The effects of relaxation on reducing depression, anxiety and stress in women who underwent mastectomy for breast cancer

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ABSTRACT

Background: Breast cancer is one of the most frequent malignancies among Iranian women. These patients suffer from a wide range of physical and mental (depression, anxiety and stress) signs and symptoms during the diagnostic and therapeutic processes. Despite the improvement in survival rates due to advances in medical care, different types of psychosocial interventions are still growingly needed considering the increasing number of cancer patients with longer survival times. The objective of this study was to determine the effect of relaxation on depression, anxiety and stress in women who underwent mastectomy for breast cancer.

Materials and Methods: This clinical trial was conducted during about 4.5 months in a referral chemotherapy clinic of a teaching hospital in Isfahan, Iran. The participants consisted of 48 breast cancer patients who were selected by simple random sampling. They were randomly assigned into two groups of control and case. The control group was treated only by usual medical therapy, whereas the case group was treated by combined medical-relaxation therapy. Data collection tools were the validated Depression, Anxiety and Stress Scale (DASS42) and a demographic questionnaire. Data were analyzed by SPSS using descriptive statistics, repeated measures analysis of variance (ANOVA), chi-square test and paired t-test..

Findings: The baseline mean scores of depression, anxiety and stress were not significantly different between the case and control groups. However, the scores in the case group improved significantly after the treatment ($p < 0.05$). On the contrary, such improvement was not seen in the control group.

Conclusions: Relaxation therapy can be effective in the improvement of depression, anxiety and stress. Therefore, it can be recommended as an effective care program in patients with malignant disorders.

Key words: Relaxation, depression, anxiety, stress, mastectomy, breast cancer.

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INTRODUCTION

Nowadays, breast cancer is the most important concern in women's health. It is the most common type of cancer after lung cancer and the second leading cause of cancer deaths among women.[1] According to the World Health Organization (WHO) report in 2007, breast, lung, colorectal and gastric cancers are the four most common cancers in the West Asia while lung, breast, liver and colorectal cancers are the four most common ones in the Southeast Asia.[2] Furthermore, breast cancer occurs a decade earlier among women in Iran than in developed countries.[3] Taleghani et al. reported the highest incidence of the disease to be found during ages of 35 to 44 years.[4] Breast cancer is the most prevalent cancer among women which causes a lot of casualties and affects women more than any other cancer from emotional and psychological perspectives.[5] Breast cancer is also a stressful experience for women.[6] In most cultures, female breast is considered as a feminine organ and therefore loss of the breasts, in many cases, is interpreted as the loss of feminine identity.[7]

Depression and anxiety are common in cancer patients

and can be the results of illness, disease physiological factors or drug treatments.[8] Depression and anxiety are also two of the most common reasons for alternative therapies in the community.[9] Since physical and mental performance improvements and a feeling of well-being are among the goals of palliative care in cancer, nurses, as health professionals and care providers, need to increase the use of alternative therapies to treat cancer patients.[10] Relaxation is the central core of new methods in treating anxiety and psychological stresses and includes the establishment of a peaceful public profile which could be the opposite of an irritating situation such as anxiety.[11] A variety of commonly used relaxation techniques include progressive muscle relaxation, imagery relaxation, Benson relaxation, deep relaxation, selection relaxation, and meditation.[12]

Several studies have assessed the effects of relaxation on depression, anxiety and stress in patients. Lyne et al. mentioned progressive muscle relaxation as an effective technique in reducing cancer distress.[13] Ghafari et al. indicated progressive muscle relaxation to be able to reduce depression, anxiety and stress, as the three most common symptoms disturbing the performance of patients suffering from multiple sclerosis.[14] Conversely, studies of Edelman et al.,[15] Gaston-Johansson et al.,[16] and Bordeleau et al.[17] considered relaxation as ineffective in reducing pain and distress. Likewise, Sloman[18] and Molassiotis et al.[19] reported relaxation not to be effective in anxiety reduction among patients with breast cancer. However, the critical role of nurses in health promotion as trainers and supporters for cancer patients is undeniable. On the other hand, while appropriate psychological and social care is necessary for women who have undergone mastectomy, Iranian health system lacks such care for cancer patients. Moreover, complementary therapies have not yet achieved their proper place among Iranian women with breast cancer. Therefore, this study aimed to determine the effects of relaxation on depression, anxiety and stress in women who underwent mastectomy for breast cancer.

MATERIALS AND METHODS

This clinical trial used simple random sampling to select subjects from women who had undergone mastectomy for breast cancer and attended Sayed Alshohada Chemotherapy Clinic in Isfahan, Iran during November 2010-March 2011. Patients were included if they aged 23-63, were not mentally retard, blind or deaf, did not experience stressful events (e.g. divorce, death of loved ones, job loss, or major life changes) within the previous 6 months, and did not use psychiatric drugs (analgesics,

antiemetics, or steroids) within one week before the study. All participants were undergoing chemotherapy and hormone therapy for stages 1 to 3 of breast cancer. They all underwent radical mastectomy adjusted one-sided surgery between one to six months before the study.

A two-part questionnaire was used to collect data. The first section involved demographic information and the second part was the Depression, Anxiety and Stress Scale (the DASS42) with 42 questions. The DASS42 was developed and normalized by Lovibond and Lovibond to measure the severity of depression, anxiety and stress in three 14-question sections. An Iranian clinical trial on 173 individuals calculated the Cronbach's alpha coefficient of depression, anxiety and stress subscales as 0.92, 0.87 and 0.90, respectively. The same study reported Cronbach's alpha for the whole scale to be 0.95.[20]

Using the formula for calculating sample size, each group was determined to have 24 patients. After obtaining informed written consents from the patients, subjects were randomly assigned to two groups of case and control. Initially, 42 DASS questionnaire was completed written by the researcher in each group.

Following the initial completion of the DASS42, patients were informed about the research protocol and goals. Then, the case group was trained by the researcher through the following seven steps: 1) Identification of the target muscles and muscle groups; 2) Training on the implementation of techniques and procedures, explaining and demonstrating its practical use by the researcher; 3) Answering the participants' questions regarding relaxation techniques; 4) Playing the CD on which the technique was previously recorded by the researcher; 5) Performing the technique on patients by the researcher; 6) Expressing the differences in physical and psychological feelings after performing the techniques; and 7) Performing the techniques by the subjects while supervised by the researcher to achieve homogeneity. The patients were told not to use the techniques alone at home until the end of the study. Instead, they attended two 20-minute sessions of relaxation twice a week for 4 weeks. During the sessions, patients were in a comfortable position (supine or on the healthy breast) with closed eyes. They breathed through the nose and were aware of their breathing. They slowly exhaled the diaphragmatic-abdominal respiration through the mouth while repeating the word "one". At the same time, they contracted and relaxed each muscle group for 6 and 12 seconds, respectively. They focused their attention on their respiration and on the rising and falling of their abdomen. With a deep, uniform and regular breathing, they visualized a beach, a village, or a beautiful garden and

relaxed in a comforting opportunity.[21] At the end of the study, the DASS42 questionnaire was completed by a colleague researcher. Data were analyzed by SPSS using descriptive statistics, repeated measures analysis of variance (ANOVA), chi-square test, and paired t-test.

FINDINGS

The mean (standard deviation) age of the case and control groups were 46.68 (9.06) and 46.79 (10.42) years, respectively. In the case group, 46.66% had an education level of high school diploma or less, while 37.5% of the controls were illiterate. Moreover, 72% of participants in the case and control groups were married. Overall, 54% of the case group and 62% of controls were housewives. Mean (SD) elapsed time after surgery in case and control groups were 2.45 (1.18) and 2.95 (1.10) months, respectively. A history of hospitalization was reported by 75% of the participants. The incomes of 87.5% of the case and control groups were lower than their expenses.

Table 1 shows mean scores of depression, anxiety and stress before and after the intervention. In the case group, before the intervention, 41.66%, 29.2%, and 33.3% of the participants felt depression, anxiety and a moderate stress, respectively. The corresponding values were changed to 16.66%, 12.5% and 12.5% after the intervention. Mean (SD) scores of depression, anxiety and stress in the case group before the intervention were respectively 20.63 (6.67), 13.45 (6.61) and 24 (6.53), while they were changed respectively to 11.68 (7.17), 7.27 (4.98) and 13.27 (8.02) after the intervention. Mean scores of depression, anxiety and stress before and after the intervention showed significant differences ($p < 0.05$) in the case group. On the contrary, the statistical tests did not show a significant difference in the mean scores of depression, anxiety and stress before and after the intervention in the control group. In addition, mean scores of depression, anxiety and stress before the intervention did not significantly differ between the case and control groups. However, after 4 weeks of relaxation, the mean scores of depression, anxiety and stress were significantly different between the two groups ($p < 0.05$) (Table 1).

DISCUSSION

Based on the results of this study, a significant percentage of patients with breast cancer suffered from depression, anxiety and stress and there were no significant differences between the two groups in this regard before the intervention. However, after 4 weeks of relaxation, significant differences were observed in corresponding mean scores between the control and case groups. Thus, relaxation can be thought to be effective in reducing depression, anxiety and stress. Yoo et al. Reported anxiety and depression of patients in the intervention group to be significantly lower than the controls.[22] Antoni et al. showed that the relaxation techniques can also be used to reduce stressful thoughts in patients with breast cancer.[23] However, Molassiotis et al. showed depression and nervous tension to be significantly lower in the intervention group than in the controls, but they did not find cases and controls to be significantly different in terms of anxiety.[19] The contradictory findings reported by Molassiotis et al. might be a result of using different questionnaires (State-Trait Anxiety Inventory and Mood State) and also performing relaxation training without the presence of the instructor that could have led to inappropriate implementation of the technique.

Although Sloman indicated the impact of relaxation on depression, he did not observe anxiety reduction.[18] Such finding can be justified by the high age of participants (mean age = 54) since relaxation techniques require active patient cooperation, focus, endurance, and physical strength. Another reason might have been the small sample size (14 participants) which could reduce the statistical power of the study since Hospital Anxiety and Depression Scale is not sensitive enough for small sample sizes. Similarly, Williams and Schreier could not find any changes in the anxiety of patients one month after relaxation, but at the third assessment, anxiety of patients was reduced.[24] Moline believed that according to cognitive–emotional theory, cognitive processes may interfere a person's towards the threatening stimuli and reduce the physiological response to anxiety. He therefore believed that patient preparation and education on cognitive processes influence the physiological response

Table 1: Mean (SD) scores of depression, anxiety and stress among the participants before and after the intervention

	Case Group		Control Group		P	
	Before	After	Before	After	Before	After
Depression	20.63 (6.67)	11.68 (7.17)	23.16 (6.19)	22.95 (6.59)	0.43	0.001
Anxiety	13.45 (6.61)	7.27 (4.98)	17.5 (8.48)	16.95 (8.77)	0.19	0.001
Stress	24.00 (6.53)	13.27 (8.02)	26.87 (8.47)	26.33 (8.33)	0.44	0.001

to reduce anxiety.[25] Hamidizadeh et al. also suggested relaxation to be effective in reducing anxiety and stress among the patients.[26] However, Bordeleau et al. did not report significant differences between the intervention and control groups in mental stress reduction,[17] maybe because relaxation techniques cannot be performed correctly alone and at home by patients. On the other hand, their subjects differed with ours in terms of disease status and metastasis.

Overall, our results were consistent with most previous studies. We suggest relaxation to improve the psychological status of patients with breast cancer. However, further studies with larger sample sizes and longer periods (e.g. 3, 6, 9, or 12 months) are recommended to investigate the effects of physical and emotional feelings of cancer patients. This technique can be used as a simple and applicable complementary method in all health centers and even at homes of patients who suffer from depression, anxiety and stress.

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REFERENCES

1. Kruk J, Aboul-Enein HY. Psychological stress and the risk of breast cancer: a case-control study. Cancer Detect Prev 2004; 28(6): 399-408.
2. Department of Health. Country report of cancer cases in 2007. 1st ed. Tehran: Ministry of Health and Medical Education; Disease Management Center, Deputy of non-infectious and non-specific diseases, Cancer Management; 2010.
3. Sirus M, Ebrahimi A. Epidemiology of women's cancer tumors in Isfahan. Iranian Journal of Surgery 2008; 16(3): 51-6.
4. Taleghani F, Parsa Yekta Z, Nikbakht Nasrabadi AR. Coping with breast cancer in newly diagnosed women: a qualitative study. Iraninan Psychiatry and Clinical Psychology 2006; 12(3): 282-8.
5. Ramezani T. Depression and counseling need in women with breast cancer referring to chemotherapy centers in Kerman. Iraninan Psychiatry and Clinical Psychology 2001; 6(4): 70-7.
6. Jennings-Sanders A, Anderson ET. Older women with breast cancer: perceptions of the effectiveness of nurse case managers. Nurs Outlook 2003; 51(3): 108-14.
7. Heravi Karimavi M, Pourdehghan M, Faghihzadeh S, Montazeri A. Reviewing the effect of group counseling on functional scales of patients with breast cancer improving quality of life undergoing chemotherapy. Journal of Daneshvar 2006; 62(13): 69-78.
8. Miller K, Massie MJ. Depression and Aniety. Cancer Journal 2006; 12(5): 388-97.
9. Fontaine KL. Mental health nursing. 6th ed. London: Pearson Prentice Hall; 2009.
10. Hodgson H. Does reflexology impact on cancer patients' quality of life? Nurs Stand 2000; 14(31): 33-8.
11. Brunner LS, Suddarth DS, O'Connell Smeltzer SC, Bare BG. Brunner & Suddarth's textbook of medical-surgical nursing. Philadelphia: Lippincott Williams & Wilkins p.16-22; 2004.
12. Mokhtari Nouri J, Sirati Nayer M, Sadeghi Sharmeh M, Ghanbari Z, Haji Amini Z., Tayebi A. The effect of foot reflexology massage and Bensone relaxation on anxiety. Journal of Behavioral Sciences 2009; 3(2): 160-5.
13. Lyne ME, Coyne PJ, Watson AC. Pain management issues for cancer survivors. Cancer Pract 2002; 10 (Suppl 1): S27-S32.
14. Ghafari S, Ahmadi F, Nabavi M, Memarian R. The effect of applying progressive muscle relaxation technique on depression, anxiety and stress of patients with multiple sclerosis. Research in Medicine (Research Journal of School of Medicine) 2008; 32(1): 45-53.
15. Edelman S, Bell DR, Kidman AD. A group cognitive behaviour therapy programme with metastatic breast cancer patients. Psychooncology 1999; 8(4): 295-305.
16. Gaston-Johansson F, Fall-Dickson JM, Nanda J, Ohly KV, Stillman S, Krumm S, et al. The effectiveness of the comprehensive coping strategy program on clinical outcomes in breast cancer autologous bone marrow transplantation. Cancer Nurs 2000; 23(4): 277-85.
17. Bordeleau L, Szalai JP, Ennis M, Leszcz M, Speca M, Sela R, et al. Quality of life in a randomized trial of group psychosocial support in metastatic breast cancer: overall effects of the intervention and an exploration of missing data. J Clin Oncol 2003; 21(10): 1944-51.
18. Sloman R. Relaxation and imagery for anxiety and depression control in community patients with advanced cancer. Cancer Nurs 2002; 25(6): 432-5.
19. Molassiotis A, Yung HP, Yam BM, Chan FY, Mok TS. The effectiveness of progressive muscle relaxation training in managing chemotherapy-induced nausea and vomiting in Chinese breast cancer patients: a randomised controlled trial. Support Care Cancer 2002; 10(3): 237-46.
20. Saed F. Reviewing the validity and reliability of depression, anxiety and stress scales (DASS)"[MSc Thesis]. Tehran: School of Humanities, Shahed University; 2007 2007.
21. Identity of James "Relaxation". Trans. Shadan M. 1st ed. Ghoghnous Publication; 1998.
22. Yoo HJ, Ahn SH, Kim SB, Kim WK, Han OS. Efficacy of progressive muscle relaxation training and guided imagery in reducing chemotherapy side effects in patients with breast cancer and in improving their quality of life. Support Care Cancer 2005; 13(10): 826-33.
23. Antoni MH, Wimberly SR, Lechner SC, Kazi A, Sifre T, Urcuyo KR, et al. Reduction of cancer-specific thought intrusions and anxiety symptoms with a stress management intervention among women undergoing treatment for breast cancer. Am J Psychiatry 2006; 163(10): 1791-7.
24. Williams SA, Schreier AM. The effect of education in managing side effects in women receiving chemotherapy for treatment of breast cancer. Oncol Nurs Forum 2004; 31(1): E16-E23.
25. Moline LR. Patient psychologic preparation for invasive procedures: an integrative review. J Vasc Nurs 2000; 18(4): 117-22.
26. Hamidizadeh S, Ahmadi F, Asghari M. Reviewing the relaxation techniques on anxiety and stress of elderly patients with hypertension. Journal of Shahrekord University of Medical Sciences 2006; 8(2): 45-51.