# RESEARCH ARTICLE

# Managerial Self-Efficacy for Chemotherapy-Related Symptoms and Related Risk Factors in Women with Breast Cancer

## Fatemeh Moghaddam Tabrizi[1], Saeedeh Alizadeh[2]*, Samira Barjasteh[3]

## Abstract

**Background:** Breast cancer is one of the most important diseases affecting physical, psychological and social health of women. This study aimed to determine managerial self-efficacy regarding chemotherapy-related symptoms and related risk factors in Iranian patients. **Materials and methods:** This descriptive-analytical cross-sectional study was conducted on 150 patients with breast cancer referred to medical centers of Urmia in 2016 with a convenience sampling method . The data collection instrument was the symptom-management self-efficacy scale-breast cancer (SMSES-BC) questionnaire whose validity and reliability was evaluated for the first time for Iranians. Data were analyzed using SPSS software version 20. **Results:** Most of the patients were in the age range of 41-49 years. Lowest scores were in the areas of emotional and interpersonal disorders and the highest scores in the area of managing chemotherapy-related symptoms. The mean score of self-efficacy chemotherapy-related symptoms was 168.0±25.4. There were significant relationships between age, education, economic status, marital status and life status and self-efficacy chemotherapy-related symptoms. In addition, a positive significant correlation for each of the subscales. **Conclusion:** It should be noted that interventional efforts for improving managerial self-efficacy of symptoms, especially management of interpersonal and emotional disorders in these patients are necessary.

**Keywords:** Breast cancer- self-efficacy- symptoms

## Introduction

Breast cancer is known as the most common cancer among women(DeSantis et al., 2014). Pain and suffering resulting from disease, worrying of family members about the future, fear of death, disruption of body image, stress, depression, fatigue, lymphedema, hair loss, sleep disorders, digestive problems, loss of appetite and sexual problems in patients with cancer are some of the factors affecting the physical, mental and social health that can affect the obedience of patients to complete the course of treatment (Davies et al., 2013; Phipps et al., 2011; Tabrizi and Radfar, 2015; Tabrizi et al., 2016; Williams and Jeanetta, 2015). Although chemotherapy is an important treatment in cancer patients but can cause side effects that will affect the rejection of patient to complete the course of treatment (Partridge et al., 2001; Sadeghi et al., 2016). The high level of induced tension may affect the long-term negative impact on self-management, women self-esteem and self-efficacy (Lam and Fielding, 2007).

Research shows that women with breast cancer ensure to their ability and they are actively involved in their own health programs. In fact, patients with breast cancer that have highself-efficacy concentrate on opportunity instead of concentrating on the barriers (Han et al., 2005; Philip et al., 2013). Hence, patients with breast cancer who underwent different types of treatment are facing with different challenges that influence on the treatment course, their ability to manage the symptoms and their self-efficiency. So although, some studies were done in the field of self-efficacy in women with breast cancer in Iran but none of these studies found the significant role of the created symptoms after chemotherapy and managerial self-efficacy. Therefore, this study aimed to investigate the managerial self-efficacy of the chemotherapy-related symptoms and its related factors in women with breast cancer referred to medical centers of Urmia in 2016.

## Methods and Materials

This was a descriptive-analytical cross-sectional study conducted on 150 patients with breast cancer referred to medical centers of Urmia in 2016 and aimed to determine the managerial self-efficacy chemotherapy-related symptoms and its related risk factors in patients who had breast cancer.

According to the same study conducted by Shelby et al. in 2014 (Shelby et al., 2014), and 95% confidence level

*[1]Reproductive Health Research Center, Nursing and Midwifery Department, [2]Student Research Committee, Urmia University of Medical Sciences, Urmia, [3]Nursing and Midwifery School, Tehran University of Medical Sciences, Tehran, Iran. *For Correspondence: saeeideh.alizadeh@gmail.com*

and Z confidence level (0.95) that is 1.96 and d accuracy rate (0.1), sample size was estimated 150 cases.

*Inclusion criteria*

Inclusion criteria included age 18-60 years, understanding the Persian language, having breast cancer and chemotherapy in Stage 1, 2 and 3 and having no other cancer.

*Exclusion criteria*

Exclusion criteria included history of mental illness, having any stressful event during last 6 months for patient or first degree relatives, having radiotherapy and drug abuse.

The data collecting instrument in this study consisted of two parts: 1. The checklist of demographic information such as age, type of surgery, stage of disease, marital status, education level, economic status and lifestyle that was designed by the researcher and 2. The symptom-management self-efficacy scale-breast cancer (SMSES-BC) questionnaire that its validity and reliability was evaluated for the first time in Iranian society and has 27 questions and three subscales including acquiring problem-solving with 7 questions (number 9-11-18-20-22-25-26), managing chemotherapy-related symptoms with 15 questions (number 3- 4- 6- 7- 10- 12- 13- 14-15- 16- 17- 19- 21- 23- 27) and managing emotional and interpersonal disorders with 5 questions (number 1 -2 - 5- 8- 24). In the SMSES-BC scale, there are 11-point responses for various behaviors, ranging from 0 to 10, with 0 signifying not at all confident and 10 signifying complete confidence. A higher response score indicates higher perceived symptom-management self-efficacy. In deed, higher scores indicates the high rate of the managerial self-efficacy chemotherapy-related symptoms in these patients (Shelby et al., 2014).

The questionnaire was translated into Persian by two researchers then was translated into English again by two English language bachelor (Backward-Forward) and the closest translation of the text of the main questionnaire was chosen. In a pilot study of 30 patients with breast cancer, the questionnaire was completed. The reliability of questionnaire using Cronbach's alpha coeficient was obtained 0.93 and for each subscales including acquiring problem-solving, managing chemotherapy-related symptoms and managing emotional and interpersonal disorders were 0.88, 0.86 and 0.92, respectively.

This questionnaire was delivered to 10 experts in the field of cancer to evaluate content validity. The content validity ratio (CVR) and content validity index (CVI) were 89.33 and 96.46, respectively that the amount is acceptable. After providing information to patients about the aims of the study, written consent was obtained from them. Questionnaires completed by the participants and if they did not have adequate education or ability to write, answers were collected by interviewer.

Finally, the data were collected and analyzed using SPSS software version 20and using descriptive statistics and independent t-test, ANOVA. As well as Pearson correlation test was used to investigate the correlation between dimensions of mentioned questionnaire. For all

tests, the significance level was considered to be $\alpha = 0.05$.

# Results

According to Table 1. That have shown the demographic characteristics of patients with breast cancer, the most of the patients were in the age range of 41-49 years, only 14% of them had collegiate education and 12% of them was illiterate. In this study, the majority of patients (86.7%) were married. A well as 89.3% of patients married were living with their husband and children. Total and partial mastectomy were done in 77.3% and 22.7% of patients, respectively. Totally, 47.3% of them were in stage 2, 32% of patients were in stage 3 and 20.7% of patients were in stage 1.

According to Table 2, the Lowest scores was in the area of emotional and interpersonal disorders with mean

Table 1. Demographic Characteristics of Patients with Breast Cancer

| Demographic Characteristics | No | Percent |
|---|---|---|
| Age | | |
| Less Than 41 | 45 | 30.0 |
| 41-49 | 58 | 38.7 |
| More Than 49 | 47 | 31.3 |
| Educational Status | | |
| Illiterate | 18 | 12.0 |
| Under Diploma | 71 | 47.3 |
| Diploma | 40 | 26.7 |
| Collegiate | 21 | 14.0 |
| Economic Status | | |
| Income Less Than Outcome | 40 | 26.7 |
| Income Equal To Outcome | 101 | 67.3 |
| Income More Than Outcome | 9 | 6.0 |
| Marital Status | | |
| Single | 5 | 3.3 |
| Married | 130 | 86.7 |
| Divorced | 9 | 9.0 |
| Widow | 6 | 6.0 |
| Life Status | | |
| Husband And Children | 134 | 89.3 |
| Parents | 12 | 8.0 |
| Alone | 4 | 2.7 |
| Disease Duration | | |
| 1-4 | 48 | 32.0 |
| 5-6 | 64 | 42.7 |
| 7-8 | 38 | 25.3 |
| Type Of Surgery | | |
| Total Mastectomy | 116 | 77.3 |
| Partial Mastectomy | 34 | 22.7 |
| Disease Duration | | |
| Stage I | 31 | 20.7 |
| Stage II | 71 | 47.3 |
| Stage III | 48 | 32.0 |

Table 2. Distribution of Managerial Self-Efficacy Chemotherapy-Related Symptoms Dimensions in Patients with Breast Cancer

| variable | No | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|---|
| Acquiring problem-solving | 150 | 15 | 69 | 42.54 | 9.49 |
| Managing chemotherapy-related symptoms | 150 | 46 | 148 | 101.2 | 14.88 |
| Managing emotional and interpersonal disorders | 150 | 12 | 48 | 30.96 | 6.47 |
| Managerial self-efficacy chemotherapy-related symptoms | 150 | 82 | 236 | 167.96 | 25.4 |

score of 30.96±6.47 and the highest scores was in the area of managing chemotherapy-related symptoms with mean score of 101.2±14.88. The mean score of self-efficacy chemotherapy-related symptoms was 167.96±25.40.

According to Table 3, there was a significant relationship between age, education, conomic status, marital status, and life status and self-efficacy chemotherapy-related symptoms, while there was no significant relationship between disease duration, type of surgery , and stage of disease with manergerial self-efficacy.

According to Table 4, the results showed that there was a significant positive correlation between managerial self-efficacy of symptoms and each of the subscales (P <0.01).

## Discussion

Results of this study showed that the most of the patients were in the age range of 41-49 years, this result was consistent with the study of Kiaei et al., (2016), and Tabrizi (2015). But was inconsistent with the study of Ziner et al., (2012) and Lam et al., (2007) because in these studies the most participants had more than 51 years. It seems that with the spread of breast cancer in the fourth decade of life, proceedings should be diagnose in this decade in order to reduce irreversible effects of cancer.

The results showed that the lowest scores was in the area of emotional and interpersonal disorders and the highest scores was in the area of managing chemotherapy-related symptoms. Many people with breast cancer are living in social isolation and this situation does not allow them to have a close relationship with others. This may be due to the negative attitude of society and believe in the imminent death of patients with breast cancer. Studies have shown that patients with breast

Table 3. The Relationship between Demographic Characteristics and Managerial Self-Efficacy Chemotherapy-Related Symptoms in Patients with Breast Cancer

| variable | Mean ± SD | F | p-value |
|---|---|---|---|
| age | | | |
| >41 | 170.71±27.81 | 3.8 | 0.02* |
| 41-49 | 172.51±21.49 | | |
| 49< | 159.72±26.06 | | |
| Total | 167.96±25.4 | | |
| educational level | | | |
| illiterate | 149.72±19.52 | 5.5 | 0.001* |
| under diploma | 167.84±20.75 | | |
| diploma | 169.42±32.06 | | |
| collegiate | 181.23±21.99 | | |
| Total | 167.96±25.40 | | |
| economic status | | | |
| income less than outcome | 159.15±24.4 | 5.29 | 0.006* |
| income equal to outcome | 169.83±24.5 | | |
| income more than outcome | 186.22±28.34 | | |
| Total | 167.96±25.4 | | |
| marital status | | | |
| single | 137.2±41.51 | 6.3 | 0.00* |
| married | 171.16±22.77 | | |
| divorced | 154.55±33 | | |
| widow | 144.33±22.87 | | |
| Total | 167.96±25.4 | | |
| life status | | | |
| Husband and children | 170.87±22.68 | 9.31 | 0.00* |
| parents | 145.66±35.15 | | |
| alone | 137.5±33.43 | | |
| Total | 167.96±25.40 | | |
| disease duration | | | |
| 1-4 | 169.22±27.04 | 0.3 | 0.73 |
| 5-6 | 168.65±23.8 | | |
| 7-8 | 165.21±26.35 | | |
| Total | 167.96±25.40 | | |
| type of surgery | | | |
| total mastectomy | 166.97±25.67 | 0.87 | 0.12 |
| partial mastectomy | 171.35±24.51 | | |
| Total | 167.96±25.4 | | |
| disease stage | | | |
| Stage I | 165.44±27.27 | 2.11 | 0.92 |
| Stage II | 172.32±21 | | |
| Stage III | 163.02±29.27 | | |
| Total | 167.96±25.4 | | |

* Statistically significant (P < 0.05).

Table 4. Correlation Coefficient of Managerial Self-Efficacy Chemotherapy-Related Symptoms and Its Subscales in Patients with Breast Cancer

| variable | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 1 | Acquiring problem-solving | 1 | | | |
| 2 | Managing chemotherapy-related symptoms | 0.46** | 1 | | |
| 3 | Managing emotional and interpersonal disorders | 0.53** | 0.65** | 1 | |
| 4 | Managerial self-efficacy chemotherapy-related symptoms | 0.77** | 0.9** | 0.81** | 1 |

**Level of significance (P<0.01)

cancer are suffering with depression, stress, sadness, despair, preoccupation, tend to loneliness and isolation (Brunault et al., 2015; Tamagawa et al., 2013).

The results of this study showed that There was a significant relationship between age and self-efficacy chemotherapy-related symptoms, in other words the efficacy decreases with age. The study of Ziner et al., (2012) indicated that the fear of cancer recurrence increases with age. In older people, the fear of recurrence and concerns arising from cancer reduce self-efficacy in women with breast cancer. It seems that younger people have more ability for self-care and self-management.

The results of this study showed that There was a significant relationship between educational level and self-efficacy chemotherapy-related symptoms. It seems that educated women often have more social relationships, often employed and will have better control in front of the crisis. The study of Rottmann et al., (2010) and Kiai et al., (2016) showed that self-efficacy in women with breast cancer increases with educational level.

In this study, there was a significant correlation between economic status and self-efficacy chemotherapy-related symptoms. Given the possibility of having the proper independence and economic status is an important factor in the self-efficacy issue, that this result was consistent with the study of Liang et al., (2015).

In this study, there was a significant correlation between marital status and self-efficacy chemotherapy-related symptoms. In this study, the self-efficacy of married patients were better than single, divorced and widow patients, so that was consistent with the study of Ziner et al., (2012).

According to our findings, there was a significant correlation between life status and self-efficacy chemotherapy-related symptoms. Therefore, the mean score of self-efficacy chemotherapy-related symptoms was considerably high in patients who had lived with his wife and children compared to patients who was alone. The results of this study support the view that the existence of social support from family, particularly his wife and children affect the social participation, self-management behaviors and self-efficacy (Forsythe et al., 2014; Given, and Kozachik, 2001).

Our results showed that there was no significant relationship between the disease duration and self-efficacy chemotherapy-related symptoms. In the study of Schwarzer et al., (2005) that was a longitudinal study on the duration of 11 months and were performed in three time intervals about the self-efficacy of women with breast cancer, there was no relationship between the disease duration and the self-efficacy, so that these results were consistent with the study of Rottmann et al., (2010).

Based on the results, there was no relationship between the type of surgery and self-efficacy chemotherapy-related symptoms. The study of Mosher et al., (2010) also showed that the type of surgery and self-efficacy and coping with cancer had no relationship together and these results were consistent with our study. But the study of Temple et al., (2006) showed that there was a significant relationship between self-efficacy and type of surgery in these patients which was consistent with our study.

The results of correlation test showed that there was strong correlation between managing chemotherapy-related symptoms and acquiring problem-solving. Problem-solving is an active and directed process that patients with breast cancer tries to increase his skills. Various studies have shown a very strong correlation between self-efficacy and problem-solving ability and deal with cancers (King et al., 2010; Wu et al., 2014).

The results showed that there was a correlation between managing emotional and interpersonal disorders and managerial self-efficacy chemotherapy-related symptoms. Women with breast cancer who had poor self-efficacy did not try for coping with problems and symptoms after chemotherapy because they were convinced that their efforts did not yield. (Collie et al., 2005; Lam and Fielding, 2007). The study of Hendrix et al., (2016) showed that there was a correlation between the symptoms caused by the cancer and self-efficacy.

Our results also showed that there was a significant correlation between managing emotional and interpersonal disorders and self-efficacy chemotherapy-related symptoms. The crisis of cancer causes imbalances and lack of coordination in mind, body and soul, and reduces the ability to self-efficacy in patients with breast cancer. The results of several studies showed that there are relationship between the rates of depression, anxiety, pessimism, disappointment and other emotional problems and self-efficacy (Penner et al., 2016; Phillips and McAuley, 2013).

In conclusion, according to the results, the managerial self-efficacy of patients with breast cancerwas in medium level, hence it should be noted that interventional efforts for improving managerial self-efficacy of symptom, especially management of interpersonal and emotional disorders in these patients is important and necessary.

*Limitations of the study*

The small sample size of include studies are potential limitation of this study. There is still need to further studies to access additional information about the managerial self-efficacy issue. Another limitation of the current study was the method of sampling (convenience), so that affects the generablility of our study.

*Conflict Of Interest*

The authors declared that there was no conflict of interest in this study.

## Acknowledgements

## References

Brunault P, Champagne AL, Huguet G, et al (2015). Major

depressive disorder, personality disorders, and coping strategies are independent risk factors for lower quality of life in non-metastatic breast cancer patients. *Psychooncology*, **25**, 513-20.

Collie K, Wong P, Tilston J, et al (2005). Self-efficacy, coping, and difficulties interacting with health care professionals among women living with breast cancer in rural communities. *Psychooncology*, **14**, 901-12.

Davies C, Pan H, Godwin J, et al (2013). Long-term effects of continuing adjuvant tamoxifen to 10 years versus stopping at 5 years after diagnosis of oestrogen receptor-positive breast cancer: ATLAS, a randomised trial. *Lancet*, **381**, 805-16.

DeSantis C, Ma J, Bryan L, Jemal A (2014). Breast cancer statistics, 2013. *CA Cancer J Clin*, **64**, 52-62.

Forsythe LP, Alfano CM, Kent EE, et al (2014). Social support, self-efficacy for decision-making, and follow-up care use in long-term cancer survivors. *Psychooncology*, **23**, 788-96.

Given BA, Given CW, Kozachik S (2001). Family support in advanced cancer. *CA Cancer J Clin*, **51**, 213-31.

Han WT, Collie K, Koopman C, et al (2005). Breast cancer and problems with medical interactions: Relationships with traumatic stress, emotional self-efficacy, and social support. *Psychooncology*, **14**, 318-30.

Hendrix CC, Bailey DE, Steinhauser KE, et al (2016). Effects of enhanced caregiver training program on cancer caregiver's self-efficacy, preparedness, and psychological well-being. *Support Care Cancer*, **24**, 327-36.

Kiaei MZ FM, Moradi R, Chelongar Q, Ahmadzadeh MS, Bahmanziari N (2016). Association between self-efficacy and quality of life in women with breast cancer undergoing chemotherapy. *JQUMS*, **20**, 58-65.

King DK, Glasgow RE, Toobert DJ, et al (2010). Self-efficacy, problem solving, and social-environmental support are associated with diabetes self-management behaviors. *Diabetes Care*, **33**, 751-3.

Lam WWT, Fielding R (2007). Is self-efficacy a predictor of short-term post-surgical adjustment among Chinese women with breast cancer?. *PsychoOncology*, **16**, 651-9.

Liang S-Y, Wu W-W, Kuo C-Y, Lu Y-Y (2015). Development and preliminary evaluation of psychometric properties of symptom-management self-efficacy scale for breast cancer related to chemotherapy. *Asian Nurs Res*, **9**, 312-7.

Mosher CE, DuHamel KN, Egert J, Smith MY (2010). Self-efficacy for coping with cancer in a multiethnic sample of breast cancer patients: associations with barriers to pain management and distress. *Clin J Pain*, **26**, 227.

Partridge AH, Burstein HJ, Winer EP (2001). Side effects of chemotherapy and combined chemohormonal therapy in women with early-stage breast cancer. *J Natl Cancer Inst*, **30**, 135-42.

Penner LA, Guevarra DA, Harper FW, et al (2016). Self-distancing buffers high trait anxious pediatric cancer caregivers against short-and longer-term distress. *Clin Psychol Sci*, **4**, 629-40.

Philip EJ, Merluzzi TV, Zhang Z, Heitzmann CA (2013). Depression and cancer survivorship: importance of coping selfefficacy in posttreatment survivors. *Psychooncology*, **22**, 987-94.

Phillips SM, McAuley E (2013). Physical activity and fatigue in breast cancer survivors: a panel model examining the role of self-efficacy and depression. *Cancer Epidemiol Biomarkers Prev*, **22**, 773-81.

Phipps AI, Chlebowski RT, Prentice R, et al (2011). Reproductive history and oral contraceptive use in relation to risk of triple-negative breast cancer. *J Natl Cancer Inst*, **103**, 470-7.

Rottmann N, Dalton SO, Christensen J, Frederiksen K, Johansen C (2010). Self-efficacy, adjustment style and well-being in breast cancer patients: a longitudinal study. *Qual Life Res*, **19**, 827-36.

Sadeghi E, Gozali N, Moghaddam Tabrizi F (2016). Effects of energy conservation strategies on cancer related fatigue and health promotion lifestyle in breast cancer survivors: a randomized control trial. *Asian Pac J Cancer Prev*, **17**, 4783-90.

Schwarzer R, Boehmer S, Luszczynska A, Mohamed NE, Knoll N (2005). Dispositional self-efficacy as a personal resource factor in coping after surgery. *Pers Individ Dif*, **39**, 807-18.

Shelby RA, Edmond SN, Wren AA, et al (2014). Self-efficacy for coping with symptoms moderates the relationship between physical symptoms and well-being in breast cancer survivors taking adjuvant endocrine therapy. *Support Care Cancer*, **22**, 2851-9.

Tabrizi FM (2015). Health promoting behavior and influencing factors in Iranian breast cancer survivors. *Asian Pac J Cancer Prev*, **16**, 1729-36.

Tabrizi FM, Radfar M (2015). Fatigue, sleep quality, and disability in relation to quality of life in multiple sclerosis. *Int J MS*, **17**, 268-74.

Tabrizi FM, Radfar M, Taei Z (2016). Effects of supportive-expressive discussion groups on loneliness, hope and quality of life in breast cancer survivors: a randomized control trial. *Psychooncology*, **25**, 1057-63.

Tamagawa R, Giese-Davis J, Speca M, et al (2013). Trait mindfulness, repression, suppression, and self-reported mood and stress symptoms among women with breast cancer. *J Clin Psychol*, **69**, 264-77.

Temple WJ, Russell ML, Parsons LL, et al (2006). Conservation surgery for breast cancer as the preferred choice: a prospective analysis. *J Clin Oncol*, **24**, 3367-73.

Williams F, Jeanetta SC (2015). Lived experiences of breast cancer survivors after diagnosis, treatment and beyond: qualitative study. *Health Expect*, **19**, 631-42.

Wu LM, Chiou SS, Sheen JM, et al (2014). Evaluating the acceptability and efficacy of a psycho-educational intervention for coping and symptom management by children with cancer: a randomized controlled study. *J Adv Nurs*, **70**, 1653-62.

Ziner KW, Sledge GW, Bell CJ, et al (2012). Predicting fear of breast cancer recurrence and self-efficacy in survivors by age at diagnosis. *Oncol Nurs Forum*, **39**, 287-95.