



Original Paper

Effect of a Discharge Planning Program on the Quality of Life in Women With Breast Cancer


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ABSTRACT

Introduction: Women with Breast Cancer (BC) under chemotherapy are at risk of complications affecting their Quality of Life (QoL), which need specific discharge planning.

Objective: This study aims to investigate the effect of a discharge planning program on the QoL of women with BC.

Materials and Methods: This quasi-experimental study was conducted on 72 women with BC undergoing chemotherapy referred to oncology wards in Kermanshah, Iran. They were divided into groups of intervention (n=35) and control group (n=35) using the block randomization method. For the intervention group, the discharge planning program was implemented individually and in group at least 4 sessions, each for 30-45 minutes. Patients' QoL in both groups was measured before, one month after, and three months after intervention using two questionnaires of European Organization for Research and Treatment of Cancer (QLQ C-30 and QLQ-BR23). The collected data were analyzed using ANOVA, chi-square test, t-test, and repeated measures ANOVA. The significance level was set at 0.05.

Results: The mean age of participants was 47.71±10.4 years, and majority of them were in the second stage of BC. There was a significant difference in all functional scales of QoL in the intervention group over time from baseline to three months after discharge (P<0.05), except in sexual functioning (P=0.119) and sexual enjoyment (P=0.210).

Conclusion: The discharge planning program has a positive effect on the Quality of Life of women with Breast Cancer.

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Highlights

- Discharge planning can reduce the length of hospital stay, hospital re-admission, health costs, and disease outcomes.
- One of the key steps in nursing care is to include a discharge plan for those who are admitted to hospital.
- The discharge planning program used in this study included training, support, counseling and follow-up of patients with breast cancer to ensure that they are able to take care of themselves after discharge.
- The discharge planning program can improve the quality of life of women with breast cancer.

Plain Language Summary

Increased length of stay at hospital is an important indicator of inefficiency in hospitalization management, which can cause fatigue in health care staff and increase the risk of treatment complications. Since patients experience unwanted side effects during discharge if not managed well, there is a likelihood of re-admission or subsequent hospital visits. Due to the increase in breast cancer survivors and longer life expectancy of these patients compared to patients with other cancers, discharge planning (a systematic plan for a patient to leave the hospital), needs to be considered for these patients. By improving the quality of life of these patients, the recurrence of disease and its complications and the return to the hospital after discharge can be reduced. Based on the findings of this study, further studies are recommended to use the discharge planning program for other diseases.

Introduction

Breast Cancer (BC) is known as one of the most important diseases of the current century as well as the third leading cause of death after cardiovascular diseases and accidents [1]. It is the most common type of cancer and the leading cause of cancer-related deaths in women [2]. According to the statistics released in 2019, BC accounted for 11.6% of cancer cases and 6.5% of deaths worldwide [3]. Screening the quality of life is important in the study of chronic diseases, especially cancer, due to their longer treatment time. Short-term and long-term side effects of cancer treatment endanger patient's quality of life [4]. Due to early diagnosis and treatment of BC, the number of BC survivors in Asia is also on the rise, mostly patients with long-term survival rates compared other types of cancer [5]; therefore, they need long-term disease management to maintain their Quality of Life (QoL) [6]. If women fail to have proper self-care behaviors, they may delay or end their treatments before completion [7]. The QoL refers to one's perception of their position in life in the framework of culture and value systems. It is a significant indicator of the effectiveness of treatments, especially for BC [8]. Therefore, in addition to managing specific signs and symptoms during treatments, understanding patients' needs is of utmost importance in order to improve their QoL and maintain their physical and psy-

chosocial health [9]. Fetaini et al. in a study on the impact of BC treatment options including chemotherapy on the QoL demonstrated their negative effects on survivors' physical and psychosocial health [10]. Bouya et al. showed that nursing education can positively influence overall QoL and psychological well-being and consequently reduce side effects in women with BC [11]. Identifying factors associated with QoL can help nurses alleviate the symptoms of BC [12]. Thus, nursing interventions and preventive measures can be beneficial to these patients [13]. Accordingly, health care providers can deliver complementary health care services to patients through preparing appropriate environmental and educational conditions [14].

Hospitals are considered as safe and protective environment for BC patients, but when they are discharged, the world seems to be threatening and frightening for them. This is because of their insufficient information and knowledge of healthcare at the time of discharge [15]. Proper discharge planning thus should be taken into account as a multifaceted process, involving patient evaluation during hospital admission and educating patients and their families for follow-up and post-discharge evaluation, which can provide conditions for patient transfer to home [16]. Therefore, determining the causes of dissatisfaction and making attempts to solve them are among factors that can result in delivery of high-quality care services and meeting patient satis-

faction [17]. Given the patients' needs for an integrated discharge planning program with follow-up during hospitalization and after discharge, the present study aims to determine the effect of a discharge planning program on QoL of women with BC.

Material and Methods

This quasi-experimental study was conducted in 2019 on women with BC undergoing chemotherapy, admitted to two hospitals affiliated to [Kermanshah University of Medical Sciences](#), Iran. At 95% confidence interval (CI), considering a 5% margin of error, $Z_{1-\alpha/2}=1.96$, $Z_{1-\beta}=1.28$, $S_1=7.8$, $S_2=23.36$, $\alpha=0.05$, $\beta=0.10$, $\mu_1=1.90$, $\mu_2=16.17$ using Cochran's formula in G*Power software, and based on the results of a similar study on the effect of family counseling on the QoL of women with cancer receiving chemotherapy and their families [18], the sample size was calculated 32 per group. Considering a 10% dropout, the sample size was increased to 36 per group (Total=72) (Figure 1). The inclusion criteria for recruiting

the BC patients were: Diagnosis of BC (based on clinical, pathological, and medical examinations), being hospitalized in oncology wards with available medical records, willingness to attend the training sessions, no severe malignancies or glioblastoma (grade IV) whose only treatment was chemotherapy, ability to establish verbal communications with researchers, consent to participate in the study, having writing and reading literacy, not being a member of medical or paramedical groups, and no history of mental illnesses according to the medical records. The exclusion criteria were: No willingness to continue participation, leaving the study for any reasons (e.g., death, early discharge, or transfer to other medical centers), and receiving other simultaneous treatments such as hormone therapy or radiotherapy. Allocation was done using the block randomization method; Samples were divided into 18 groups of 4, of which 9 groups of 4 were in the intervention group and 9 groups of 4 were in the control group.

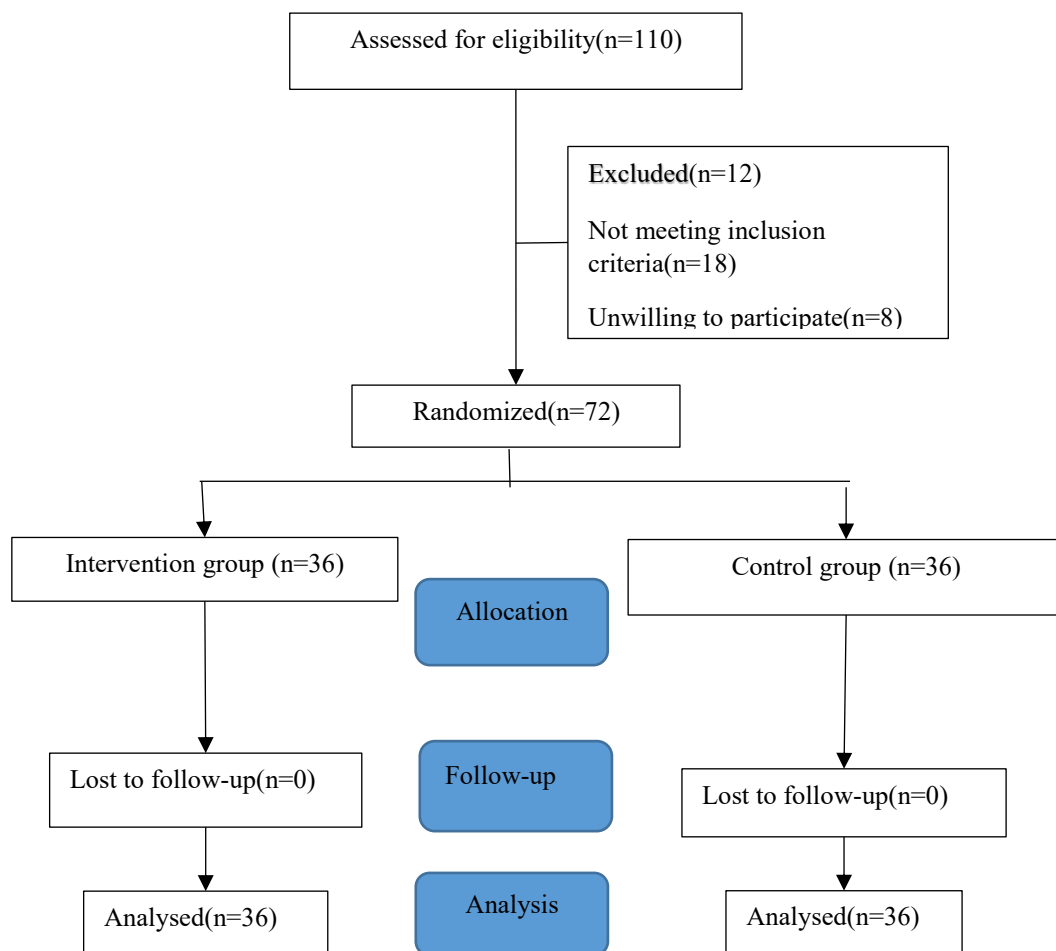


Figure 1. CONSORT flowchart

Table 1. The discharge planning program protocol

Session	Title	Content	Definition	Purpose
1	Acquaintance Emphasis on the physical domain of QoL	Greeting, acquaintance, and motivating to participate in the sessions; Proper diet, sleep, and physical activity	- Follow a diet that includes all the necessary nutrient and have adequate sleep and exercise	To know their current level and be informed about the program and its goals To understand the importance of proper diet, adequate sleep, and physical activity, and apply the instructions during and after the intervention
2	Emphasis on the psychological domain of QoL	Purposefulness Enjoyment of an experience	Trying to achieve something in life and having a useful goal Enjoying an experience or feeling	To become familiar with the concept of purposefulness and learn strategies for pursuing a purposeful life To become familiar with the concept and learn specific strategies that can help enjoy life
3	Emphasis on the social domain of QoL	Having a role in family and community Satisfaction with sexual intercourse and appearance Gratitude as a key factor in maintenance of social interactions	Behavior that can be expected from any person according to their social status The pleasant feeling of sexual intercourse Be thankful and appreciate others who create beautiful moments in life	Teaching role-playing strategies according to the expectation of society and the family, paying attention to roles related to social relationships and gender Teaching sexual adjustment and physical fitness, and boosting self-confidence To become familiar with the concept of gratitude and learn strategies to become grateful
4	Emphasis on the spiritual dimension of QoL	Moral behavior Spirituality	A set of personal or social norms for good or bad behavior Belief in transcendental power that controls everything	To teach strategies that improve the ability to have morally right behavior, and apply them during and after the intervention To teach specific strategies that improve spirituality, and apply them during and after the intervention

The data collection instruments were: (1) a demographic form containing 8 questions surveying age, working hours, occupation, BC stage, educational level, marital status, income level, and place of residence, (2) the European Organization for Research and Treatment of Cancer QLQ C-30 European Organization for Research and Treatment of Cancer (EORTC QLQ C-30) questionnaire with 30 items, five functioning scales (physical, role, emotional, cognitive, and social), nine symptoms scales (dyspnea, fatigue, pain, insomnia, appetite loss, nausea and vomiting, constipation, diarrhea and financial), and a global health status /QoL; and (3) the European Organization for Research and Treatment of Cancer QLQ BR-23 (EORTC QLQ BR-23) questionnaire with 23 questions, of which 15 are related to the symptom scales (arm symptoms, breast symptoms, systemic therapy side effects, and upset by hair loss), 2 related to sexual functioning, one related to future perspective, and 4 related to body image. The items of questionnaires are rated on a 4-point scale (not at all, low, high, very high). Higher scores in functional scales indicated better performance or QoL, while for the symptom scales, higher scores imply poor performance or

QoL [19]. The European Organization for Research and Treatment of Cancer has approved the validity and reliability of these questionnaires, and they have also been validated in many countries [20]. The validity and reliability of the Persian versions of these questionnaires were confirmed by Montazeri et al. and Safaee et al. in Iran [21, 22].

Prior to the study, the researcher referred to the selected hospitals and, after obtaining ethical approval, started sampling in coordination with the relevant authorities. Then, after giving explanations about the study objectives and procedures to the participants, their consent to participate in the study were obtained. Then, they their demographic characteristics were recorded, their medical information was extracted from their medical records, and the QLQ-C30 and the QLQ-BR23 were completed by them. Afterwards, the inventory for needs assessment was completed by the researchers to assess the level of educational needs in both intervention and control groups. Accordingly, patients' educational needs before and after study at hospital and at home were determined.

The discharge planning program included four stages of training, counseling, emotional support, and follow-up. Training was provided at 4 sessions for 30-45 minutes twice a week in a classroom located in the oncology department. The summary of these sessions is presented in [Table 1](#). The educational methods were also trained individually and face-to-face and the educational materials were provided in written form (pamphlets and booklets) which were about patient's familiarity with the disease, treatment methods, and pre- and post-chemotherapy care services, which were also given during the phone calls, once a week after discharge. It should be noted that the first phone call was lasted for 48 or 72 hours after discharge. Four weeks after discharge and during patients' referrals to the clinics for receiving treatments, the QLQ-C30, the QLQ-BR23, and the needs assessment inventory were completed by them again. It should be noted that the control group also completed the questionnaires one month after discharge. Afterwards, the patients had two months to train based on the instructions given in the discharge planning program. Three months after discharge, the QLQ-C30, the QLQ-BR23, and the needs assessment inventory were completed in a face-to-face meeting at the hospital clinics with the two study groups. At the end of study, in order to observe ethical principles, all educational materials, booklets and pamphlets were provided to the patients in the control group.

The collected data entered into the IBM SPSS software (version 21). Descriptive statistics, chi-square test, and independent samples t-test were used for data analysis. The mean QoL difference before and after intervention between the two study groups was examined by independent samples t-test. To assess the mean QoL difference within three intervals i.e., before, one month after, and three months after discharge in both groups, the repeated measures Analysis of Variance (ANOVA) was carried out.

Results

In this study, participants were 72 women with BC (Mean±SD age= 47.71±10.4 years), randomized into intervention and control groups. Majority of them (88.9%) were housewife, and in the second stage of BC. Their demographic characteristics are shown in [Table 2](#). The results revealed a statistically significant difference in the global QoL, physical, role, emotional, cognitive, social dimensions of EORTC QLQ C-30, and in body image and future perspectives of QLQ BR-23 in the intervention group over time from baseline to three months

after discharge ($P<0.05$); their scores were higher in the intervention group than in the control group. However, no significant difference was observed in QoL in terms of sexual functioning and sexual enjoyment in the intervention group over time ([Table 3](#)).

Moreover, the findings demonstrated a significant difference over time from baseline to three months after discharge in symptoms including fatigue, nausea and vomiting, pain, dyspnea, insomnia, lack of appetite, constipation, diarrhea, financial difficulties, systemic therapy side effects, breast symptoms, arm symptoms, and upset by hair loss ($P<0.05$). The results of repeated measures ANOVA in the control group showed that the mean of symptom scales were also significantly different from baseline to three months discharge ([Table 4](#)).

Discussion

The purpose of the present study was to investigate the effect of a discharge planning program on QoL of women with BC admitted to hospitals affiliated to [Kermanshah University of Medical Sciences](#) in Iran. The study groups were homogenous in demographic characteristics. The means of global health status/QoL, symptom scales and functional scales were significantly different in the intervention group from baseline to three months after discharge, but the difference was not significant in sexual functioning and sexual enjoyment. Diagnosis and treatment of BC affects women's sexual functioning, may be due to physical and psychological problems resulted from the disease and its treatment [23]. Afrasiabifar et al. [24] in a study on the effect of a self-care program using Orem's self-care model on the QoL of women with BC undergoing chemotherapy, revealed that the program had positively influenced all QoL dimensions except in sexual functioning and sexual enjoyment, which the results of present study is consistent with the findings of the present study. Boquiren et al. [23], in a study on sexual functioning in BC survivors with body image disturbance, demonstrated that the factors affecting sexual functioning in these women were post-treatment mental and physical complications as well as fear of rejection by partner. Another study [18] revealed that family counseling could have a positive effect on QoL in women with BC receiving chemotherapy including their sexual functioning and sexual enjoyment. Thus, for improving sexual functioning in women with BC, more attention should be paid to their husbands' attitudes. The other reason for no significant improvement in patients' sexual functioning is the depth psychology of BC which necessitates multilateral

Table 2. Demographic characteristics of participants (n=36)

Variables	Characteristics	Mean±SD/No. (%)		P
		Intervention	Control	
Age		47.9±10.6	47.5±10	0.86*
Working hours		6.0± 0.0	6.3±0.5	0.42*
Occupation	Housewife	31(86.1)	33(91.7)	0.71**
	Employee	4(11.1)	3(8.3)	
	Retired	1(2.8)	0(0)	
Brest Cancer stage	1	4(11.1)	3(8.3)	0.76**
	2	22(61.1)	25(69.5)	
	3	10(27.8)	8(22.2)	
Educational level	Primary School	4(11.1)	5(13.9)	0.88**
	Middle School	19(52.9)	18(50)	
	High School	7(19.4)	9(25)	
	University ducation	6(16.6)	4(11.1)	
Marital status	Single	1(2.8)	2(5.5)	0.59**
	Married	33(91.7)	31(86.2)	
	Widow	2(5.5)	3(8.3)	
Level of income	Fair	9(25)	11(30.5)	0.94**
	Moderate	20(55.5)	19(52.9)	
	Unfair	7(19.5)	6(16.6)	
Place of residence	City	31(86.1)	30(83.3)	0.74**
	Village	5(13.9)	6(16.7)	

*Independent t-test; **Chi-Square test

cooperation between sexual health specialists and psychotherapists [25].

Physical functioning domain assess the degree of tolerance during walking, carrying objects, and performing daily living tasks. Role functioning domain refers to having daily routine and favorite habits with no limitations. In emotional functioning domain , the feelings such as tension, anxiety, stress, and impatience are assessed. In cognitive functioning domain, the concentration and mindfulness of patients are assessed, and in social functioning domain, the effect of disease and treatment process on their social roles are examined [26]. Binotto et al. evaluated the effect of chemotherapy on functional scales of QoL in patients with BC and reported a reduction in their functions following chemotherapy [9]. The results of Sajjad et al. [27] showed that verbal and

written patient education, availability of a nurse during patients' chemotherapy administration and over the telephone, and a telephone follow-up of the patients by the nurse could have a positive effect on well-being and QoL in patients with BC.

Regarding the symptom scales of QoL, results showed no significant difference between the intervention and control groups prior to the implementation of the discharge planning program; however, a significant difference was observed in the intervention group compared to the control, one and three months after implementation of the program. Fatigue, nausea and vomiting, insomnias, diarrhea, constipation and lack of appetite are some of the symptoms that may delay treatment or terminate it, if women with BC fail to have self-care behaviors. Education about treatment, complications,

Table 3. Comparison of Quality of Life's functional scales between the two study groups before, one month after, and three month after intervention

Functioning Scale	Group	Mean±SD			P*
		Before Intervention	1 Month After	3 Months After	
Global/QoL	Intervention	31.25±8.30	70.14±9.63	75.12±7.91	0.001
	Control	32.40±7.91	24.31±8.12	23.20±8.86	0.007
	P**	0.54	0.001	0.001	
Body functioning image	Intervention	38.80±14.55	75.00±3.98	76.26±4.75	0.001
	Control	42.65±13.67	35.12±13.02	33.11±12.35	0.024
	P**	0.58	0.001	0.001	
Sexual functioning	Intervention	19.44±14.63	21.23±13.63	22.85±12.11	0.119
	Control	21.95±17.34	14.98±16.75	12.09±15.70	0.030
	P**	0.62	0.001	0.001	
Sexual enjoyment	Intervention	20.00±16.66	22.35±15.73	23.55±14.01	0.210
	Control	19.66±17.09	14.72±11.75	10.22±11.24	0.021
	P**	0.51	0.001	0.001	
Future health functioning	Intervention	24.81±16.79	41.25±14.05	42.86±15.41	0.001
	Control	23.25±15.57	15.59±15.21	14.60±14.37	0.029
	P**	0.22	0.001	0.001	
Physical functioning	Intervention	34.81±16.42	72.59±10.05	73.14±10.82	0.001
	Control	35.18±12.09	29.52±12.87	27.94±11.06	0.024
	P**	0.91	0.001	0.001	
Role functioning	Intervention	43.97±16.01	73.43±10.82	73.61±12.39	0.001
	Control	41.67±12.28	33.44±11.91	32.55±11.24	0.025
	P**	0.49	0.001	0.001	
Emotional functioning	Intervention	25.46±12.43	62.03±8.55	63.52±8.71	0.001
	Control	23.61±14.43	18.08±13.94	16.62±12.21	0.015
	P**	0.56	0.001	0.001	
Cognitive functioning	Intervention	62.50±20.46	82.41±14.33	83.33±14.21	0.001
	Control	66.20±14.63	61.59±13.56	60.61±13.22	0.034
	P**	0.38	0.001	0.001	
Social functioning	Intervention	36.11±14.08	63.42±8.74	64.74±9.23	0.001
	Control	31.09±10.40	24.87±10.02	23.78±9.96	0.043
	P**	0.051	0.001	0.001	

*Repeated measures ANOVA; **Independent t-test

and self-care behaviors can reduce the side effects of chemotherapy and these symptoms and, thus, improve QoL. The discharge planning program, by including training in proper nutrition and exercise, was able to prevent side effects of treatment and the possible return to the hospital after discharge [7]. In Australia, results of a study showed that a follow-up care program could positively affect QoL in patients with BC, particularly in management of symptom, one and three months after the intervention [28]. Toija et al. [29] showed that peer support on health-related QoL had no considerable effect on its dimensions in patients with BC. In Barandeh et al.'s study [14], the results showed that training for one hour by using only educational booklets cannot increase

the QoL in patients with BC. Therefore, considering that in most hospitals or chemotherapy centers, education is presented only by educational booklets, it is suggested to use more educational facilities and suitable places for educating patients with BC.

Although this study revealed that the discharge planning program had beneficial effects on the QoL of women with BC and could significantly mitigate many side effects associated with the disease or treatments, there were limitations that need to be considered to boost the generalizability of the findings such as individual and cultural differences between participants, difference in perception of some concepts, as well as variations in participants' mental states.

Table 4. Comparison of Quality of Life's symptom scales before, one month after, and three months after the intervention

Symptom Scale	Group	Mean±SD			P*
		Before Intervention	1 Month After	3 Months After	
Systemic therapy side effects	Intervention	64.55±13.68	40.07±7.99	39.63±8.01	0.001
	Control	65.76±12.16	24.31±8.12	23.20±8.86	0.008
	P**	0.54	0.001	0.001	
Breast symptoms	Intervention	50.55±10.54	28.93±10.05	26.63±11.37	0.001
	Control	48.17±15.86	54.62±12.35	56.17±12.46	0.017
	P**	0.53	0.001	0.001	
Arm symptoms	Intervention	68.51±19.06	58.38±14.42	35.23±14.26	0.001
	Control	65.01±20.08	71.60±18.35	73.90±17.09	0.038
	P**	0.47	0.001	0.001	
Upset by hair loss	Intervention	65.29±21.23	33.33±11.43	31.29±11.26	0.001
	Control	61.70±21.06	68.51±18.45	70.29±18.08	0.031
	P**	0.97	0.001	0.001	
Fatigue	Intervention	81.17±14.00	48.19±9.38	45.50±8.78	0.001
	Control	84.25±12.56	88.70±15.34	89.18±18.89	0.006
	P**	0.32	0.001	0.001	
Nausea and vomiting	Intervention	64.81±15.82	39.62±14.96	36.88±14.42	0.001
	Control	62.74±13.76	68.50±17.53	69.31±18.75	0.013
	P**	0.79	0.001	0.001	
Pain	Intervention	62.50±18.84	46.25±9.85	43.31±9.12	0.001
	Control	64.44±15.68	73.20±15.03	74.78±14.74	0.007
	P**	0.094	0.001	0.001	
Dyspnea	Intervention	38.88±24.55	26.07±15.14	24.47±13.86	0.001
	Control	49.07±23.21	54.51±22.28	55.17±22.80	0.042
	P**	0.075	0.001	0.001	
Insomnia	Intervention	56.48±15.57	32.40±12.56	31.37±11.43	0.001
	Control	58.25±16.15	63.48±17.49	64.92±18.37	0.036
	P**	0.460	0.001	0.002	
Appetite loss	Intervention	91.66±14.63	52.77±16.66	50.98±16.88	0.001
	Control	82.33±16.90	88.62±25.49	89.49±21.03	0.023
	P**	0.051	0.001	0.001	
Constipation	Intervention	44.44±28.72	23.14±19.22	22.50±18.90	0.001
	Control	52.62± 27.77	58.00±31.34	59.11±31.34	0.060
	P**	0.131	0.001	0.001	
Diarrhea	Intervention	40.74±31.98	17.74±18.80	16.66±18.32	0.001
	Control	38.70±26.61	43.00±24.39	44.49±24.6)	0.011
	P**	0.087	0.001	0.001	
Financial	Intervention	62.03±22.75	37.96±16.23	36.27±15.05	0.001
	Control	58.33±23.05	63.48±24.96	65.88±25.58	0.009
	P**	0.495	0.001	0.001	

*Repeated measures ANOVA; **Independent t-test

The discharge planning program has positive effects on the QoL of women suffering from BC. This intervention is recommended due to being efficient and cost effective. Its implementation can prevent many health costs and consequently moderate mental illness induced by re-admission to hospitals. Since there was no significant difference in women's sexual functioning and sexual enjoyment after the discharge program, it is important to note that social support by family and health care providers needed for improving these aspects of QoL.

Ethical Considerations

Compliance with ethical guidelines

Written informed consent was obtained from the participants and their personal information was kept confidential. The study obtained its ethical approval from the ethics committee of **Islamic Azad University Tehran Medical sciences** (Code: IR.IAU.TMU.REC.1397.352).

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Authors' contributions

Conceptualization and project administration: Zohreh Parsa Yekta; Methodology, writing, data collection, and data analysis: Yasaman Tamri; editing and review: Zohreh Parsa Yekta and Yasaman Tamri.

Conflict of interest

The authors declared no conflict of interest.

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