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The effect of Teach-back training on fatigue and self-care self-efficacy among women with breast cancer undergoing chemotherapy: A quasi-experimental study

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Abstract

Introduction: The aim of the present study was to evaluate the effect of teach-back training on fatigue and self-care self-efficacy among breast cancer women.

Material and methods: This is a quasi-experimental study that was performed on 80 breast cancer women referred to hospitals in Zahedan from October 1, 2019 to March 30, 2020. Convenience sampling method was used and data collection tool included demographic characteristics questionnaire, multidimensional fatigue inventory (MFI), and self-care self-efficacy scale. Data were collected at the baseline and six weeks after the last training session. The intervention group underwent teach-back-based three 45-minute training sessions regarding common problems of breast cancer patients in a face-to-face manner, but the control group did not receive any intervention other than routine care.

Results: The educational level of most participants in the two groups was below high-school diploma; most of them were housewives, and in stage two of the disease. The results showed significantly lower fatigue rate in the intervention group than the control group after the training intervention ($p = 0.01$). There was a significant difference between mean self-care self-efficacy score in the pre- and post-intervention stages ($p < 0.001$).

Conclusion: According to the research findings, teach-back-based training can reduce fatigue and increase self-efficacy in breast cancer patients, therefore, it is recommended to use teach-back-based training in the care of these patients.

Key words: teach-back-based training, fatigue, self-care self-efficacy

Introduction

Cancer is a common public health problem today. According to the latest global burden of disease (GBD) results (2020), there are more than 1,960,682 new breast cancer cases and deaths of 611,625 worldwide [1]. Breast cancer has a high prevalence in the Eastern Mediterranean region. According to the latest statistics, the prevalence of breast cancer in Iran is 33.2 cases per 100,000 people [2, 3]. Breast cancer, like other cancers, affects the physical, psychological, social, and economic dimensions of patients' life. Economically, the results of the study showed that breast cancer imposes a cost of 947,374,468 on the health system annually, so that more than 77% of the costs are related to the loss of ability of patients [4].

There is no definitive treatment for cancer, and all available therapies aim to maintain and improve quality of life. Chemotherapy is one of the most common maintenance treatments for cancer patients. Despite the many benefits of chemotherapy, this treatment has several complications and fatigue is one of the most common complications. According to the latest meta-analysis conducted in 2020, fatigue affects more than 49% of cancer patients [5]. Fatigue in breast cancer patients can be due to chronic disease process, the effect of chemotherapy drugs, long treatment duration and poor adaptability to the disease [6]. Fatigue compared to other complications such as depression and pain, imposes negative effects on patients' quality of life to a greater extent [7]. Fatigue also reduces patients' participation in treatment decisions, increases financial problems, reduces life expectancy, and ultimately increases mortality in these patients [8, 9]. One of the main challenges in the treatment of fatigue among cancer patients is that fatigue is not considered by doctors in

more than 50% of patients, and they do not receive appropriate treatment and recommendations [9]. Chronic fatigue in breast cancer patients leads to impaired daily care and disregard of self-care among patients. The present fatigue treatments include pharmacological and non-pharmacological treatments. Pharmacological treatments, despite their widespread use, are associated with the general side effects of chemical drugs. On the other hand, new studies show that these drugs have little effect in many cases [10, 11]. Studies have also shown that despite the treatment of fatigue, these treatments cause other complications such as anxiety [12]. Self-care promotion as the main goal of nursing care reduces dependence, hospitalization rate, costs imposed on the health system [13]. Today, in addition to pharmacological treatments, non-pharmacological treatments are also widely used. One of the most important non-pharmacological treatments is to provide psychological training to patients. The most important advantage of these treatments over pharmacological treatments is the absence of chemical side effects, easier access, faster learning of these therapies as well as their effectiveness [14–16]. One of the widely-used standard methods of patient education is the teach-back-based method. In this method, the materials are taught to the patient in simple language. Another advantage of this method is that it can be repeated for patients who do not understand the content. Considering the selection of an appropriate method of patient education as well as the discrepancy in the results of previous studies on different populations and the importance of achieving a proper understanding of the material received by patients, the aim of the present study was to determine the effect of teach-back method on breast cancer patients.

Material and methods

Design and participants

This quasi-experimental study was performed on 80 patients with breast cancer referred to three educational hospitals in Zahedan, southeastern Iran, from October 1, 2019 to March 30, 2020. Participants were selected using convenience sampling. Inclusion criteria included breast cancer women who were aged 20–60 years and were in stage 1, 2, and 3 of breast cancer. The sample size was estimated 14 people in each group based on the fatigue variable in the study of Tabrizi et al. (2016) with 95% confidence interval and 95% test power. However, the sample size was increased to 40 people in each group and a total of 80 people were determined considering the possible drop-out.

Instruments

Data collection was carried out using, a questionnaire consisting of three parts including: demographic characteristics, MFI, and self-care self-efficacy scale.

Fatigue: MFI was used to assess fatigue. This standard tool consisted of 20 items. Items were scored based on a 5-point Likert scale. The overall score was 20 and 100, with higher scores indicating higher fatigue rate [17]. The validity and reliability of this instrument have been confirmed in various foreign studies [18] and domestic studies [19].

Self-care self-efficacy: To evaluate self-care self-efficacy, the standard 29-item Lev tool was used [20]. Items were scored based on a 5-point Likert scale. The overall score is 29 and 145. The validity and reliability of this instrument have been confirmed in Iran by Fini with Cronbach's alpha of 0.94 [21].

Data collection

After coordination with hospital administrators, the researcher referred to chemotherapy wards. First, the goals of the project were explained to the patients. After obtaining their consent, participants were selected using convenience sampling method and then they were randomly divided into intervention and control groups. For random allocation, envelopes containing the group name cards were first prepared for the total number of subjects and randomly arranged. Afterwards, one of these cards was assigned to individuals by referring to them and gradually selecting them, which determined the individual group. After random allocation, patients were randomly divided into two groups. Fatigue and self-care self-efficacy questionnaires were completed by patients before the intervention. In the control group, patients received only routine ward care. In the intervention group, patients received teach-back-based training within 4 individual sessions once a week for consecutive 4 weeks. Each session lasted 30 and 45 minutes based on the patient's patience. After one month, follow-up was performed for 6 weeks. The content of the training session included scientific content on the definition, symptoms, diagnosis, treatments, and patient education for fatigue and self-care. The training session content, which was presented in the form of pamphlets and booklets and approved by 5 oncologists, was provided to patients.

Ethical considerations

This study has been approved by the Ethics Committee of Zahedan University of Medical Sciences with the number IR.ZAUMS.REC.1398.381. Written and oral consent was received from all participants. Participants were fully explained about the study objectives and assured that their information would be kept confidential. Participants could withdraw from the study at any time.

Data analysis

Data analysis was carried out using SPSS ver. 21. Data normality was determined using Shapiro-Wilk test. Descriptive statistics (mean; percentage, frequency) and analytical statistics (independent t-test, chi-square) were used. Independent t-test was used to compare quantitative variables and chi-square test was used to compare qualitative variables. Analysis of covariance was used to test the main hypothesis and control the pretest effect. P-value < 0.05 was considered as the significance level.

Results

Demographic characteristics

A total of 80 people (n = 40 per group) were evaluated in the present study. The mean age of participants was 44 years. The mean duration of the disease in both groups was more than 12 months. The number of treatment sessions was higher than the control group. The educational of most participants the intervention and control groups was below and above the high school diploma, respectively (Table 1).

Main results

The mean fatigue scores in the intervention and control groups after the intervention were 54.85 ± 9.97 and 63.95 ± 7.23 out of 100, respectively. The results of covariance test showed that teach-back training intervention significantly reduced fatigue in the intervention group compared to the control group ($p = 0.01$). The results also showed that the self-efficacy score increased from 78.86 in the pre-intervention phase to 103.6 in the post-intervention phase, but the self-efficacy score in the control group decreased from 79.93 in the pre-intervention phase to 78.44 in the post-intervention phase. The results of paired t-test showed that teach-back method significantly improved self-efficacy in the intervention group compared to the control group ($p = 0.01$). There

was no significant relationship between intervention and control groups in terms of self-efficacy score before the intervention ($p = 0.82$) (Table 2).

Discussion

The aim of the present study was to investigate the effect of teach-back-based training on fatigue and self-care self-efficacy among breast cancer patients. The results of the present study showed the positive effect of teach-back-based training intervention on fatigue and care self-efficacy. The mean post-intervention fatigue score in the intervention and control groups 9.97 ± 54.85 and 7.23 ± 63.95 out of 100, respectively. Considering that higher scores indicate greater fatigue, the fatigue severity is significant. In a study, Chehregosha found that majority of patients had moderate fatigue (758 ± 54.65) out of 100. While Mogadam Tabrizi F et al. [16] showed that the average total fatigue score was 22.87 ± 7.87 . Chemotherapy can cause fatigue for a variety of reasons.

It seems that education and support for cancer patients to cope with cancer-related fatigue is considered as a strategy used to control fatigue and improve the health status of these patients [22, 23]. Although previous studies proved the effect of specific non-pharmacological methods in the control of fatigue, they are less valued. In this regard, in Safavi et al.'s study, the most widely used methods by patients included lying down (80.7%) and worshipping (77.9%) and the least widely used methods included exercising (5%) and warming up (21.4%) [24]. Regarding the high frequency of lying down and stop working, it can be said that the first thing a person does in the face of an unpleasant feeling such as fatigue is to stop working and start taking rest. It can also be said that the less-frequent use of methods such as exercising and walking could be due to misconception that they would lead to increasing fatigue rate; however, the results of many studies demonstrate that appropriate exercises play an important role in reducing the fatigue severity. In the present study, one of the methods taught to patients in a teach-back-based manner was the emphasis on physical activity despite their fatigue.

Consistent with the present study, in their study of the effect of teach-back-based training on adherence to the treatment regimen of dialysis patients in four areas (hemodialysis, drug therapy, fluid restriction and diet), Ghanbari et al. [25] showed that teach-back-based training improves treatment adherence and control of dialysis complications within one month after the intervention. Incorevia et al. [26] also showed that the training was able to improve treatment and medication adherence and complications of patients with chronic obstructive pulmonary disease, which is

consistent with the results of the present study. Although the study population is different from that of the present study, and the studied variables are also different, the implementation of a comprehensive training program in simple language and tailored to the patients' level of understanding improved patients' conditions, which is consistent with the study by Kiani et al. [27]. They also revealed that the training intervention effectively reduced patients' fatigue rate. In this regard, to identify the self-efficacy level of patients undergoing chemotherapy for self-care and self-efficacy-related factors, it can be necessary to perform interventions to increase self-efficacy, thereby improving participation in self-care, including fatigue control of these patients. In this study, there was no significant difference between the control group and intervention groups in terms of the mean pre-intervention self-efficacy score, however, the mean score changed significantly in the experimental group after the intervention.

The self-efficacy score of cancer patients in studies by Lev et al. [28] and Akin et al. [29] was 135.55 ± 35.26 and 96.02 ± 28.6 , respectively. The self-efficacy score of cancer patients undergoing bone marrow transplantation in the study by Azizi-Fini [30] was 81.03 ± 16.53 . The self-efficacy level of patients undergoing hemodialysis in the study by Habibzadeh et al. was 50.73 ± 7.5). Dalir et al. [31] also investigated the effect of 3–4-day teach-back-based training on self-care of heart failure patients. They reported that the mean self-care scores in the intervention group increased significantly more than the control group, which confirms the positive effect of this training method on variables such as self-care.

Dean et al. [32] conducted a review study entitled “The effect of teach-back-based training on adherence and self-management in people with chronic disease”. In this review article, on 21 articles, 12 used the teach-back-based method. The results of four studies showed that this method improved disease-specific knowledge in the participants of the intervention group. One study showed a significant improvement in medication and diet adherence among type 2 diabetic patients in the intervention group compared to the control group. Two studies also showed a significant improvement in self-efficacy in the intervention group [32], which is consistent with the present study.

Self-efficacy is the basis of the relationship between awareness and behavior and belief in one's ability to accomplish a behavior. After chemotherapy, cancer patients face many problems that negatively affect their self-care self-efficacy. Research on cancer patients shows that self-efficacy interventions increase treatment efficiency and reduce symptoms [33]. In a heterogeneous sample

of cancer patients, self-efficacy shows a direct and positive relationship with patients' mood and quality of life [34]. Numerous other studies show a close relationship between lower distress and higher adaptation with patient self-efficacy [35, 36], which is consistent with the study conducted by Azizi-Fini et al. [21] to determine the effect of the training of health promotion strategies on self-care self-efficacy of patients undergoing bone marrow transplantation. They showed that teaching health promotion strategies to patients undergoing bone marrow transplant can increase their confidence in taking care of themselves in the treatment process, which ultimately leads to greater survival with high quality of life. Kara et al. [37] also found that teaching self-care strategies could reduce the incidence of respiratory problems in patients with chronic obstructive pulmonary disease by increasing self-efficacy. Patients undergoing a stress reduction training program, considering their conditions and if necessary, were reminded of on the need to adapt to the disease and help themselves accept the disease. It seems that careful planning of educational and supportive interventions is needed in order to reduce fatigue and improve the level of self-efficacy.

The most important limitations of the present study included the low sample size of the study and its semi-experimental nature, which challenges the generalizability of results. Also, this study was performed only within one-month follow-up period, which should be taken into account when interpreting the results.

Conclusion

According to the present study and the above studies, teach-back-based training as a low-cost and simple method can have a positive effect on self-care and self-efficacy. Studying breast cancer patients undergoing chemotherapy in terms of fatigue and self-care self-efficacy, using the instruments used in this study is recommended to be part of nurses' education curriculum in medical wards.

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Table 1. Demographic characteristics of participants (n = 80)

Group Variables	Intervention group	Control group	p-value
Age	44.66 ± 9.97	43.24 ± 9.87	0.49
Number of children	3.28 ± 1.85	2.82 ± 2.18	0.27
Duration of disease (months)	12.57 ± 11.08	13.17 ± 9.2	0.78
Number of chemotherapy seasons	7 ± 6.03	9.57 ± 5.58	0.38
Education Under diploma Diploma and higher education	51.9% 48.1%	48.1% 51.9%	0.41
Stage of breast cancer Stage 1 Stage 2 Stage 3	22.2 68.9 8.9	13.3 71.1 15.6	0.4
Main caregiver Husband Children Other	73.3 22.2 4.4	53.3 24.4 22.2	0.3

Table 2. Effect of teach-back education on fatigue and self-care of breast cancer patients

Variable	Stage of study	Before intervention	After intervention	p-value
Fatigue	Intervention	55.60 ± 14.63	54.85 ± 9.97	0.7
	Control	61.72 ± 11.89	63.95 ± 7.23	0.06
	Independent t-test	0.04	0.01	
Self-care	Intervention	78.86 ± 21.75	103.6 ± 20.25	0.01
	Control	79.93 ± 24.94	78.44 ± 22.26	0.06
	Independent t-test	0.82	0.001	