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Impact of Quality of Life Training and Coping Strategies on the Functional Aspect of QOL of Women Suffering from Breast Cancer

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Ethical consideration: taking permission to carry out the study, confidentiality, voluntary participation of the subjects, taking informed consent from the samples and also handing out training manuscripts of teaching quality of life in patients with breast cancer to the control group after completion of the intervention and collection of the questionnaires.

Introduction:

Universally, breast cancer is the commonest malignancy and the leading cause of cancer-related death in women. In the United States, breast cancer accounts for almost 230,000 new cases and 40,000 deaths annually (Marta *et al.*, 2017). In Iran, it is the most prevalent cancer and the second leading cause of death in women (Hayati *et al.*, 2009) which accounts for more than 25% of all cancers in women (Taleghani *et al.*, 2006). Moreover, breast cancer is one of the major factors that endanger the physical, psychological and social life of women (Karimoui *et al.*, 2006).

These patients often receive a combination of multiple treatments such as surgery, radiation therapy, hormone therapy, and chemotherapy, unfortunately, such processes often cause biological, physical, social and psychological

Abstract

Most regrettably, breast cancer treatments give rise to different complications which can cause a significant reduction in the QOL of patients. Therefore the most important aspect of care for these patients is assessing and promoting the quality of life of them. The purpose of this interventional study was ascertaining the effectiveness of quality of life training with coping strategies on the functional aspect of QOL of women with breast cancer in which 105 patients with breast cancer whose surgical and adjuvant treatments were completed were considered and were randomly assigned into two groups; experimental and control. The experimental group in five subgroups participated in the quality of life training and coping strategies programs for a month once in a week. To assess the quality of life of all samples, the standard questionnaire of QLQ-C30 was filled-up for three periods; before, one month and two months after the intervention. In results, although the mean score of functional aspect of quality of life of both the control and experimental groups showed no significant difference before the intervention, the statistical analysis of variance (repeated-measures ANOVA) revealed that functional aspect of life quality in the experimental group increased after the intervention ($P < 0.001$). Since both Quality of life training and coping strategies training could promote both the functional aspect of the QOL of breast cancer survivors and their performance, it is strongly recommended to consider such training as a part of their treatment programs.

problems (Johnsson *et al.*, 2011). Despite the fact that significant advances in the field of breast cancer treatment could increase the life expectancy of the survivors, most of these therapies are associated with multiple side effects which can reduce the quality of life of these patients (Hazrati *et al.*, 2008). Thus, the most important aspect of caregiving is considering, assessing and improving the life quality of the survivors (Karimoui *et al.*, 2006).

On the other hand, in ascertaining Quality of life (QOL) in breast cancer survivors, variables like the ability to do daily activities, patient satisfaction and levels of functionality are considered as crucial (Costa *et al.*, 2017). QOL is a multidimensional concept that refers to an individuals' physical, emotional, and social well-being (Zamanian *et al.*, 2015). QOL in oncology patients, specifically in patients of breast cancer, is a very important

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consideration but treatment has a major impact on it (Manneville *et al.*, 2018). The ultimate goal for the treatment of chronic diseases is increasing the survivors' lifespan as well as enhancing their abilities to the extent possible to continue living by maintaining a decent of life quality. However, most conducted studies on the evaluation of different treatments made a huge contribution to increasing the survivors' lifespan regardless of paying attention to the quality of life and side effects of treatment (Kheyltash *et al.*, 2006). In addition to physical symptoms, breast cancer patients are subject to psychological distress which could be the reason for many mental-social disorders in their life (Heravi, 2005). Studies on patients with cancer indicate that the highest levels of distress can adversely affect the QOL of the survivors (Hasanpoor-Dehkordi & Shabanian, 2005).

Cancer may disturb the survivors' psychological balance and may affect their ability to coping effectively with the condition (Dolbeault *et al.*, 2009).

An effective coping leads to better problem-solving abilities (Ghazanfari & Ghadam, 2008) therefore; the use of strategies leads to adaptation and health improvement in individuals (Kildal *et al.*, 2005).

According to the theory of Lazarus, coping behaviors in response to stress involves two processes of problem-focused and emotion-focused. If the coping efforts are effective and adjusting, the amount of stress is reduced in a person and the reaction to stress will be in the direction of reducing the negative effects (Karabulutlu *et al.*, 2010). Problem-focused coping strategies are considered as the most suitable and adaptable ways in managing the stress and their application is directly associated with the mental health of the individuals (Forouzandeh & Delaram, 2003). Proper coping strategies and adaptation to the disease can increase rehabilitation of the patient and improve his/her quality of life (Mahmoudi *et al.*, 2003).

The importance of training and both informing and supporting the patients in the process of diagnosis and treatment of cancer has been known (Ghavam-Nasiri *et al.*, 2012) and leads to better patient cooperation/coping in/with the treatment problems (Lopez *et al.*, 2005). As a result, cancer patients are in need of assistance and training to increase awareness of resources and stress indicators, training for replacing negative thoughts and training cognitive and interpersonal coping skills (Yanez *et al.*, 2015).

Therefore, the present study aims at investigating the impact of both QOL training and coping strategies on the performance status of the QOL of women with breast cancer referred to Motahari clinic in Shiraz.

Methodology:

The present study is an interventional study with two groups; pre test and post test designs in which the effectiveness of QOL and coping strategies training were investigated on the functional scale of the quality of life of

patients of breast cancer. Both the control and experimental groups were investigated at three stages: 1-before the intervention, 2-one month after the intervention and 3-two months after the intervention. The study subjects included patients of breast cancer who had completed their surgical and adjuvant treatments and referred to Motahari clinic affiliated to Shiraz University of Medical Sciences. Out of the total subjects, 110 eligible patients, who met all of the following inclusion criteria for entering the study, were randomly selected. Inclusion criteria were patient's consent to participate in the study, age less than 60 years, being literate, being in stages 1, 2 and 3 of the disease, no metastatic disease at diagnosis and no other known malignancy or mental illness based on the specialist diagnosis. The similar study design was used to determine the sample size. The sample size was calculated at 49 individuals in each group. Considering the attrition rate and also to enhance the accuracy of the study, the number of samples for each group was determined to be 55 individuals. Then, the patients were randomly and alternately assigned to one of the two experimental or control group. Before carrying the intervention, the quality of life questionnaire was completed by all the subjects and collected. The content of training intervention in this study included knowledge and information about breast cancer, treatment techniques and complications aroused, quality of life and ways to promote it for having better physical performance, the importance of mental health and how to improve it, a variety of coping strategies and their application in dealing with problems caused by the chronic diseases, stress and its effects, stress management, problem solving skill and ultimately adaptation (coping) with the disease.

The training program was conducted on Groups of 10 individuals (total 5 groups) for 4 sessions of two and a half hours a day for four weeks. The training was done using two methods of group discussion and presentation. To learn more, at the beginning of each session the contents of the previous session were reviewed and at the end of each session, the manuscript of training materials related to the topic of the session was given to the experimentals to be studied and reminded at leisure time at home. In addition, if needed individual counseling was provided. During the study, there was no intervention for the control group and this group was under medication and medical examination only. Then a month or two after the intervention sessions, quality of life questionnaire was completed again by the control and the experimental groups and collected. Since 5 individuals from the experimental group, due to their personal reasons quitted the study, the data were extracted from 105 questionnaires and analyzed using software SPSS (Version 19). The data gathering instrument in this research was a test comprised of 2 parts:

i) Demographic questionnaire containing information such as age, marital status, education, employment status etc.

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ii) Reliability and validity Questionnaire of assessing the Quality of Life of Cancer Patients (EORTC QLQ C30) appertain to the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-Cancer 30 which includes functional and symptom scales (Safaei *et al.*, 2007). In this article functional scale including Global health status, physical functioning, role functioning, emotional functioning, cognitive functioning, and social functioning were investigated. Reliability and validity of the Persian version of the questionnaire were confirmed in Iran by Montazeri *et al.* (1999).

At the mentioned questionnaire, the higher score on the functional aspect of QOL indicated the worse quality of life in terms of functional status for the patient. While a lower score indicated the lesser problems of functioning for the patient. The significance level in this study with 95% reliability was considered > 0.5 . Extracted data from the questionnaires base on the research objectives were statistically analyzed using an independent t-test, chi-square, and repeated-measures ANOVA tests.

Result:

The demographic characteristics of the Experimental and Control groups (EG, CG) are shown in Table-1.

Table-1: Demographic Characteristics of the subjects in groups

Demographic variables	Exp. G(N=50)	Con. G(N=55)	p value
Mean age ($\pm$SD)	48.48 $\pm$ 8.53	49.30 $\pm$ 8.71	>0.624
Marital Status (%)			>0.192
Single	1 (2)	5 (9.1)	
Married	46 (92)	45 (81.8)	
Divorced	1 (2)	0	
Widow	2 (4)	5 (9.1)	
Educational Level (%)			>0.314
Below Diploma	19(38)	26(47.2)	
Diploma	21(42)	20(36.4)	
Above Diploma	10(20)	9(16.4)	
Employment status (%)			>0.759
Housewife	35(70)	40(72.7)	
Employed	6(12)	7(12.8)	
Retired	8(16)	8(14.5)	
Disabled	1(2)	0	
Radiotherapy (%)			>0.665
No	15(30)	14(25.5)	
Yes	35(70)	41(74.5)	
Chemotherapy (%)			>0.476
No	1(2)	0	
Yes	49(98)	55(100)	
Chemotherapy sessions	7.02 $\pm$ 1.40	6.75 $\pm$ 1.02	>0.253
Family history of cancer (%)			>0.533
No	32(64)	39(70.9)	
Yes	18(36)	16(29.1)	
Hospitalization (%)			>1.0
No	0(0)	1(1.8)	
Yes	50(100)	54(98.2)	
Total	50 (100)	55 (100)	

*All comparisons are non-significant. $p > 0.05$.

Independent t-test and Chi-square showed no significant difference between the two groups in demographic information. Further, the results of comparing the mean scores of QOL of the two groups using independent t-test demonstrated that there existed no significant difference between the mean scores of QOL of the two groups before the intervention ($p < 0.05$) and the two groups were similar in the mean scores of QOL. In this study, the mean scores of quality of life aspects, before and after intervention in the experimental and control groups were examined (Table-2).

The obtained results based on the test analysis of the variance (repeated measures) and with respect to the significance of counter interaction between time/group, revealed that score reduction in all dimensions of functional aspects of QOL in the experimental group was greater than that of the control group. This reduction in the score of the experimental group was in the direction of better functioning. More specifically, concerning the emotional function of the experimental group 0.6 score reduction has been observed in one month after the intervention in comparison with before the intervention. Also two months after the intervention, this reduction trend continued for the experimental group while in the control group a slight increase has been observed.

Based on the obtained results of this table, time was a significant variable for the provision of change in all the scores of functional aspects of the quality of life except for the physical functioning. The impact was greater in the experimental group than in the control group because in the experimental group one month after the intervention in comparison with before the intervention, the reduction was observed. Also one month and two months after the intervention than before the intervention reduction continued. Moreover, regardless of the effect of time between these two groups, significant differences were observed in general health status ($p < 0.003$), mental function ($p < 0.001$) and social function ($p < 0.001$).

Discussion:

The present study was aimed to assessing the quality of life of 105 patients having breast cancer in the past three months and using the standard instrument of assessing the quality of life.

The results confirmed a reduction in the scores in quality of life in all of the functional aspects including role function, cognitive function, emotional function and social function in the experimental group compared to the control group. Conversely, this score reduction was a good indication of the increase in their function. In other words, the patients of the experimental group after the intervention in comparison with before the intervention had a better function in these aspects. This improvement of function and reduction in the score of quality of life of the experimental group was attributable to the training and intervention of the research. However, during the study, no significant changes were found in the quality of life

Table 2: Functioning and Global quality of life mean scores in groups before and after the intervention (as measured by the EORTC QLQ-C30); Experimental group:N=50, Control group N=55

Scores	Groups	Mean	SD	Mean	SD	Mean	SD	p values		
Global health status	Experimental	4.67	0.66	5.07	0.62	5.5	0.52	<0.001*	0.003*	<0.001*
	Control	4.78	0.67	4.71	0.66	4.68	0.64			
Physical Functioning	Experimental	1.97	0.31	1.94	0.31	1.9	0.35	0.355	0.329	<0.001*
	Control	1.98	0.35	2	0.36	2.02	0.36			
Role Functioning	Experimental	1.71	0.46	1.6	0.37	1.39	0.39	<0.001*	0.108	0.003*
	Control	1.68	0.43	1.7	0.44	1.65	0.45			
Cognitive Functioning	Experimental	2.06	0.65	1.89	0.46	1.7	0.41	0.025*	0.064	<0.001*
	Control	2	0.58	2.07	0.62	2.1	0.6			
Emotional functioning	Experimental	2.6	0.54	2.08	0.34	1.8	0.42	<0.001*	<0.001*	<0.001*
	Control	2.5	0.57	2.61	0.45	2.57	0.48			
Social Functioning	Experimental	2.1	0.55	1.74	0.4	1.47	0.38	<0.001*	<0.001*	<0.001*
	Control	2.08	0.49	2.09	0.5	2.1	0.49			

scores of the control group; in other words, no significant improvement has been observed in this group.

In the aspect of physical functioning no significant difference has been observed in the interval before, one month and two months after the intervention, therefore time was not a significant factor for change in this aspect. The results of this study are consistent with Sharif *et al.* (2012). Heravi Karimoui *et al.* (2006)'s findings contrary to this study, reflected the positive impact of group counseling on the physical functioning of the patients. The results of the study of Johnsson *et al.* (2011), in Sweden, is also inconsistent with the results of this study. Perhaps differences in types of intervention performed are the reason for such discrepancies. We found the time was a significant variable for the provision of change in the experimental and control groups, in the intervals of pre to two months after the intervention. This change in the experimental group was in the direction of score reduction suggesting that the role function of the experimental group improved when compared with that of the control group. This results strengthened the findings of Heravi Karimoui *et al.* (2006) and Sharif *et al.* (2012).

On the cognitive function aspect, we found that the time was a significant factor for the provision of change in the score of quality of life, and the impact of training in the experimental group was greater than that of the control. Heravi *et al.* (2006), also reported that the group counseling well improved cognitive functioning of the patients but in the study of Bordeleau *et al.* (2003) the socio-emotional support had no impact on the mental function of the participants, however, several flaws existed in their study. In addition to time, emotional function group has also been found as a significant factor for the provision of change in the score of quality of life in our study. It shows that the intervention in the experimental group has led to a greater change in the quality of life score of the samples. The studies of Sharif *et al.* (2012), Heravi *et al.* (2006) and Bakhtiari *et al.* (2011) also support the same. Stress and anxiety were the most common psychological problems in cancer patients and training coping strategies were considered generally effective in reducing the patient's psychological problems and improving their recuperation. These findings

indicate the importance of social support and problem-solving training in reducing stress and anxiety in cancer patients (Karabulutlu *et al.*, 2010). The most important thing in dealing with this disease is a way of looking at it and way of cope with it that can determine the mental health of the patient (Mehrangiz & Mehravar, , 2009). Karami *et al.* (2010) in this relation acknowledged that holding training courses on becoming familiar with cancer, its progress and control, methods of treatment, self-care, boosting self-confidence and promoting a positive self-image can assist in increasing the quality of life of the patients.

However, in the study of Koolae *et al.* (2015) it was proven that by getting rid of the irrational and distortion thoughts through stress management, the quality of life in breast cancer patients enhanced. The results of the study of Tsay *et al.* (2005) showed that coping strategies training program in patients with end-stage renal disease had a significant role in reducing the level of stress and depression and improving the quality of life of these patients. In the current study in social function aspect, in addition to time, the group was also noted as a significant factor for the provision of change in the score of quality of life. It indicates that intervention in the experimental group has led to a greater change in the quality of life score of the samples. Heiydari *et al.* (2008) showed that perceived social support by patients of breast cancer was important in the improvement of the quality of life of them. Harandy *et al.* (2012) already reported that paying attention to the psychological, social and financial needs of these patients could lead to better and significant result in the compatibility of them and their families with the problems of the disease. The social function of these patients of breast cancer was effective in reducing emotional psychological symptoms of the patients. Further, the social function could prevent patients' social isolation and finally could improve the quality of life of these patients (Heravi *et al.*, 2006).

Since coping strategies are adaptive, objective and manipulative so it can be modified by appropriate treatment and training programs (Forouzandeh & Delaram, 2003). Also, by the counseling and training processes can teach cancer

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patients how to live with their illness (Heravi *et al.*, 2006). Thus, investigating the supportive needs of the patients both quantitatively and qualitatively is essential. Also by considering the supportive sources in society and families, a contribution can take steps in direction of improving these patients quality of life (Heiydari *et al.*, 2008).

Conclusion:

Since the emotional function of the patients of breast cancer can affect all aspects of their quality of life, care and support centers for cancer patients need to pay particular attention to improving their mental functioning.

As per our observations on the mentioned reported studies, it could be concluded that quality of life and coping strategies training program is effective in reducing the complications of cancer and its treatment and these programs can significantly increase the functional aspects of quality of life and improve the quality of life of women with breast cancer. Therefore, it is suggested that therapeutic centers consider and implement this type of educational program as an important part of care in the care and treatment of women with breast cancer. Further, regular monitoring of the obtained results from the implementation of the program is recommended to improve it.

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