the confidentiality of the obtained information to avoid misunderstanding.
- 4- Time schedule of the program was explained to the patients by the researcher.
5. According to arrangement of rooms of the department, implementation of the study program was carried out in the patient's rooms. As regard the one day treatment clinic the program was implemented at the room in which they receive their treatment.

Selection of patients was performed according to the following order, patients in first room of female sector were sample for psychoeducational program , those in the second room of the same sector were for relaxation training program and those in the third room of the same sector were the control group. The same role was applied for male sector. As regard outpatient one day treatment group, first day of initiation of the study was considered for psychoeducational program group, the second day for relaxation training group, and the third day for control group and then repeated in the same sequence till the end of the study.

Psychoeducational program was implemented while patients set on their rooms gathered together with their peers in the program and the researcher discusses the program to them and answers their question.

As regard group receiving relaxation training, patients were either lying on bed or setting on chair and exercises were implemented after modeling and under supervision of the researcher.

Procedure

Assessment and follow up:

- Screen for all patients attending the out patients clinics and in patients at the starting time of the study by using depression, anxiety, and stress scale (DASS) .
- Patients who have score on depression subscale of DASS $10 \geq 28$ identified as having depression; anxiety subscale, $8 \geq 20$ as having anxiety and stress subscale $15 \geq 34$ as having stress. According to these criteria only 5 patients did not achieve the required scores to be included in the study.
- According to the previous steps participants were grouped into three categories: psychoeducational group, relaxation training group and control group. Interventions for each group may include the use of booklets, videos, pershore , and pictures
- Programs were implemented to each group according to the arranged schedules and patients were evaluated after one month and two months after completing the programs.
- Follow up evaluation was carried out through DASS scale.

Programs contents and its method

First group:

- This group consisted of 55 patients and exposed to the psychoeducational program. This program contained basic information about cancer and its causes, treatment methods, and its side effects. Nutrition is one of the important elements in causing and treatment of cancer; This program contained also, coping with cancer, problem solving and problem solving process and problem solving techniques were discussed with cancer patient in the program. This program was implemented along four weeks consisted of eight sessions each session last for one hour two sessions per week.

Second group:

- This group consisted of 55 patients and expose to the relaxation training program. This program contains deep breathing and progressive muscle relaxations to enhance relaxation. This program was implemented along four weeks consisted of eight sessions, each session last for one hour two sessions per week schedule.

Third group:

- This group consisted of 55 patients only receive their drug therapy of cancer but didn't participate at any program.

Statistical Analysis

The data were computerized and verified using the SPSS (Statistical Package for Social Science version 16.00 to perform tabulation and statistical analysis. Qualitative variables were described in frequency and percentages, while quantitative variables were described by mean and standard deviation. Analysis of collected data was done through the use of several statistical tests as: chi-square test (χ^2) was used to analyze qualitative variables and one- way analysis of variance test (ANOVA) T- test for multiple group comparisons. Statistical significance was considered at P- value <0.05.

II. Result

Table 1: Demographic characteristics of total sample of the studied groups (n=165)

Item	Mean ±SD	
Age (in years) 17 – 75 years		
Mean± SD	46.4±14.6	
	No.	%
Age (in years)		
<30 years	28	17.0
30-<60	102	61.61
60 and older	35	2.21
Gender		
Male	54	32.7
Female	111	67.3
Marital status		
Single	22	13.3
Married	130	78.8
Divorced	4	2.4
Widowed	9	5.5
Residence		
Rural	139	84.2
Urban	26	15.8
Education		
Illiterate or read and write	134	81.2
Secondary	26	15.8
University	5	3.0
Occupation		
Not work	28	17.0
Farmer	21	12.7
Unskilled worker	18	10.9
Employee	1	0.6
House wife	97	58.8

The mean age was 46.4±14.6, two thirds of the participants were females, and 58.8% were housewives. Also, 84.2% of the participants were living in rural area, 78.8% were married and 75.8% were illiterates or can read and write.

Table 2: Mean score of depression, anxiety and stress of the studied group according to DASS scale before program implementation.

Subscales of DASS	Relaxation training group (n=55) Mean ±SD	Psychoeducational program group (n=55) Mean ±SD	Control group (n=55) Mean ±SD	P. value
Depression (0-42)	22.8±7.9	25.1±8.2	26.2±6.8	0.069
Anxiety (0-42)	16.2±7.3	16.4±8	17.9±8.3	0.461
Stress (0-42)	23.4±7.9	23.1±8.1	25.5±7.3	0.217

P. value: Comparison among all studied groups using one way ANOVA test followed by LSD multiple comparison tests.

Table (2) showed that, there were no significant differences among the studied groups as regard mean of total scores of depression, anxiety and stress according to DASS scale before program implementation.

Table 3: Comparison of mean scores of depression, anxiety and stress according to DASS of relaxation training program group at starting point, one month and two months follow up.

Subscales of DASS	Preprogram(n=55) Mean ±SD	One month (n=48)Mean ± SD	Two months(n=40) Mean ± SD	P. value
Depression (0-42)	22.8±7.92	17.43±2.48	18.49±2.67	0.000**
Anxiety (0-42)	16.2±7.26	12.66±1.28	13.63±2.12	0.003**
Stress (0-42)	23.4±7.93	16.37±1.63	17.14±1.54	0.000**

*Statistically significant difference (p<0.05).

Comparison among studied groups using one way ANOVA test followed by LSD multiple comparison tests.

Table (3) showed that, in relaxation training program group there was significant decrease in the mean scores of depression (p=0.00), anxiety (p=0.00) and stress (p=0.00) at one month and at two month after program implementation. There was slight increase in the previous mean scores after two month. However there was increasing in the same mean scores at the second month follow up than after one month, but these mean scores were lower after two months than that at starting point.

Table 4: Comparison of mean scores of different levels of depression, anxiety and stress of psychoeducational program group at starting point, one month and two months follow up.

Subscales of DASS	Preprogram (n=55)Mean ± SD	One month (n=45)Mean ± SD	Two months (n=43)Mean ± SD	P. value
Depression (0-42)	25.1±8.2	15.87±1.43	16.77±1.74	0.000**
Anxiety (0-42)	16.4±8.0	12.53±1.41	12.67±1.4	0.002**
Stress (0-42)	23.1±8.1	16.2±1.49	16.67±1.56	0.000**

**Statistically significant difference (p<0.01)

Table (4) showed that, in psychoeducational program group there was significant decrease in the mean scores of depression (p=0.00), anxiety (p=0.00) and stress (p=0.00) at one month and at two months after the program implementation. However, there was slight increase in these mean scores on evaluation after two months.

Table 5: Comparison of the mean scores of depression, anxiety and stress among control and experimental group (relaxation training and psychoeducational) after one month from starting point

Subscales of DASS	Relaxation training group (n=48)Mean ± SD	Psychoeducational program group(n=45)Mean ± SD	Control group (n=40) Mean ±SD	P. value
Depression (0-42)	17.43±2.48	15.87±1.43	25.08±8.39	0.000**
Anxiety (0-42)	12.66±1.28	12.53±1.41	17.44±2.79	0.000**
Stress (0-42)	16.37±1.63	16.2±1.49	25.68±5.09	0.000**

P value: Comparison between all studied groups using one way ANOVA test followed by LSD multiple comparison tests.

Table (5) showed that, the mean scores of DASS of psychoeducational program group were significantly lower than the relaxation training and control group. Also, mean score of the relaxation training program was significantly lower than the control group means score.

Table 6: Comparison of the mean score of depression, anxiety and stress of DASS scale among control and experimental groups (relaxation and psychoeducational) after two month from starting point

Subscales of DASS	Relaxation training group (n=40)Mean ± SD	Psychoeducational program group (n=43) Mean ±SD	Control group (n=35)Mean ± SD	P. value
Depression (0-42)	18.49±2.67	16.77±1.74	25.37±8.54	0.002*
Anxiety (0-42)	13.63±2.12	12.67±1.4	17.32±3.98	0.000**
Stress (0-42)	17.14±1.54	16.67±1.56	25.36±4.46	0.000**

P. value: Comparison between all studied groups using one way ANOVA test followed by LSD multiple comparison test

Table (6) showed that, the mean score of the psychoeducational program group was significantly lower than the relaxation training and control group. Also relaxation training program mean score was significantly lower than the control group.

III. Discussion

In the current study; about half of the patients who have the diagnosis of cancer whatever its type at starting point of the study for both the control and studied groups have severe and extremely severe depression, anxiety and stress this may be due to the huge impact of these diagnosis in their life. The high rates of these disorders have variable degrees of severity ranged from moderate to severe as reported by other authors; *Kashani et al., (2012)* found that, less than half of the patients had depression, less than one third had anxiety and one third had moderate stress before their participation in any intervention. Also *Mosher et al., (2015)* found that, one third of participants had anxiety. One-third of the cancer patients in acute care hospitals are suffering from mental health disorders and need appropriate treatment (*Singer et al., 2010*).

In agreement with this, also *Ashraff et al., (2004)* found that, participants have moderate depression and extremely severe anxiety in their study group before short term psychiatric intervention. *Yoon, (2015) and Karabulutlu et al., (2010)* found that participants have moderate depression and anxiety. *Kim et al., (2016)* found that participants have extremely severe stress and depression. The variability of these studies might be related to type of cancer diagnosis (*Massie, 2004; Hong & Tian, 2014 & Krebber et al., 2014*) age of patients (*Nikbakhsh et al., 2014; Polikandrioti et al., 2008*) stage at which cancer was diagnosed (*Mushtaq et al., 2017*) and social supportive network (*Naseri & Taleghani 2012; Wang et al., 2014; Hughes et al., 2014 & Tel et al., 2013*).

In the present study, relaxation training program is associated with improvement in depression and anxiety levels of patients after one month, which more or less maintained for the second month follow up this may be due to that release of stored energy which can alleviate anxiety which serves as a distraction away from depression, anxiety and stress. Also, stress levels improvement after one month follow up and this improvement was not maintained after two months follow up. These changes in depression and anxiety were reported in different studies whatever their period of follow up. *Petersen & Quinlivan, (2002)* found that, reduction in anxiety and depression immediately after implementation of their program. *Hua Song et al., (2013)* also found, decreases in levels of anxiety after relaxation training program. Also, *Yilmaz & Arslan, (2015)* reported improvement in anxiety immediately after implementation of their program.

Also, *Mishra et al., (2012)* investigated the effect of exercise and found that there were reduced depression, sleeping disorders, and fatigue, and increased in physical functioning in the studied patients. The study by *Hayama and Inoue (2012)* found that, deep breathing exercises caused reduced levels of fatigue and anxiety in cancer patients who were receiving adjuvant chemotherapy. In contrast, *Mohamad Rodi Isa et al., (2013)* found that, there were no changes in depression before intervention, 4-month after intervention and 6-month after intervention. However, the same authors found that there were reduction in anxiety and slight change in stress

The improvement in patients' anxiety and depression might be related to increased neurotransmitter activity as endorphins, improved self-esteem (which is commonly low in those who suffer from depression), release of stored energy which can alleviate anxiety, serves as a distraction or coping mechanism or creates opportunities for social interaction (*Craft & Perna, 2004; Barton & Pretty, 2010; Lakey & Orehek, 2011*). The improvement did not maintain for more time might be related to other factors. The factor might be related to their clinical condition as during follow up some patients become deteriorating with additional signs of tumors, or development of metastasis. Other factors might include social, financial factors or even death of one of close peer in the ward.

In the current study, psychoeducational program is associated with decreasing in depression, anxiety and stress levels of this group this might be due to that information included in psychoeducation may help in increase patient's awareness about nature of the their illness and its psychological aspect, these may relieve patients depression, anxiety and stress and not all tumors are the same with inevitable death, some tumors have a cure

rate, others can have a benign course... etc. Also, the group discussion in psycho-education may have therapeutic effects in the form of, abreaction, empathy, interaction, interpretation, learning, transference, ventilation and universalization. Psychoeducational is frequently reported to be of important and valued intervention for oncology patients. *Kashani et al., (2012)* found that, improvement in depression, anxiety and stress scores after psychoeducational program. Also, *Dolbeault, et al., (2009)* and *Arafa& Hassan, (2013)* reported that there were improvement in scores of depression and anxiety after psychoeducational intervention for cancer patients.

In the present study, it was found that, control group showed no changes or only slight change in depression, anxiety and stress from the starting point and during the follow up assessment. In agreement with, *MohamadRodi Isa et al., (2013)*, *Yilmaz&Arslan, (2015)* they found that there is no or only slight change in depression, anxiety and stress in comparison between preprogram than after evaluation. While *Dolbeault, et al., (2009)* found that, after one and two months evaluation there were minor changes in the depression, anxiety and stress.

Comparing the effects of psychoeducational program and relaxation training program on the different variables of the present study it was found that both of them nearly affect the variables to the same extent.

IV. Conclusions

Based on the present study:

- Oncology patients whatever the nature of illness have high level of depression, anxiety and stress.
- Relaxation training program and psychoeducational program are related to decreasing in depression, anxiety and stress levels of patients in the follow up.

Recommendations

Based on findings of the present study, the following recommendations are suggested:

- 1- Psychoeducational and relaxation training program should be included in the treatments program of cancer patients and this programs should prepared with simple language and introduced to cancer patients and their family.
- 2- Liaison psychiatric nurse must be available to deal with psychiatric problems of cancer patient.

Limitation of the study

Unavailability of private, well prepared room to provide program to two groups.

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