

The effect of training problem-based learning on the quality-of-life symptom scales in patients suffering from breast cancer

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ABSTRACT

Background and Aim: Breast cancer is one of the most common cancers and most deadly malignancies among the women all over the world. The diagnosis, treatment, and complications arising from this cancer bring about numerous physical, mental, and social complications as well reduced quality of life in these patients. The present study aims at investigating the effect of training problem-based learning on the quality-of-life symptom scales in patients suffering from breast cancer. **Materials and Methods:** In a randomized controlled clinical trial, 50 breast cancer patients hospitalized in the oncology ward of Tohid Hospital of Sanandaj, Iran. The patients were randomly divided into two groups: experimental and control. Experimental group patients were trained according to problem-based learning, but no specific measure was conducted on control group patients. Right after the training course, the patients' quality of life was measured once more by using the abovementioned questionnaires, and the data collected were analyzed by using statistical tests. **Results:** The mean age of the samples was 44.22 ± 10.32 . The findings of the study indicate that there was a significant statistical difference between the two groups in the quality-of-life symptom scales before the intervention and after conducting it ($P < 0.05$). Moreover, as for the breast cancer-specific quality-of-life symptom scales, there was no significant statistical difference between the two groups both before and after the intervention ($P < 0.05$). **Conclusion:** The findings obtained in the present study indicate that training problem-based learning had a positive effect on the quality-of-life symptom scales in women suffering from breast cancer. This training method can be applied as a part of normal measures taken for the patients alongside other medical measures.

Keywords: Breast cancer, problem-based learning, quality of life

Introduction

Cancer is a group of diseases that is defined as the uncontrollable cell growth, invasion to local tissues, and systemic metastasis. The incidence rate of cancer has constantly been increasing over the past 50 years.^[1] Nowadays, breast cancer is the most important health concern among women,^[2] since it is the most prevalent cancer and the second most important cause of cancer death after the lung cancer among women.^[3] Breast cancer

accounts for as many as 30% of all cancers and 15% of cancer deaths among women. In Iran, breast cancer accounts for 21.4% of all cancer cases.^[4] Post-breast cancer chemotherapy has the most significant effects on the patients' quality of life.^[3] The failure to have proper control over these complications results in the aggravation of the negative effects on the quality of life in these patients, and it is likely that this aggravation nullifies every single advantage obtained from the increased survival as a result of the increased medical costs and side effects.^[3] Quality of life is the general well-being feeling that is resulted from the satisfaction or lack of satisfaction with those aspects of life that

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are important to the individual, and it includes areas that have to do with health, occupation, economy, society, mental status, and family.^[5] There is an interactive relationship between disease and quality of life. Physical disorders as well as the symptoms arising from these disorders have direct effect on all aspects of quality of life.^[5] By considering the effects arising from breast cancer and their treatments, it seems that the common treatments affect the clients' quantity of life, and given the effects arising from the complications of the treatment, they will affect other aspects of the life of the clients including quality of life.^[6] The progress of treatment has proved to be effective in the long-term survival as well as a better control over the disease and its complication. There are many cancer patients for whom chemotherapy is the mere treatment conducted. For other cancer patients, chemotherapy is conducted with radiation therapy and surgery. However, most of the patients deal with a wide variety of symptoms and side effects including nausea, vomiting, pain, insomnia, anorexia, and fatigue.^[7] Moreover, psychosocial problems and disorders are often associated with the diagnosis of cancer, and these problems affect the patients' quality of life.^[8] In their study, Chen *et al.* indicated that all samples of the study called for the investigation of tumor markers and scanning for the prevention and recurrence of the disease. Moreover, as many as 56% of them were worried about the symptoms of their disease. As many as 42% suffered from limitations in sexual intercourses and 57% of them called for the improvement of body image and reconstructive surgery.^[9] In another study, Safaie *et al.* used a multivariate analysis and indicated that there was a significant relationship between tumor differentiation level, occupational status, menopausal status, dyspnea, and economic problems with the total quality of life.^[10] However, in their study, Tabari *et al.* indicated that the quality of life of most patients was appropriate in terms of physical, mental, and socioeconomic aspects.^[11]

Applying nonpharmacological interventions such as training, doing sports, and counseling together with pharmacological interventions will result in significant effects in the quality of life of patients suffering from breast cancer.^[12] In this regard, in their study, Baghaei *et al.* indicated that an educational package of controlling the complications of chemotherapy resulted in the reduction of symptom scales of quality of life in the intervention group (in comparison to the control group).^[13] Moreover, Karimvey *et al.*,^[14] Patell *et al.*,^[15] and Salehi *et al.*^[16] have conducted similar studies in this regard. Nurses and midwives are the individuals who provide educational services to these patients and deal with them in different periods, and they can help the patients improve their quality of life by providing appropriate and continuous training and counseling.^[12]

Different techniques are used as nonpharmacological interventions for the improvement of patients' quality of life. One of these methods is group training. One of the most popular group training methods is problem-based learning. Problem-based learning is a method in which learning process occurs through the attempts made for understanding or solving

a problem.^[17] In fact, the learning method is such that the learners are provided with a practical and clinical situation. This situation is an incentive for acquiring the necessary information about that problem as well as the strategies needed for solving the problem. In other words, one can say that problem-based learning is the outcome of exploratory learning and case-control study method. The underlying philosophy for learning through this approach is that the learner needs to be actively involved in the process of learning, providing the information, and receiving the information needed.^[17] Since this method deals with real-life situations, it encourages the learners to react to subjects and situations according to their prior experiences and information. In fact, problem-based learning bridges theory and practice.^[18] In this method, the learners are placed in small 10-to-12-individual groups with a trainer working as the facilitator of the learning process. Through providing clinical situations, the trainer attempts to train the patients. This method is learner based, and in this method, the determination of educational needs, decision-makings, and methods of conducting the training procedure are all determined by the learners themselves.^[17] The executive stages of problem-based learning include eight stages: (1) definition of the problem, (2) collecting data, (3) settling the problem, (4) executing the solution, (5) evaluating learning needs, (6) conducting an independent study, (7) reporting, and (8) having an overview of the independent study.^[19]

Given the abovementioned issues, the increase in the population of breast cancer patients in the world especially in Iran, the numerous problems affecting the quality of life of these patients, and the significant importance of health of women suffering from breast cancer (conquering the problems of this group of patients calls for proper policy-making, planning, and training), the present study can be of significant importance for researchers working in medical sciences, media, and women studies. Thus, the present study was conducted to investigate the effect of training problem-based learning on the quality-of-life symptom scales in patients suffering from breast cancer.

Materials and Methods

The present study is a randomized controlled clinical trial conducted on the breast cancer patients hospitalized in the oncology ward of Tohid Hospital of Sanandaj in 2016. The statistical population of this study includes all breast cancer patients hospitalized in the oncology ward of Tohid Hospital. They had referred to receive chemotherapy (outpatient and hospitalized). The inclusion criteria of this study include the age range of 20–65 years, patients' cooperation, filling out informed consent letter to participate in the training program, having no history of chronic diseases, having no history of using drugs, having no history of mental problems, and enjoying appropriate physical health. The exclusion criteria of this study are failing to cooperate, dissatisfaction with participating the study, having critical physical conditions, having a history of chronic diseases, using drugs, and having a history of mental diseases.

The samples included the patients having all qualifications for being included in the statistical population. The sampling was conducted by using convenience sampling method. The researchers identified the number of breast cancer patients by referring to the oncology ward of Tohid Hospital of Sanandaj. This procedure was conducted until the sample size was completed. The samples were then randomly divided into two groups of case and control according to the random number table. Based on the aforementioned studies conducted,^[20] by considering $s_1 = 16.92$, $s_2 = 10.75$, $\mu_1 = 59.24$, and $\mu_2 = 45.68$ with the type I error of 0.05 and type II error of 0.20, the sample size was determined to be 20 for each group. A total of 40 samples were selected in 2 groups. For avoiding the likelihood of sample attrition, the number of the samples increased to 50. Thus, as many as 50 individuals were studied.

At first, the samples' quality of life was studied in both groups by using the questionnaires. Then, the case group's participants were trained problem-based learning based on a planned program in 4–5 individual groups for five 60–90-min sessions during the hospitalization. No training was provided to the control group. At the end, after the end of intervention, the samples filled out the questionnaires once more. The training material of the present study was provided in two parts. In the general section, the material included fatigue, nausea, vomiting, pain, painful breathing, sleep disorder, anorexia, diarrhea, constipation, and economic problems. In the specific section, the material included symptom scale, sexual performance, the individual's image of the future, and the individual's self-image.^[19] Moreover, the intervention was conducted in eight stages. (1) First, the basic information on the problem to be trained was explained by the trainer, and the patient was then asked to provide some hypotheses based on his information and experiences. (2) The trainer provided the patient with the information needed to meet the questions asked by the patient. (3) The trainer asked the patient to discuss his main problems based on the studies conducted and the information collected. (4) The trainer asked the patient to plan for measures and introduce them. (5) The trainer asked the patient to discuss his scientific defects preventing him to understand the problem. (6) On his own discretion, the trainer gave the patient an opportunity to work on the intended problem based on the method he has selected. The trainer guided the patient. The patient is then expected to discuss a problem, the solutions, and the conducting method of the solutions. (7) The patient discussed every change made on the problem, and given the priorities, he/she discussed a problem with all details. (8) In this stage, the patient explained what he had done independently during the study. The patient explained the information specifically determined in the understanding of the problem and explained why they were useful to him/her.^[19]

For data analysis, SPSS software (IBM Corporation) version 23 was used. Descriptive statistics such as mean, standard deviation,

frequency, and cumulative frequency percentage were used for analyzing the data for descriptive purposes. For analyzing the data for analytical purposes, Kolmogorov–Smirnov test indicated that the distribution of the quantitative variables was normal ($P > 0.05$). Paired *t*-test was used to study the difference in the mean of the variables both before and after the intervention in every group. Independent *t*-test was used to investigate the difference in the mean of the variables both before and after the intervention in both groups. For investigating the correlation (or lack of correlation) between the variables, Pearson correlation coefficient was used.

All the patients studied received an informed letter of consent containing the method of conducting the study, and all participants consented to participate in this project by signing the letter of consent. The patients' information was kept confidential. Moreover, coded unnamed questionnaires were used to secure confidentiality. To maintain ethical considerations, educational pamphlets were provided for the patients of the control group as well.

Results

The patients' mean age was 44.22 ± 10.32 . Eighteen percent (9 patients) of the samples were single, 68% (34 patients) of the samples were married, 8% of the samples (4 patients) lost their spouses by death, and 6% (9 patients) were divorced. Most of the patients were illiterate (13%) and had an average income (24%). Most of the patients studied were housewives (66%) and husbands were self-employed (60%). About 38% of the participants had no children, and 38% of them had more than three children. Twenty-six percent of the patients had a history of special diseases, and 24% of them had no history of being treated for special diseases.

The score of the means ranges from 1 to 4. Lower scores indicate a better level of quality of life. The findings of the study, as shown in Table 1, indicate that there was a significant difference in terms of cancer-specific quality-of-life symptom scales of in the intervention group before and after the intervention ($P < 0.05$). Moreover, there is a significant statistical difference between the two groups in terms of all general quality-of-life symptom scales of cancer, except for diarrhea ($P = 0.143$) before and after the intervention ($P < 0.05$).

According to Table 2, there was no significant difference in the intervention group in terms of cancer-specific quality-of-life symptom scales before and after the intervention ($P > 0.05$). However, in the experimental group, after conducting the intervention, the mean scores of different quality-of-life symptom scales reduced, and this resulted in a significant statistical difference in terms of all cancer-specific quality-of-life symptom scales (except for the symptoms of arm, $P = 0.08$). Moreover, there was a significant statistical difference between the two groups in terms of all cancer-specific quality-of-life symptom scales before and after the intervention.

Table 1: The general quality-of-life symptom scales of cancer

Symptom scales	Control group					Intervention group				
	Mean and standard deviation preintervention	Mean and standard deviation postintervention	Paired <i>t</i>	<i>t</i>	df	Mean and standard deviation preintervention	Mean and standard deviation postintervention	Paired <i>t</i>	<i>t</i>	df
Fatigue	5.72±1.36	5.80±1.32	<i>P</i> =0.161	1.445	24	5±1.11	4±1.19	<i>P</i> =0.009	<i>P</i> =0.000	24
Nausea and vomiting	5.64±1.18	5.68±1.31	<i>P</i> =0.746	0.327	24	5.44±1.15	4.40±0.76	<i>P</i> =0.002	<i>P</i> =0.000	24
Pain	5.52±1.38	5.36±1.22	<i>P</i> =0.256	-1.163	24	5.20±0.86	4.36±0.56	<i>P</i> =0.000	<i>P</i> =0.001	24
Dyspnea	2.72±0.73	2.76±0.72	<i>P</i> =0.327	-1.000	24	2.48±0.50	2.16±0.47	<i>P</i> =0.04	<i>P</i> =0.001	24
Sleep disorder	2.76±0.77	2.72±0.67	<i>P</i> =0.664	0.440	24	2.72±0.73	2.08±0.40	<i>P</i> =0.002	<i>P</i> =0.000	24
Anorexia	2.84±0.68	2.64±0.70	<i>P</i> =0.022	2.449	24	2.52±0.58	2.24±0.52	<i>P</i> =0.015	<i>P</i> =0.027	24
Constipation	2.60±0.70	2.72±0.67	<i>P</i> =0.185	-1.365	24	2.52±0.58	2.04±0.61	<i>P</i> =0.011	<i>P</i> =0.001	24
Diarrhea	2.72±0.67	2.56±0.65	<i>P</i> =0.043	2.138	24	2.76±0.72	2.32±0.47	<i>P</i> =0.024	<i>P</i> =0.143	24
Financial problems	2.60±0.57	2.64±0.56	<i>P</i> =0.574	3.674	24	2.68±0.74	2.08±0.40	<i>P</i> =0.001	<i>P</i> =0.000	24

Table 2: The (breast) cancer-specific quality-of-life symptom scales

Symptom scales	Control group					Intervention group					
	Mean and standard deviation preintervention	Mean and standard deviation postintervention	Paired <i>t</i>	<i>t</i>	df	Mean and Standard deviation preintervention	Mean and Standard deviation postintervention	Paired <i>t</i>	<i>t</i>	df	Independent <i>t</i>
Sadness from hair loss	2.84±0.62	2.76±0.59	<i>P</i> =0.327	1.000	24	2.88±0.60	2.24±0.43	<i>P</i> =0.000	4.571	24	<i>P</i> =0.000
Complications of the treatment	26.68±4.02	26.68±4.02	<i>P</i> =0.256	-1.163	24	26.80±3.93	19.84±2.26	<i>P</i> =0.000	-8.046	24	<i>P</i> =0.000
Symptoms of the arm	5.44±1.35	5.44±1.35	<i>P</i> =1	0.000	24	4.90±0.97	4.40±0.59	<i>P</i> =0.008	-1.804	24	<i>P</i> =0.002
Symptoms of the breast	5.52±1.29	5.56±1.22	<i>P</i> =0.714	0.371	24	5.12±0.92	4.40±0.57	<i>P</i> =0.005	-3.068	24	<i>P</i> =0.000

Discussion

In the present study, in addition to determining the individual characteristics and the status of the disease, it was attempted to investigate the effect of training problem-based learning on the quality-of-life symptom scales in patients suffering from breast cancer. The quality of life was investigated in two aspects (general and specific) with their own symptom scales. The postintervention changes made in the quality-of-life symptom scales indicated that training problem-based learning affected the quality of life in the intervention group's patients. Since the two groups were not significantly different in terms of demographic variables, it can be confidently stated that the changes made in the quality of life of the intervention group's patients were resulted from the intervention.

The findings obtained from the data analysis indicated that the pre- and postintervention quality-of-life symptom scales increased significantly in terms of the symptom scales in all aspects ($P < 0.05$). In their study, Baghaei *et al.* indicated that an educational package of controlling the complications of chemotherapy resulted in the reduction of symptom scales of quality of life and improved quality of life in the intervention group (in comparison to the control group) ($P < 0.005$), and this confirms the findings of the present study. However, in their study, no significant difference was resulted in terms of fatigue ($P = 0.241$) and financial problems ($P = 0.132$).^[13] The lack of significant difference for fatigue in the study conducted by Baghaei *et al.* is likely owing to the multidimensional concept

of fatigue resulting from cancer and the chronic and permanent nature of fatigue in these patients. Thus, short term is not merely sufficient in reducing the cancer patients' fatigue. The lack of significant difference for the financial problems in the study conducted by Baghaei *et al.* is likely owing to the huge costs of chemotherapy drugs during the study and the researchers' failure to solve the patients' economic problems. The findings of the study conducted by Karimvey *et al.* in Tehran indicated that group training resulted in improved quality-of-life symptom scales in terms of nausea and vomiting, anorexia, constipation, diarrhea, dry mouth, and gustatory changes in the patients of the intervention group.^[21] The findings of their study were consistent with those of the present study. In this regard, the findings of the studies conducted by Patell *et al.* in Italy^[15] and Bakhshi *et al.*^[22] on the reduction of symptom scales and improved quality of life were consistent with the findings of the present study. In another study conducted in Golestan Hospital of Ahvaz, Salehi *et al.* indicated that the Benson's relaxation program resulted in the promotion of all quality-of-life symptom scales except for the financial problems.^[16] The findings of the aforementioned study confirm those of the present one. The findings of the aforementioned study are similar to those of the present one in that the researcher applied the relaxation methods as one of the educational programs in the patients' general training program. Samiee Siboni *et al.* investigated the effect of family counseling on the quality-of-life symptom scales in breast cancer women undergoing chemotherapy. They indicated that family counseling resulted in the reduction of chemotherapy complications such as fatigue, nausea and vomiting, pain, painful breathing, sleep

disorder, anorexia, constipation, diarrhea, and financial problems. Thus, the findings of the aforementioned study confirmed those of the present study.^[23]

As for the cancer-specific quality of life, the findings of the present study indicated that there was a significant statistical difference between the two groups (before and after the intervention) in terms of all cancer-specific quality-of-life symptom scales ($P < 0.05$). The findings of the study conducted by Baghaei *et al.*^[13] and Hazrati *et al.*^[24] confirmed the findings of the present study. However, in their study, Azh *et al.* indicated that the intervention had no significant effect on the quality-of-life performance and symptom scales in women suffering from breast cancer ($P > 0.05$).^[25] The reason behind this difference is likely the inclusion criteria of the study conducted by Azh *et al.* In the aforementioned study, conducting mastectomy was one of the inclusion criteria of the study. This can indicate the chronic nature of the disease as well as longer period of suffering from that. Thus, conducting intervention before mastectomy will significantly affect the educational methods conducted for the clients. Moreover, since the number of trainings sessions was more than that of the study conducted by Azh *et al.*, it is likely that more training sessions have been more effective. The kind of educational method has been effective as well. In their study, Samice Siboni *et al.* have indicated that family counseling has reduced the specific breast cancer and chemotherapy complications such as the symptoms of breast, arm, and hair loss worry. Their study confirmed the present study as well.^[23]

Since the samples of the present study include breast cancer patients, the stressful events that were not predicted can affect the findings of the study as intervening and damaging factors. Thus, the researcher attempted to control the patients' emotions and reduce their anxiety through expressing the facts during the training. Moreover, given the samples' wide range of age, the learning process in the samples was considered as a limitation. For reducing this limitation, it was attempted to place the patients in the same age group to be trained.

Conclusion

Given the findings of the present study, it can be concluded that training problem-based learning had a positive effect on the quality-of-life symptom scales in women suffering from breast cancer, and this training resulted in the significant improvement in these patients. Alongside other medical measures, this method can be regarded as a part of the normal measures conducted for the patients.

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Conflicts of interest

There are no conflicts of interest.

References

1. Taghdisi MH, Abdi N, Shahsavari S. Health promotion among cancer patients by the Problem Based Learning (PBL) method. *J Health Syst Res* 2011;7:434-41.
2. Badrian M, Ahmadi P, Amani M, Motamedi N. Prevalence of risk factors for breast cancer in 20 to 69 years old women. *Iranian Q J Breast Dis* 2014;7:67-75.
3. Sharifi M, Mikaili P, Baghaei R, Hajilou M, Mohammadpour Y. Evaluation of the effect of chemotherapy on functional scales of quality of life of patient with breast cancer. *Iranian Q J Breast Dis* 2013;6:36-34.
4. Seyedpoori T, Zahmatkesh T, Malaie T, Akbari P, Haqi Z, Mohsenizad P. Assessment of breast cancer risk with Gill models. *Iranian J Breast Dis* 2008;14:605-6.
5. Pakpour Haji Agha A, Panahi Chonaghbolaghi D, Yekaninezhad S, Nourouzi S. Assessment of quality of life in patient with esophagus cancer. *Payesh* 2009;8:371-8.
6. Poorkyani M, Hazrati M, Abbas Zadeh A. Is the inability to improve the quality of life for people with breast cancer. *Payesh* 2009;9:61-8.
7. Henry DH, Viswanathan HN, Elkin EP, Traina S, Wade S, Cella D. Symptoms and treatment: Results from a cross-sectional national survey in the US. *Support Care Cancer* 2008;16:791-801.
8. Yazdani F, Babazadeh Sh. The effect of yoga program on the quality of life in breast cancer patients. *Iranian J Breast Dis* 2013;6:58-66.
9. Chen HL, Wang X-C, Wang J-B, Zhang J-B, Wang Y. Quality of life in patients with breast cancer and their rehabilitation needs. *Pak J Med Sci* 2014;30:126-30.
10. Safaie A, Zaghimi B, Tabatabaie HR, Moghii Dehkordi B. Quality of life and its influencing factors in breast cancer patients undergoing chemotherapy. *Iranian J Epidemiol* 2007;3:61-6.
11. Tabari F, Zakeri Moghadam M, Bahrani N, Maonjamed Z. Evaluation of the quality of life in newly recognized cancer patients. *Hayat* 2007;13:5-12.
12. Shobeyri F, Nik raves A, Masoomi SZ, Heydari Moghadam R, Karami M, Badafareh M. Effect of sport counseling on the quality of life scales of women with breast cancer. *J Educ Community Health* 2015;2:1-9.
13. Baghaei R, SHarifi M, Mohammadpour Y, Sheykhi N. Evaluation of the effects of educational package on controlling the complication of chemotherapeutic agents on symptom scales of quality of life in patients with breast cancer undergoing chemotherapy. *J Urmia Nurs Midwifery Fac* 2013;11:667-79.
14. Karimvey MH, Poordehghan M, Jadid Milani M, Forootan SK, Aeen F. The effect of group counseling on the quality of life

- of patients with breast cancer under chemotherapy in Imam Khomeini Hospital of Tehran. *J Mazandaran Univ Med Sci* 2006;16:43-51.
15. Patell MN, Goldin D, Aggujaro M. Nutritional concerns of cancer patients and the families. *Eur J Oncol Nurs* 2009;1:171-9.
 16. Salehi M, Shariati A, Ansari M, Latifi SM. Effect of Benson's relaxation on significant scales of quality of life in patients with breast cancer under chemotherapy. *J Chronic Dis Jundishapur* 2012;1:1-8.
 17. Sabahi R. Introduction to Problem Based Learning (PBL). *Management of Medical Education Development journal. Isfahan University of Medical Science* 1998;(4):46-52.
 18. Bahmanpour K. The effect of education on critical thinking skills, critical thinking factor, attitudes and behavior, graduate student through problem-based learning. *Nursing. Medical and surgical orientation. Tehran University of Medical Science* 2003;(2);84-90.
 19. Memarian R. Problem-based learning(PBL). *Journal of HAYAT* 1999;5:76-80.
 20. Mohammadi Arya A, Pakdaman M, Abolghasemi S, Rezaee M, Pashae T, Ghareh Tapeh A. The effect of stress inoculation group training on hope and quality of life in women with breast cancer. *J Res Dev Nurs Middwifery* 2014;11:8-16.
 21. Heravi Karimoui M, Poordehghan M, Jadid Milani M, Frotan SK, Aeen F. The effect of group counseling on the quality of life of patients with breast cancer under chemotherapy in Imam Khomeini Hospital of Tehran. *J Mazandaran Univ Med Sci* 2006;16:43-51.
 22. Bakhshi M, Memarian R, Azad Fallah P. The effect of progressive muscle relaxation on the dosage of antiemetic drug in cancer patients undergoing chemotherapy. *Horizon Med Sci* 2009;15:5-12.
 23. Samiee Siboni F, Anoshe M, Alhani F. The effect of family counseling on the quality of life of women with breast cancer under chemotherapy. *Iranian J Breast Dis* 2010;3:29-39.
 24. Hazrati M, Poor Keiani M, Abaszadeh A, Jaafari P. The effect of rehabilitation in quality of life in women after mastectomy. *Armaghan Danesh* 2007;12:90-9.
 25. Nasal A, Javadi A, Mahmood Babaee M, Rezaie F, Honardar A. The effect of education in the field of current care and care of breast cancer on the quality of life of patients with breast cancer referred to oncology clinic of Kowsar Hospital in 2011-2011. *Iranian Breast Cancer J* 2011;5:60-70.