

Original article:

The effect of peer education on the self-efficacy and mental adjustment of breast cancer patients undergoing chemotherapy

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Abstract:

Background: Breast cancer ranks the first common cancer in women in Iran and is the fifth most common cause of death. Peer education on the self-efficacy and mental adjustment of breast cancer patients undergoing chemotherapy can contribute to their easier adaptation to the disease. This study aimed to determine the improved mental adjustment and self-efficacy for women undergoing chemotherapy through peer education. **Study Design:** This study was conducted using pre- and post-test follow up and control design approach. 70 women with breast cancer who underwent chemotherapy in Nemazi hospital participated in this study. **Method:** Using convenient sampling, the participants were selected and randomly assigned into two groups. The experimental group was randomly assigned to four groups and peer education was conducted one educational session per week for 6 weeks. To assess mental adjustment and self-efficacy before and after the study, Mini-Mental Adjustment to Cancer Scale (Mini-MAC) and Self-Efficacy Scale for Self-Management of Breast Cancer (SESSM-B) questionnaires were used. Chi-square and t-test were used to analyze the data. **Results:** For the experimental group, the results showed statistically significant improvement in self-efficacy ($p < 0.000$) while the control group showed no significant difference in self-efficacy. Mental adjustment inside each group showed a significant increase over the time, but no statistically difference was observed between the groups. **Conclusion:** It is suggested that peer led education is a useful teaching strategy as a supportive intervention for women undergoing chemotherapy to improve their self-efficacy regarding breast cancer.

Keywords: Peer education; Breastcancer; Chemotherapy; Self-efficacy; Mental adjustment

Bangladesh Journal of Medical Science Vol. 19 No. 03 July'20. Page : 558-566
DOI: <https://doi.org/10.3329/bjms.v19i3.45875>

Introduction:

Breast cancer is the most diagnosed and common cancer among women worldwide. Global statistics show an increase in the incidence of breast cancer^{1,2} and each year more than 1.5 million women worldwide are diagnosed with breast cancer.³ In Iran also the incidence of breast cancer is rising and women diagnosed with this disease are relatively 10 years younger than their western counterparts.^{4,5} In southern part of Iran (Fars Province), breast cancer is in the top 10 cancers among women.⁶ Different treatment approaches exist for breast cancer and chemotherapy is one of the most common

methods in Iran. Despite survival rate success, anxiety, depression and psychological distress are common among the patients, even years after diagnosis and treatment.⁷ Outpatient chemotherapy allows the patients to maintain their normal level of social activities, but they will deal with several health concerns with less specialist assistance.⁸ Therefore, patients need to manage these issues effectively. Self-efficacy has a significant role in the adaptation of patients with cancer. It has also an important effect on general confidence of one's ability to adapt in a variety of situations. Increased self-efficacy in patients with cancer is associated with improved

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psychological adjustment⁹⁻¹¹ and self-management behavior, such as physical activity.¹²

Currently, peer education is used in diverse settings among different groups of patients that support the use of non-professional providers as peers.¹³⁻¹⁴ Visiting patients with the same diagnosis and concerns brings relief and assurance; they feel empathy to each other and would share and discuss their experiences.¹⁵

Psychosocial support for cancer patients is an important component of care, and peer support is known as an effective strategy for meeting the needs of cancer patients. Peer support refers to the emotional and practical support of patients with similar experience. It is useful through increasing adaptability, resilience, reduction of anxiety and above all by providing a sympathetic environment acceptable by patients to share their experiences.¹⁶

Considering the increased rate of breast cancer and time allocation limitation of physicians to talk and educate patients, this study aimed to highlight the effect of peer education on self-efficacy and mental adjustment for women with breast cancer who had undergone chemotherapy in Nemazi hospital, Shiraz, which is the main center for outpatient chemotherapy in Fars Province.

Methods:

This is an interventional study, using pre-post follow up and control group design aiming to measure the effect of peer lead education on the self-efficacy and mental adjustment of women undergoing chemotherapy after breast cancer diagnosis.

By convenience sampling method, the participants were randomly divided into two experimental and control groups. All patients met the inclusion criteria as stage one to three breast cancer and were currently undergoing chemotherapy. Exclusion criteria were having another type of malignancy and psychological problem.

To detect the statistical difference between the groups with significance of $p \leq 0.05$, seventy women were selected and randomly assigned into experimental (32 patients) and control (29 patients) groups. Nine patients withdrew from the study.

Self-efficacy was measured using the SESSM-B¹ at two points in time: before and one month after the intervention in both groups. The instrument used was developed by Korean National Cancer Center and demonstrated a concurrent validity with health-related quality of life scale, EORTC QLQ-C30 & BR23. The internal consistency, Cronbach's alpha,

1 Self-Efficacy Scale for Self-Management of Breast cancer

was 0.78.^{8,14}

Mental adjustment of patients was measured using the Mini-MAC², which is an instrument for assessing the mental adjustment of patients with cancer; it includes 29 items in five dimensions of Helplessness/ Hopelessness (HH), Anxious Preoccupation (AP), Fighting Spirit (FS), Avoidance (AV) and Fatalism (F), Adaptive coping (being measured by FS, AV, and F) and Maladaptive coping (being measured by HH and AP).¹⁵

After translation and back translation of the instruments, three experts (one oncologist and two psychologists) confirmed the validity of the final Persian script. The internal consistency, Cronbach's alpha coefficient of SESSM-B and Mini-MAC were calculated 0.78 and 0.87. In both instruments, a higher score shows a better condition or a better self-efficacy and adjustment.

The experimental group was divided into four subgroups of eight patients, carried out in two stages. In the first stage and based on the oncologist's opinion, 4 of the patients with at least two years remission after chemotherapy and able to communicate with others were selected as the peer educators. The content of their training was about the concept of cancer, breast cancer, treatment, adaptation to disease, and self-management. The training was performed in 6 sessions and each session lasted for one hour. Two experts in psychology and oncology conducted the training sessions. In the second stage, peer educators went to the groups and in a supportive and friendly environment guided the patients. For each group, six sessions on a weekly basis for six weeks were conducted. Each session took about one hour based on the group's need. The control group did not receive any intervention and after the data collection they received an educational pamphlet.

Ethical Considerations: University Review Board and Ethics Committee of Shiraz University of Medical Sciences approved the study. The purpose of the study, voluntary participation, confidentiality and freedom to withdraw at any time were explained to the participants and written consent was obtained from all the patients. The study was performed in the main center of chemotherapy for breast cancer in Shiraz (Nemazi Hospital) which is affiliated to Shiraz University of Medical Sciences.

Results:

Demographic and baseline characteristics of the experimental and control groups are presented in [Table 1](#). The results showed that experimental and

2 Mini-Mental Adjustment to Cancer

control groups were matched in age, marital status and educational level. The majority of participants were aged between 36 and 55, and approximately 80% of them were married. There was no significant difference in the demographic characteristics between the two groups, as shown in Table 1a, b, c.

Table 1-a. Demographic characteristics of the study sample in groups (age)

Age						Group
P	Mean (SD))	>55	46-55	36-45	25-35	
0.276	49.03 (8.26)	5	14	9	1	Control 29
		17.2%	48.3%	31%	3.4%	
	46.31 (9.41)	7	9	11	5	Case 32
		21.9%	28.1%	34.4%	15.6%	

Table 1-b. Demographic characteristics of the study sample in groups (education level)

Educational level				Group
P (chi square)	University education	Diploma	Less than diploma	
0.604 (1.009)	6	9	14	Control 29
	20.7%	31%	48.3%	
	8	12	11	Case 32
	25.8%	38.7%	35.5%	

Table 1-c. Demographic characteristics of the study sample in groups (marital status)

Marital status					Group
P value	Divorced-widow	Married	Single	25-35	
0.88	3	24	2	1	Control 29
	10.3%	82.8%	6.9%	3.4%	
	3	26	3	5	Case 32
	9.4%	81.3%	9.4%	15.6%	

In order to assess the two groups' homogeneity in terms of self-efficacy and mental adjustment, independent t-test was performed and the results showed similarity in and between both groups before the intervention. There was no statistically significant difference in self-efficacy ($p=0.644$) and mental adjustment ($p=0.234$) between the two groups (Table 2).

Table 2: Mean scores of mental adjustment and self efficacy in groups before the intervention

p-value	T	SD	Mean	Group	
0.234	1.203	0.53	2.99	Control	Mental adjustment
		0.45	3.14	Intervention	
0.644	0.465	0.51	3.47	Control	Self efficacy
		0.62	3.54	Intervention	

As the results revealed, both groups were similar based on mental adjustment and self efficacy before the intervention (Table 2), but Table 3 presents a significant difference between mean scores of mental adjustment in the intervention group ($p < 0.000$) and control group ($p=0.002$); also, the mean score of mental adjustment after the intervention was significantly increased in both groups. However, comparison of the mean difference of mental adjustment scores between the intervention and control groups showed that there was no significant difference between the two groups ($p=0.185$), as shown in Table 3.

Table 3: Mental adjustment and self-efficacy mean scores in groups before and after the intervention

p	T	SD	Mean difference	P	T	Post test		Pre test		Group	Variables
						SD	Mean	SD	Mean		
0.185	1.32	0.25	0.26	0.000	5.81	0.32	3.41	0.45	3.14	Intervention	Mental adjustment
		0.27	0.17	0.002	3.32	0.37	3.16	0.53	2.99	Control	
0.000	7.43	0.44	0.71	0.000	9.17	0.31	4.25	0.62	3.54	Intervention	Self efficacy
		0.43	-0.12	0.145	1.49	0.4	3.35	0.51	3.47	Control	

Table 4 displays the change process regarding different dimensions of mental adjustment in the groups before and after the intervention.

Table 4. Comparison of mental adjustment mean scores in the groups before and after the intervention

Dimensions	Group	Pre test		Post test		T	P	Mean difference	SD	T	P
		Mean	SD	Mean	SD						
Helpless Hopeless	Control	3.09	0.69	3.2	0.5	1.29	0.206	0.1	0.43	1.8	0.07
	Intervention	3.29	0.55	3.58	0.35	4.78	0.000	0.28	0.33		
Anxious Preoccupation	Control	2.52	0.64	2.78	0.46	3.04	0.005	0.26	0.46	0.92	0.36
	Intervention	2.64	0.72	3	0.64	4.87	0.000	0.36	0.42		
Fighting Sprit	Control	3.07	0.57	3.34	0.51	3.26	0.003	0.27	0.44	0.98	0.33
	Intervention	3.37	0.57	3.52	0.4	1.54	0.132	0.14	0.53		
Cognitive avoidance	Control	2.96	0.75	3.02	0.66	0.47	0.639	0.05	0.61	1.75	0.08
	Intervention	3.1	0.64	3.4	0.48	3.76	0.001	0.29	0.44		
Fatalism	Control	3.53	0.57	3.71	0.42	2.4	0.019	0.17	0.37	0.32	0.74
	Intervention	3.56	0.51	3.76	0.28	3	0.005	0.2	0.38		

As shown in the Table, in the control group the scores of anxious preoccupation (p=0.005), fighting sprit (p=0.003), and fatalism (p=0.019) and in the intervention group the scores of hopeless, helpless, anxious preoccupation (p=0.000), cognitive avoidance (p=0.001), and fatalism (p=0.005) were

significantly different. The difference between the self adjustment mean scores before and after the intervention was not significantly different in any of the dimension of self adjustment before and after the intervention in both groups.

Table 5: Comparison of self-efficacy mean scores in groups before and after the intervention

Independent Test Between 2 group (Post-test)	Case			Control			Self-Efficacy
<0.001	Self-management			Self-management			
	P	Post-test mean (SD)	Pre-test mean (SD)	P	Post-test mean (SD)	Pre-test mean (SD)	
	<0.001	4.46 (0.3)	3.52 (0.7)	0.63	3.69 (0.23)	3.78 (0.51)	
<0.001	Satisfaction			Satisfaction			
	P	Post-test mean (SD)	Pre-test mean (SD)	P	Post-test mean (SD)	Pre-test mean (SD)	
	0.001	4 (0.47)	3.65 (0.73)	0.618	3.21 (0.3)	3.29 (0.5)	

The results of the independent t-test showed that there was no significant difference in the self efficacy dimensions between the two groups before the intervention. (self-management $p=0.239$ and satisfaction $p=0.64$). Also, the results of paired t-test showed the effect of the intervention. The mean scores of the intervention group increased after the intervention and the difference was statistically significant ($p<0.001$). However in the control group there were no significant differences observed in the scores before and after the intervention in both dimensions. (self-management $p=0.63$ and satisfaction $p=0.618$)

Discussion:

The mean score of self-efficacy for patients in the control group, before and after the routine training, revealed no significant difference ($p=0.145$). In this study, the routine training did not improve the self-efficacy in patients of the control group. The mean scores of self-efficacy for patients in the intervention group, before and after the intervention, were different with a significant increase ($p<0.000$). Thus, we concluded that peer education leads to improvement of self-efficacy in the intervention group patients.

Azizi et al. in their study showed that training on health promotion strategies by a trained researcher to candidates of bone marrow transplantation in the form of face-to-face, pamphlet and contact with the researcher led to enhancement of self-efficacy, consistency, decision-making and reduction of stress in the intervention group compared with the control group, but the difference of the scores in the control group was not statistically significant before and after the study.¹⁶

Also, the results of research on patients with arthritis in Turkey showed that the self-efficacy of the intervention group who had received training in the

form of booklet significantly increased compared to pre-intervention, but improvement of self-efficacy was not observed in the control group.¹⁷ In a study, the functional scale of life quality, the general functional scale, and specific scales of breast cancer patients increased in the intervention group after receiving group counseling by a nurse, while in the group with standard care, these scales decreased or remained unchanged.¹⁸

Also, Jerant, Moore-Hill and Franks concluded that peer education at home for chronic patients, 6 weeks and 6 months after the intervention (and not a year later) compared to usual care, caused a significant increase in self-efficacy for self-management of chronic diseases.¹⁹

There was a significant difference between the mean scores of the two groups after the study ($p<0.000$), and the mean scores in the intervention group compared with the control group significantly increased (Table 6). Therefore, it can be stated that peer education compared to the routine training improves the self-efficacy.

According to the study conducted by Lee et al., face to face training of peers in the intervention group compared with the control group significantly increased the patients' self-efficacy.²⁰ Also, the results of Sharif et al.'s study showed an increase in the level of life quality of breast cancer patients in the intervention group trained by peer education, before and 2 months after the intervention.²¹ The results of Borzou et al.'s research also indicated that both individual and peer educational methods led to promotion of quality of life of patients with heart failure. However, the impact of peer educational method was stronger in the long term.²² Moreover, the result of Wu et al.'s study on peer support for cardiac patients with diabetes showed that while both

the control and intervention groups had improved self-care behavior, self-efficacy and knowledge, the improvement in knowledge was significantly greater in the intervention group that underwent peer support.²³ Khawasi concluded that peer education can improve the self-efficacy and QOL of diabetic patients.²⁴ Bahrami, Parnian and AlamSamimi concluded that since cancer causes adverse effects on the life quality of patients, nursing advice in the short term may not be able to improve the patient's quality of life.²⁵

Studies have shown that self-efficacy beliefs influence many aspects of personal performance. People who have higher levels of self-efficacy than others have a better physical and mental health, feeling of high self-efficiency, increased personal health and ability to work in different ways.²⁶ The level of self-efficacy affects a person's expectations about whether the treatment is successful or not.²⁷ Perhaps, the lack of promotion of the patients' self-efficacy in the control group of the present study is due to inadequate training, support and usual care by professionals.

The study of Vanaki et al. indicated that Iranian patients with cancer and their families complain about lack of support and safety network by their doctors and nurses. Supporting is a vital and multi-dimensional need that should always be provided to clients. Patients and their families had experienced lack of support from the health care providers.²⁸ Many women after the diagnosis of cancer, in the field of personal and family coping with the disease, have experienced a high level of helplessness and despair. These patients need help for returning to their normal life and adjustment.²⁹ The attempts to increase hope and, therefore, the support for the psychosocial adjustment of patients play a vital role in increasing their quality of life.³⁰

The mean scores of mental adjustment after the study, compared to before it, significantly increased in both the intervention and control groups ($p < 0.000$, $p < 0.002$), but the mean difference of mental adjustment scores between the two groups was not significantly different ($p = 0.185$). Therefore, the difference in the mean score of mental adjustment in the experimental group is probably not related to peer education. It's also impossible to argue that peer education program in this study has been more effective for the mental adjustment of patients compared to common training.

Similar to this study, Lee et al. revealed no significant changes in anxiety, depression, and mental adjustment between the intervention group which was supported

by peers and the control group which underwent usual care.²⁰ Also, in Helgson et al.'s study, the result showed that education in the intervention group facilitated the initial adjustment of women diagnosed with early stage breast cancer. There was no evidence of benefits from peer discussion group intervention.³¹ Gotay et al. showed that peer counseling via telephone did not lead to better psychosocial outcomes and the persistent distress in these women supports the urgent need for development and testing of more intensive or different supportive interventions for this group of patients.³²

In contrast to the current study, mental components regarding the quality of life in the intervention group under peer education were significantly improved in comparison with the control group in the research done by Malekpoor Tehrani et al.; the results showed that social support by other patients, as well as educational programs, can be effective in increasing the quality of life in patients with breast cancer.³³ The study of Dehghan et al. on the MS patients also showed significant differences in the level of anxiety and depression of patients in the intervention group under peer education, but this difference in the control group who received usual care was not observed.^{10,34} In the study of Schover et al., peers counseling led to a significant increase in reproductive health, and reduced flushing and overall mental disorders in patients with breast cancer.³⁵ Also, in the research done by Garfami, Shafiabadi and Sanaei Zaker, group logotherapy reduced the symptoms of mental disorders such as physical complaints, interpersonal sensitivity, depression, anxiety, aggression and phobia among the intervention group.³⁶

Perhaps, one of the reasons for the outcome of this study is the effect of usual care³ and another reason may be the confounding factors. Factors such as time, information resources, support resources and different compatibility strategies in people are also among the factors that may be influential in compliance with the disease.

Patients can achieve emotional support through a variety of sources such as family, friends, community and religious group.⁶ Spouses, children and immediate family are among the supportive individuals who are very important for patients.³⁷ Patients learn how to control the disease and its complications in the course of daily life from various sources. These include professional staff, family members, friends, other patients, and the media.³⁸ Another noteworthy point is that people often have

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different strategies for coping with the disease and its stressful situation. Due to religious and spiritual beliefs and the religious culture of Muslims, the role of religious compatibility strategies of patients in the promotion of mental compatibility with the disease cannot be disregarded.

The results of the study by Taleghani, Yekta and Nikbakht Nasrabadi showed that religious approach was one of the important ways for most patients to fight against breast cancer.³⁹

Another important point is that time is one of the influential factors for people to cope with the disease and stressful situations. Over time and through the acute stages, most people accept the new situation and somehow try to deal with it. It seems that promotion in mental compatibility score in both control and intervention groups is partly related to time, using other information and support sources and other compatibility strategies like the religious strategy. As shown in a study by Heidari (2019), even the nurses who are going to work with patients with different types of diseases can gain from the education on lifestyle, so that they can help these patients more efficiently. In this case, the breast cancer patients can be trained to cope with the difficulties of this disease by the nurses who are themselves trained on lifestyle and coping strategies.⁴⁰

Also, weak intervention and insufficient observation may be potential causes of lack of improvement in mental adjustment in the intervention group. Studies with more interventions, assessment of results in longer intervals, control and measurement of confounding factors and those with larger sample size can yield more precise results about the effect of peer education and support programs on the mental

adjustment of patients with breast cancer receiving chemotherapy.

Conclusions:

Considering the fact that efficiency affects the levels of motivation, quality of performance, flexibility, strength and vulnerability, individual choices in life,⁴¹ way of thinking, feeling and acting of a person,⁴² the researchers suggest that the use of this cost-effective training method^{42,43} along with other routine methods and usual care for breast cancer patients undergoing chemotherapy is an effective step to improve the health of patients by promoting their self efficacy.

Acknowledgements:

This paper has been extracted from MSc. thesis done by Maryam Rahimi, MSc student of medical education. The thesis was supported by vice chancellor of research affairs of Shiraz University of Medical Sciences with grant number 6157. We would like to thank Center for Development of Clinical Research of Nemazi Hospital and acknowledge all the personnel of Nemazi Hospital chemotherapy ward for their cooperation and all the patients for their participation in this research.

Authors Contribution: RR was the idea owner of this study, designed the study, wrote the first draft and approved the final draft. NSH contributed to the design of the study, analyzed the data and edited, approved and submitted the final draft. MR gathered the data, analyzed them and commented on the first draft. AM contributed to the study design, data gathering and analysis, read the first draft and approved it finally.

Conflict of Interest: There is no conflict of interest for this article.

Source of Funding: None declared.

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