

Cancer-Related Self-Efficacy in Iranian Women With Breast Cancer

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Received: September 2, 2014; Accepted: February 1, 2015

Background: Self-efficacy refers to an individual's belief in his or her capacity to execute behaviors necessary to produce specific achievement. Past studies have shown probable increases in self-efficacy with growing age. Iranian women with breast cancer are one decade younger than their western counterparts.

Objectives: The present study aims to investigate the level of cancer-related self-efficacy in Iranian women, and its demographic and medical predictors.

Patients and Methods: This is a descriptive cross-sectional study comprised of 91 breast cancer patients referring for chemotherapy to one of the largest oncology centers in northwest of Iran. The patients' demographic and medical characteristics were determined and their cancer related self-efficacy was assessed using cancer behavior inventory containing 33 items. Data analysis was completed using SPSS software version 13. Descriptive and Regression analysis were used to describe demographic and medical characteristics of the patients and their predictors of cancer-related self-efficacy.

Results: The sustained cancer-related positive attitude had, in total, the highest mean score of 7 subscales of cancer behavior inventory and the seeking of social support had the least mean score. Only Patient's education and the time of cancer diagnosis were associated with self-efficacy of Iranian women in relation to cancer.

Conclusions: According to the results obtained, it is necessary to consider the level of education, social support, and the time of cancer diagnosis in order to assess the self-efficacy in Iranian women with breast cancer.

Keywords: Breast Cancer; Self-Efficacy; Women

1. Background

Breast cancer is the most commonly diagnosed cancer and the leading cause of women's death in developing countries. The burden of cancer is increasing in economically developing countries as a result of population aging, growing life expectancy and adoption of cancer-associated lifestyle including smoking, physical inactivity, and westernization of diets (1).

In Iran, cancer is the third cause of death after coronary heart disease and road accidents (2) and accounts for 25.5% of all female cancers in most women aged between 40 and 49 years and in 30% of those under 30 years of age (3). Breast cancer is potentially life threatening and just the diagnosis and treatment of the disease can produce profound physical, psychosocial and economical distress (4-6). In Iran, women with breast cancer encounter many psychosocial stresses and physical problems which are intensified by some cultural issues (7).

Harandy et al. found that spirituality is the primary source of psychological support among Iranian women. Almost all participants attributed their cancer to the

will of God (8). Singh-Carlson et al. also found that south Asian women accept that their cancer is somehow related to religiosity (9). Howsepian et al. in their study assessed religious beliefs, social support, self-efficacy and adjustment to cancer and found that religious beliefs may not directly affect self-efficacy (10). Tam Ashing et al. in their study claimed that the primary source of support and coping with the disease came from the women's religious beliefs (11).

Self-efficacy, derived from social cognitive theory, is important for adjustment to disease and adoption of self-care behavior. Self-efficacy has been defined as the patient's confidence in his/her ability to assume a specific behavior or task (12).

2. Objectives

Studies have shown that the level of self-efficacy influences breast cancer patient's quality of life and self-care behavior, but it decreases or stabilizes over time (13-15). On the other hand, age is associated with the patient's self-efficacy that may increase as a person grows older (16,

17). In view of the fact that breast cancer affects Iranian women at least one decade younger than their counterparts in developed countries (18) and considering different psychological responses of Iranian women to breast cancer (8, 19), this study was undertaken to explore the self-efficacy of Iranian women with breast cancer along with its attendant demographic and medical predictors. The questions to be answered were as follows:

What are the demographic variables of Iranian women treated for breast cancer and undergoing chemotherapy?, What is the level of self-efficacy in Iranian women undergoing chemotherapy?, and Which demographic or medical variables affect the level of self-efficacy in Iranian women treated for breast cancer and receiving chemotherapy?

3. Patients and Methods

This is a descriptive cross-sectional study, carried out between July 2012 and February 2013 in outpatient chemotherapy unit of Hematology and Oncology Research Center of Tabriz University of Medical Sciences, Iran. All eligible breast cancer patients undergoing chemotherapy, and willing to take part in this investigation were recruited and gave their written informed consent before participating in the study, which conformed to the ethical guidelines of the 1975 Declaration of Helsinki.

Inclusion criteria were women diagnosed with cancer, undergoing chemotherapy and able to read and write. Exclusion criteria were patients with a history of breast cancer in close relatives, nurses or doctors. Among 136 women eligible to enter the study, 91 completed the questionnaire, 10 did not want to participate, and 35 were excluded from the study due to illiteracy.

Cancer behavior inventory was used to assess cancer related self-efficacy. The Cancer Behavior Inventory (CBI) is a rather comprehensive tool to measure self-efficacy regarding behaviors related to coping with cancer (16). The reason for using the CBI was that it measured coping self-efficacy or expectations, and the patients were able to respond to all the items even if they did not currently use any particular coping strategy. Higher scores indicated greater coping self-efficacy (10).

The CBI (version 2) has 33 items in seven subscales, with a Likert Scale in front of each item signifying one (not at all confident) to nine (totally confident). For each subscale, the total score was computed by summing the positive responses to each item. Content validity and Test-Retest reliability were assessed. The reliability of subscales shown by Pearson correlation test included: 1) maintenance of activity and independence ($r = 0.7$), 2) seeking and understanding medical information ($r = 0.8$), 3) stress management ($r = 0.9$), 4) coping with treatment-related side-effects ($r = 0.7$), 5) accepting cancer and maintaining positive attitude ($r = 0.8$), 6) affective regulation ($r = 0.8$), and 7) seeking support ($r = 0.8$).

The study was approved by the Ethics committee (under reference number 5/55/2157) of Tabriz University of Medi-

cal Sciences. SPSS software (version 13) and descriptive analytical statistics including Univariate and Multivariate Regression tests were used for data analysis.

4. Results

The following three aspects were investigated: 1) Patients' Demographic and medical characteristics, 2) patients' level of self-efficacy and 3) Demographic and medical variables affecting the level of self-efficacy.

Demographic and medical variables revealed that 68.1% of patients were under 50 years old, 95.6% of them were married and 63.7% of the patients had primary school education. Most of the women in this study were urban (67%). Pathological diagnosis indicated invasive ductal carcinoma in 87.9% of patients, of whom 56% were at 2nd stage of the disease. Most patients (80%) reported no chronic illness. The average time since diagnosis was 13 months (ranging from 1 to 156 months) and the results obtained are shown in Tables 1 and 2. Table 3 shows the mean score of self-efficacy in breast cancer patients in seven subscales. These include maintenance of activity and independence, seeking and understanding medical information, stress management, coping with treatment-related side-effects, accepting cancer and maintaining positive attitude, affective regulation, and seeking support. The highest and lowest scores are related to accepting cancer and maintaining positive attitude and seeking social support subscales respectively. Univariate and multivariate regression test was used to determine the effect of demographic and medical characteristics on patient's self-efficacy score. Patient's education in both univariate and multivariate tests and time passed since diagnosis in univariate regression were statistically significant ($P < 0.05$). Additional variables are shown in Table 4.

Table 1. Demographic Variables^a

	No. (%)
Age, y	
50 >	62 (68.1)
50 <	29 (31.9)
Marriage status	
Married	70 (76.9)
Single	4 (4.4)
Widow	11 (12.1)
Divorced	6 (6.6)
Education	
Primary school	58 (63.7)
Secondary school	9 (9.9)
High school	15 (16.5)
University	9 (9)
Living place	
Urban	61 (67)
Rural	30 (33)

^a Data are presented for n = 141.

Table 2. Medical Characteristics

Variable	Amount, %
Type	
Ductal	87.9
Lobular	11
Other	1.1
Stage	
1	28.6
2	56
3	14.3
Other problem	
Hypertension	4
Diabetes	5.5
Other	9.9
None	80.2

Table 3. Self-Efficacy of Breast Cancer Patients Undergoing Chemotherapy

Subscale	Mean \pm SD
Maintenance of activity and independence	27.3 \pm 10.7
Seeking and understanding medical information	24.7 \pm 11.2
Stress management	27.3 \pm 9.5
Coping with treatment-related side-effects	23.7 \pm 10.4
Accepting cancer/maintaining positive attitude	31.1 \pm 7.5
Affective regulation	25.6 \pm 8.0
Seeking social support	16.3 \pm 4.3

Table 4. Demographic and Medical Predictors of Cancer-Related Self-Efficacy^{a, b}

Variable	Univariate (Un-Adjusted)			Multivariate (Adjusted)		
	Unstandardized Coefficients (SE)	Standardized Coefficients	P value	Unstandardized Coefficients (SE)	Standardized Coefficient	P Value
Education	0.35 (0.4)	0.26	0.012	0.36 (0.14)	0.27	0.009
Age	0.01 (0.01)	0.08	0.45	0.01 (0.15)	0.12	0.276
Marriage	1.31 (0.72)	0.19	0.07	0.08 (0.21)	0.42	0.699
Stage	-0.21 (0.19)	-0.11	0.26	-0.23 (0.18)	-0.13	0.211
Time	0.13 (0.006)	0.21	0.04	0.01 (0.007)	0.16	0.13
Other problem	0.06 (0.08)	0.82	0.44	0.07 (0.09)	0.08	0.40
Living place	-0.31 (0.31)	-1.05	0.32	-0.17 (0.31)	-0.05	0.61

^a Abbreviations: SE: Standard Error.

^b $P < 0.05$ was considered significant.

5. Discussion

Most of our patients were urban, with primary education, less than 50 years-old and the average time passed since diagnosis was 13 months. Medical diagnosis in majority of subjects was invasive ductal carcinoma (stage II), with no history of chronic illness.

Although limited, some studies have used CBI to assess different aspects of self-efficacy and the scores obtained were inconsistent with our results. For example, the mean scores of two subscales assessed by Collie et al. (20) represented as affective regulation (34.1 ± 9.1) and seeking and understanding medical information (41.1 ± 5.7), were greater than those of our study (24.7 ± 11.2 , 25.6 ± 8 respectively); the difference may be due to using 33-item questionnaire with 5 items for these two subscales in our study, as opposed to utilizing 51-item questionnaire with 7 items in their investigation. The fact that, mean age of patients in Collie et al. (20) study was 58 years, and the age of most patients in our study was less than 50 years should also be considered as a source of difference. This is important because it can probably show the effect of age on self-efficacy (16, 17). Mosher et al. in their study on self-efficacy of breast cancer patients, regarding different language and ethnicity, reported significantly

higher total scores of self-efficacy for all groups ($200 >$) compared to those in Iranian patients (176.3 ± 47) (17). Cultural values and practices may affect the development of self-efficacy (21).

Most women in our study reported high self-efficacy in accepting cancer and maintaining positive attitude and low self-efficacy in the area of seeking social support. Assessing psychological responses of women with breast cancer in eastern countries shows that there are unique cultural differences, for example Singh-Carlson et al. showed that Southeast Asian women with breast cancer accept their disease in a quiet manner that may be due to the interplay of faith and religion (9). Taleghani et al. in a qualitative study used a grounded theory approach and interviewed 19 breast cancer women in Iran to explore how Muslim women cope with their disease. They also found that the process of coping with the disease was based on religious approaches and patients maintained positive attitude and believed that the disease was the will of God (19).

Iranian communities reflect an individual's obligation to social harmony; therefore, a disease is not merely an individual issue but also a social issue. It is thus par-

ticularly important for Iranian women to look normal to avoid disrupting group harmony. In the study by Taleghani et al. women declared desire to socialize in their community as normal people. Misbehavior of some people who identified a woman as having a dangerous disease would lead to her social isolation (19). This can probably justify the low score of our sample with respect to seeking social support. However Howsepian et al. in their study investigated the impact of religious beliefs compared to other variables, such as social support, self-efficacy for coping, and psychosocial adjustment to cancer. Most of their participants (42%) were breast cancer patients, and found that religious beliefs may affect cancer patients' perceptions of seeking help from others. Hence, greater strength of religious beliefs may foster the perception of looking for social support (10), and also higher level of education may lead patients to use more social support (16). The low level of education in our sample may account for the low scores in seeking social support subscale.

Regression analysis showed that from all demographic and medical factors assessed in this study, just educational level and time since diagnosis were the predictors of self-efficacy in our Iranian breast cancer patients. In this study, which is consistent with the findings by Merluzzi et al. there was a relationship between patients' education and self-efficacy. Patients with academic compared to those with non-academic educations, on average, had higher self-efficacy (about 0.35). According to the study by Merluzzi et al. patients with higher level of education report greater self-efficacy regarding cancer, because better education may foster a sense of agency that is expressed in higher efficacy for maintaining an independent lifestyle, accessing and using medical information, and obtaining social support (16). Because our samples were mostly women with primary school education, the importance of intervention to enhance self-efficacy in such patients is stressed.

In contrast with the studies of Merluzzi et al. (16), we found a direct relationship between the time of diagnosis and self-efficacy. Increasing a single unit in time of diagnosis, self-efficacy increased about 0.13 unit. Mosher et al. also found an inverse relationship between the time of diagnosis and self-efficacy, less time since diagnosis was associated with greater self-efficacy in breast cancer patients (17). Our sample had a mean time of 13 months since diagnosis which can be considered as a newly diagnosed disease with relatively low self-efficacy score.

There are different results regarding self-efficacy and age in reported studies (16, 17). In our study no relationship was found between age and self-efficacy. Merluzzi et al. (16) believe that aging as a result of stressful experiences leads to increasing self-efficacy. Our results are affected by having young patients with breast cancer patients of whom 62% were under 50 years-old.

In this study, consistent with those of Merluzzi et al. (16) we found no relationship between disease stage and self-

efficacy. However, the study of Graves (22) showed that women diagnosed with stage II breast cancer reported lower self-efficacy than those diagnosed with stage III (22). On the one hand, the results of grave's study were not reliable because they were based on small sample size, and on the other hand, in our study more than half of patients were at stage II disease. Additional studies with more diverse stages are needed for conclusive assessment of the issue.

We found no relationship between marriage and self-efficacy; Eastern women with breast cancer considered their husbands as the most critical source of support in confronting their disease (19, 23). Collie et al. also showed married women with breast cancer had little problem communicating with the medical team in relation to self-efficacy in subscales such as seeking and understanding medical information and affective regulation in cancer behavior inventory (20). Unfortunately Eastern women usually act as protectors, assistants, and comforters, with low expectation from their husbands and children, and always put their families before themselves. Different groups of breast cancer patients have different supportive persons. For example, according to Kagawa-Singer, in Chinese-American families' daughters or immediate family support the patients, but the primary support for European women comes from their husbands (23). Our results may indicate the weak role of husbands in supporting patients and fostering self-efficacy in Iranian breast cancer patients. Additional studies are needed to further explore the role of husbands with regard to the lives of women with breast cancer and during their treatment. Finally we found no relationship between other chronic illnesses and self-efficacy which may be due to the fact that most of our patients had no chronic illness partly because of their young age.

5.1. Limitations of the Study

Although we tried to assess homogeneous patients with the same cancer type and treatment (chemotherapy), there were some limitations. First, studies using the same tool (CBI: version 2) were limited thus, comprehensive comparison of the results was impossible. Furthermore, the reliability scores of two subscales: maintaining activity and coping with treatment side effects were low ($r = 0.7$), a condition to be considered in the interpretation of the results.

5.2. Implications

Results of this study revealed new facts about cancer-related self-efficacy among Asian women especially in Iranian context; based on this study the lowest score related to seeking social support which deserves special attention. In general, the education and time from diagnosis are two important factors affecting the level of self-efficacy in breast cancer patients.

Acknowledgements

The authors would like to Acknowledge and thank Professor Elise L Lev for her invaluable help and support on writing this paper. The authors also wish to acknowledge DR Ali Isfahani for referring his patients to the researchers. We also wish to thank all physicians, nurses and staff of Hematology and Oncology research center of Tabriz University of Medical Sciences for their help and support.

Authors' Contributions

Alireza Mohajjel Aghdam and Zahra Kochaki Nejad are responsible for study concept and design, acquisition of data, drafting of the manuscript and critical revision of the manuscript for important intellectual content. Hadi Hasankhani and Mohammad Asghari Jafarabadi are responsible mainly for analysis and interpretation of data. Zohreh Sanaat and the other authors are responsible for Administrative, technical, and material support supervising the study.

Funding/Support

This research was financially supported by both Tabriz University of Medical Sciences and Hematology and Oncology Research center of Tabriz University of Medical Sciences.

References

1. Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D. Global cancer statistics. *CA Cancer J Clin.* 2011;**61**(2):69–90.
2. Mousavi SM, Gouya MM, Ramazani R, Davanlou M, Hajsadeghi N, Seddighi Z. Cancer incidence and mortality in Iran. *Ann Oncol.* 2009;**20**(3):556–63.
3. Mousavi SM, Montazeri A, Mohagheghi MA, Jarrahi AM, Harirchi I, Najafi M, et al. Breast cancer in Iran: an epidemiological review. *Breast J.* 2007;**13**(4):383–91.
4. Albert US, Koller M, Wagner U, Schulz KD. Survival chances and psychological aspects of quality of life in patients with localized early stage breast cancer. *Inflamm Res.* 2004;**53** Suppl 2:S136–41.
5. So WK, Marsh G, Ling WM, Leung FY, Lo JC, Yeung M, et al. Anxiety, depression and quality of life among Chinese breast cancer patients during adjuvant therapy. *Eur J Oncol Nurs.* 2010;**14**(1):17–22.
6. Spencer SM, Lehman JM, Wynings C, Arena P, Carver CS, Antoni MH, et al. Concerns about breast cancer and relations to psychosocial well-being in a multiethnic sample of early-stage patients.

7. Health Psychol. 1999;**18**(2):159–68.
7. Joolaee A, Joolaee S, Kadivar M, Hajibabae F. Living with breast cancer: Iranian women's lived experiences. *Int Nurs Rev.* 2012;**59**(3):362–8.
8. Harandy TF, Ghofranipour F, Montazeri A, Anooosheh M, Bazargan M, Mohammadi E, et al. Muslim breast cancer survivor spirituality: coping strategy or health seeking behavior hindrance? *Health Care Women Int.* 2010;**31**(1):88–98.
9. Singh-Carlson S, Wong F, Martin L, Nguyen SK. Breast cancer survivorship and South Asian women: understanding about the follow-up care plan and perspectives and preferences for information post treatment. *Curr Oncol.* 2013;**20**(2):e63–79.
10. Howsepian BA, Merluzzi TV. Religious beliefs, social support, self-efficacy and adjustment to cancer. *Psychooncology.* 2009;**18**(10):1069–79.
11. Tam Ashing K, Padilla G, Tejero J, Kagawa-Singer M. Understanding the breast cancer experience of Asian American women. *Psychooncology.* 2003;**12**(1):38–58.
12. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev.* 1977;**84**(2):191–215.
13. Akin S, Can G, Durma Z, Aydiner A. The quality of life and self-efficacy of Turkish breast cancer patients undergoing chemotherapy. *Eur J Oncol Nurs.* 2008;**12**(5):449–56.
14. Lev EL, Eller LS, Gejerman G, Kolassa J, Colella J, Pezzino J, et al. Quality of life of men treated for localized prostate cancer: outcomes at 6 and 12 months. *Support Care Cancer.* 2009;**17**(5):509–17.
15. Manne SL, Ostroff JS, Norton TR, Fox K, Grana G, Goldstein L. Cancer-specific self-efficacy and psychosocial and functional adaptation to early stage breast cancer. *Ann Behav Med.* 2006;**31**(2):145–54.
16. Merluzzi TV, Nairn RC, Hegde K, Martinez Sanchez MA, Dunn L. Self-efficacy for coping with cancer: revision of the Cancer Behavior Inventory (version 2.0). *Psychooncology.* 2001;**10**(3):206–17.
17. Mosher CE, Duhamel KN, Egert J, Smith MY. 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.* 2010;**26**(3):227–34.
18. Harirchi I, Karbakhsh M, Kashefi A, Momtahan AJ. Breast cancer in Iran: results of a multi-center study. *Asian Pac J Cancer Prev.* 2004;**5**(1):24–7.
19. Taleghani F, Yekta ZP, Nasrabadi AN, Kappeli S. Adjustment process in Iranian women with breast cancer. *Cancer Nurs.* 2008;**31**(3):E32–41.
20. Collie K, Wong P, Tilston J, Butler LD, Turner-Cobb J, Kreshka MA, et al. Self-efficacy, coping, and difficulties interacting with health care professionals among women living with breast cancer in rural communities. *Psychooncology.* 2005;**14**(10):901–12.
21. Lev EL, Paul D, Owen SV. Age, self-efficacy, and change in patients' adjustment to cancer. *Cancer Pract.* 1999;**7**(4):170–6.
22. Graves KD. . *Quality of Life Intervention For Breast Cancer Survivors: Application of Social Cognitive Theory.*. Blacksburg: Virginia Polytechnic Institute and State University; 2001.
23. Kagawa-Singer M, Wellisch DK. Breast cancer patients' perceptions of their husbands' support in a cross-cultural context. *Psychooncology.* 2003;**12**(1):24–37.