Self-efficacy in breast cancer patients: A systematic review

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ABSTRACT: Breast cancer is the most common diagnosed cancer and the leading cause of death worldwide. Breast cancer is diagnosed in 25.5% of Iranian women. However, it has a good survival rate which is considered as a chronic disease with numerous medical and non medical problems. Research on quality of life and self efficacy in patients with breast cancer at different stages of the disease and evaluation of physical, mental and social wellbeing helps promoting their positive health behavior resulting in better patient adjustment to the disease. The aims of this paper are to describe, compare and critique available literature on self efficacy in breast cancer patients, and propose directions for future research. Springer, Pubmed, Elsevier, Science direct, web of science, Wiley Interscience were searched for literatures on self efficacy for breast cancer patients from 2000 to 2012. Search terms such as self efficacy and breast cancer were used. Most of the studies showed that Self-efficacy is related to variables like: Quality of life, Emotional wellness, Fatigue Time and etc. Comparison and critique of these studies revealed important limitations like dearth of interventional research on this topic to increase self efficacy. There is also additional limitation such as: lack of standard tools, inadequate sample size, and failure to assess cultural differences. We suggest that, it would be better to focus on new strategies to increase self efficacy in breast cancer patient future studies. Adequate sample size and using specific standard tools with high validity and reliability is necessary.

INTRODUCTION

Breast cancer is the most frequently diagnosed cancer and the leading cause of death in females worldwide. The burden of cancer is increasing in economically developing countries as a result of population aging and growth as well as adoption of cancer-associated lifestyle including Smoking, physical inactivity, and westernized diets (Jemal, 2011).

Breast cancer accounted for 25.5% of all female cancers, most of them are between 40-49 year old and 30% are under 30 year old (Mousavi et al., 2007).

Breast cancer has one of the best survival rates among other types of cancer. Today it is being seen as a chronic illness with many persistent medical and non medical problems. As the most common cancer among Asian women, it needs more interventions to reduce burden of this disease (Lo et al., 2011).

Self efficacy is an important issue especially in chronic situations which can lead to better adjustment to the disease and its side effects as well as feeling control over the health status (Marks et al., 2005).

Background

The theory of self efficacy was derived from social cognitive theory. It is based on the belief that what people think, believe and feel affects how they behave. The initial work in the development of this theory was done to test the assumption that psychological procedures could result in behavior change by altering an individual’s level and strength of self efficacy expectations (Bandura, 1977).

Although various studies are used to assess different dimensions of this theory in chronic diseases including cancer, they also have some limitations that need to be discussed and refined.

Definition of Self Efficacy

Perceived self-efficacy is defined as people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine...
how people feel, think, motivate themselves and behave. Such beliefs produce these diverse effects through four major processes. They include cognitive, motivational, affective and selection processes. People with high assurance in their capabilities approach difficult tasks as challenges to be mastered rather than as threats to be avoided. In contrast, people who doubt their capabilities shy away from difficult tasks which they view as personal threats. (Bandura, 1977).

**Self Efficacy related to Breast Cancer**

Breast cancer survivors make up the largest group of cancer survivors (22%). They need all members of the healthcare team to assist them in coping with many evolving challenges, and to live with dignity and respect. (Valdivieso et al., 2012). An important source in people to cope with physical problems is self-efficacy. Several studies found that it plays a vital role in the prediction of psychological and functional outcomes and high self-efficacy—confidence in one’s ability to adapt to stressors—can cause less emotional distress and better outcomes (e.g. less pain) (Lorig, 1999; Robinson, 2000; Porter, 2008).

**Data sources**

Websites such as: Springer, PubMed, Elsevier, Science direct, web of science, Wiley Interscience were searched for literatures on self-efficacy for breast cancer patients from 2000 to 2012. Search terms such as self-efficacy and breast cancer Breast neoplasm, breast malignancy were used. Studies specific to breast cancer that assessed self-efficacy and interventions or factors related to it were chosen. Literatures on self-efficacy and cancer regardless of type of cancer were excluded.

**RESULTS**

Most of the studies were descriptive rather than interventional. According to the aim of our review we discussed and critique these studies chronologically:

**Counseling Women with Breast Cancer Using Principles Developed by Albert Bandura**

This study was done in 2000 by Lev and Owen. Eighteen women receiving Chemotherapy for breast cancer were randomized to efficacy-enhancing experimental (n = 10) and Usual-care control (n = 8) groups. Subjects’ age ranged from 30 to 72 years of age; 79% were married, 83% were white, 57% were Catholic, and 54% had above high school education. A counseling technique designed by the author (Lev) was used to enhance women’s ability to care for themselves. This technique used interventions that increase sources of development of self-efficacy. The counseling given to women in this study included several components: viewing a videotape (vicarious experience), receiving a booklet describing self-care behaviors (including behavioral strategies such as attention refocusing, imagery, dissociation, reframing and self-encouragement) and receiving five counseling interventions at monthly intervals in which they contracted to practice behaviors they perceived were relevant to their needs (Performance accomplishments, Verbal persuasion, Normalizing psychological states).

One of outcome variables was self-efficacy which was assessed by Strategies Used by Patients to Promote Health (SUPPH). Self-care self-efficacy measured at baseline was significantly higher than 4 and 8 months later. There are some important limitations in this study include: very small sample size that makes the generalizability of the results difficult. Not considering the stage and type of the disease and Time since diagnosis are other limitations. There isn’t also enough explanations about the self-efficacy tool.

**An Intervention to Increase Quality of Life and Self-Care Self-Efficacy and Decrease Symptoms in Breast Cancer Patients**

In 2001 Lev et al. assessed the effect of a nursing intervention on self-care self-efficacy, QOL and symptom distress. Fifty-six women receiving chemotherapy for breast cancer were randomized to the experimental and control groups. Both groups received the usual preparation, which included being told that medications would be given on specific days, that side effects might occur, and that medications to control the side effects could be given. The control group received a booklet, “Cancer Chemotherapy and Care.” Intervention group (a) viewed a 5-minute videotape; (b) received the “Self-Care Behaviors” booklet that incorporated elements of the social cognition model; and (c) received five efficacy-enhancing counseling interventions delivered in monthly 1:1 sessions by trained nurse. Self-efficacy was measured by Strategies Used by Patients to Promote Health (SUPPH), a self-report instrument. Results supported the hypotheses: At 4 months and 8 months after women began chemotherapy scores for the women in the efficacy-enhancing group had increased on measures of quality of life and self-care self-efficacy had decreased on the measure of symptom distress. The small sample size was a major limitation of the study. There were also several people involving in the study for both recruitment and intervention that may affect the consistent communication.
Quality of Life Intervention for Breast Cancer Survivors: Application of Social Cognitive Theory

Kristi Dove Graves in 2001 did an interventional study to augment self-efficacy in breast cancer patients. The purpose of the project was to augment self-efficacy, outcome expectations, and self-regulatory skills for women with breast cancer through a quality of life intervention based on Social Cognitive Theory. Relationships between social cognitive variables, positive coping behaviors, and quality of life were explored. The intervention provided information, guided feedback, and mastery experiences in a supportive environment for breast cancer survivors. A total of 32 women were enrolled and randomized to either the 8-week intervention or standard-care. With a final n of 14, the lack of statistical power made it difficult to determine whether differences existed between the two groups. The most important limitation of this study is very small sample size considering vast announcement of the program for recruitment.

Breast Cancer and Problems with Medical Interactions: Relationships with Traumatic stress, Emotional Self Efficacy, and Social Support

To examine relationships between breast cancer patients’ psychosocial characteristics (impact of the illness, traumatic stress symptoms, emotional self-efficacy, and social support) and problems they perceived in their medical interactions and their satisfaction with their physicians, Han et al did a cross-sectional investigation in 2005. 325 newly diagnosed breast cancer women (stage 1-3) completed the questionnaire of this study prior to participation in an interventional study. The 352 participants in this study were recruited between 1992 and 1996 for a multicenter randomized trial. The Stanford Emotional Self Efficacy Scale

Cancer (SESES-C) was designed to measure three domains of emotional self-efficacy for cancer: (a) communicating emotions in relationships; (b) focusing in the present moment and (c) confronting death and dying. Women who indicated that they had more problems interacting with their medical team were found to have less emotional self-efficacy. One question about this study is about time elapse between data collection and releasing the results of the study? Another point is about other factors influencing communication between patient and health team including: age, previous experiences and cultures.

Self-Efficacy, Coping, and Difficulties Interacting with Health Care Professionals among Women living with Breast Cancer in Rural Communities

In a cross-sectional study collage and colleges (2005) examined self-efficacy, coping, and social support in relation to difficulties interacting with physicians and nurses among 89 women living with breast cancer. Living in rural, mountainous communities of Northeastern California. They found that self-efficacy for seeking and understanding medical information, self-efficacy for affective regulation, self-distraction, and being married were each negatively related to problems in medical interactions, while behavioral disengagement showed the opposite relationship. The most significant limitation of this study is that the sample was white European American in ethnicity, which reduces the generalizability to other rural populations. Different ethnicities may be faced with different challenges with respect to medical interactions. The sample size did not provide sufficient statistical power to detect some significant relationships. Other limitations include: lack of an urban comparison sample and the lack of information about the health care providers’ views of the medical interactions.

Cancer-Specific Self-Efficacy and Psychosocial and Functional Adaptation to Early Stage Breast Cancer

Manne et al (2006) in a descriptive study examine changes in cancer self-efficacy over time among 95 women with early stage breast cancer and associations between task-specific domains of self efficacy and specific psychological, relationship, and functional outcomes post surgery and 1 year later. Cancer self-efficacy was relatively stable; with only two aspects of efficacy (a) Activity Management and (b) Self-Satisfaction showing significant increases over the 1 year that participant were followed. Two limitations should be considered.First: participants were off treatment at the second assessment time point and in the survivorship phase. It is possible that active treatment would change self-efficacy. Other point is that results of this study is different from previous ones that may be because of different tool used for assessing self efficacy or that the majority of women (68%) had a college degree or higher education and 76% of women underwent breast-conserving surgery.

Meaning-making intervention during breast or colorectal cancer treatment improves self-esteem, optimism, and self-efficacy

Lee et al in 2006 performed a randomized controlled trial to improve self efficacy in breast and colorectal cancer patients. 74 patient with breast or colorectal cancer were randomly assigned to intervention (receive up to four individualized sessions up to 120 min) in their home or clinic) and control group (free to participate in support groups). An exercise is used to guide participants to review cancer experience using a narrative, story-telling approach to chronologically embed the cancer experience in the historical context of other important life events. Results showed higher self efficacy in experimental group rather than control. Results of this study due to small number of colorectal patients are limited to breast cancer only. Investigators
used a general tool to assess self-efficacy in cancer patients which is considered limitation. Different interviewers can cause different effect in applying procedure.

The quality of life and self-efficacy of Turkish breast cancer patients undergoing chemotherapy Akin et al in 2008 assessed self-efficacy of 141 Breast cancer patients in Turkey through a descriptive, longitudinal study. The research was carried out between January 2006 and August 2006 in the outpatient Chemotherapy Unit at Istanbul University Oncology Institute. The Patients were assessed before their chemotherapy began and during treatment on each chemotherapy course (6 assessment times). Self-efficacy was negatively affected to a moderate degree. The quality of life and self-efficacy were influenced by personal and medical characteristics, showing consistency with similar studies. Age, marriage status, stage and time since diagnosis, existence of previous surgery or chronic disease and breast cancer in close relatives were not related to self-efficacy but educational level, job and protocol of chemotherapy showed effect on it. As considered previously this work also has some similar limitations such as not specifying different stages of disease or metastatic ones. The researchers believe that in Turkey, patients leave their treatment decisions to physicians or their relatives, so the answers they gave to the 13th item ‘Deciding for myself whether or not to have treatment in SUPPH scale were consistent with this viewpoint. This can be because there are cultural differences about self-efficacy.

Self-efficacy, adjustment style and well-being in breast cancer patients: a longitudinal study Rottmann and her colleges in 2010 investigated perceived self-efficacy and its association with emotional, physical and social well-being and whether mental adjustment styles mediate this association in breast cancer patients. 648 women who had this diagnosis more than 5 years completed the self-efficacy general scale at baseline and 2 other questionnaire one and 12 month later. Results showed that Greater self-efficacy at baseline was associated with emotional well-being after 12 months. Self-efficacy had a direct effect on emotional functioning. There were important associations between self-efficacy and education and time since diagnosis and also between well-being and age, education, relapse and time since diagnosis which differs from Turkish study’s results somehow. Limitations are heterogeneous sample size, assessing self-efficacy only at the beginning of the study, using a general tool to assess self-efficacy in cancer population.

Self-efficacy for Coping with Cancer in a Multiethnic Sample of Breast Cancer Patients: Associations with Barriers to Pain Management and Distress Mosher et al in 2010 surveyed association of breast cancer patient’s self efficacy with coping with cancer, perceived barriers to pain management, distress, and pain outcomes in a multiethnic (Black, Latina, or Caucasian), sample (N = 87). Results revealed Greater self-efficacy for coping with cancer was associated with older age, less time since diagnosis, and less distress. In addition, less self-efficacy for seeking and understanding medical information, Spanish language preference, and greater distress predicted greater barriers to pain management. Limitation includes: relatively small sample for assessing a lot of variables, urban women who may be different from rural women considering facilities and source of self-efficacy. Stage of the disease also has not been considered.

Fatigue, Self-efficacy, Physical Activity, and Quality of Life in Women With Breast Cancer In 2011 Hass performed a descriptive study to determine associations among the concepts of a fatigue model to cancer, self-efficacy for physical activity, physical activity, and QOL in women being treated for breast cancer. 73 women with breast cancer completed 5 instruments

Include The Physical Activity Assessment Inventory (PAAI), developed by the researcher according to guidelines suggested by Bandura, is a 13-item numeric scale that asks respondents to rate how confident they are that they can perform their usual physical activities in a variety of circumstances. Results showed all of the research model variables were significantly correlated. Findings indicate that even at low to moderate levels of fatigue, women experienced associated decreased self-efficacy, lower levels of physical activity, and decreased QOL. Limitation of this research contains: substandard Tool which needs to be assessed more on reliability and validity. Most of the women in this study had high education level or had early stage I/II disease which can affect the level of self-efficacy.

Cancer behavior coping in women with breast cancer: Effect of a cancer self-management program Loh and Quek in 2011 performed a 4 weekly cancer self management training program on 69 newly breast cancer women (intervention group) and assessed their self efficacy immediately and 4 weeks after intervention. 78 patients also were allocated to control group and received routine care. Results showed that self efficacy increased in intervention and decreased in control group. The most important limitation of this study is non randomized allocation due to observing ethical issues.
<table>
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<th>Investigators</th>
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<td>Lev and Owen</td>
<td>2000</td>
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<td>Lev et al</td>
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<td>Manne et al</td>
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<td>Lee et al</td>
<td>2006</td>
<td>Meaning-making intervention during breast or colorectal cancer Treatment improves self-esteem, optimism and self efficacy/ GSES</td>
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<td>Rottman et al</td>
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<td>Mosher et al</td>
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<td>87/ Descriptive</td>
<td>Greater self-efficacy for coping with cancer was associated with older age, less time since diagnosis, and less distress.</td>
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In this paper we assessed existence literature on self efficacy in breast cancer patients according to bandura’s self efficacy theory and Mark’s review on self efficacy interventions in chronic disease. The summary of these are available in table 1. Although these are a good guide to unrevealed self efficacy and it’s associate factors, There are limitations to be considered.

First, different tools are used in these studies to assess self efficacy. Some of them were not even specific to cancer or developed by researchers. Using different tools makes it difficult to compare the results. We suggest using the specific tool made to assess self efficacy: cancer behavior inventory (CBI).

Second the interventions designed to increase self efficacy were limited, most of them had small sample size which can affect generalizability of the results. A repeated study with enough sample size seems necessary. Some of the interventions were Psychological and some were self care, a comparative study or a integrated one should be done.

Third it seems that factors like culture has important effects on self efficacy that in most of the works it is unrecognized. For example in Turkish study or Asian one researcher pointed out family bonding in their countries that may affect self efficacy changes during time.

Finally, in all these studies the role of caregiver is disregarded. Marks et al in their review article underline the importance of engaging caregivers in the self efficacy enhancing programs. (Marks et al, 2005) Porter et al study on self efficacy also showed that when patients and caregivers both had low self-efficacy, patients reported higher levels of anxiety and poorer quality of life than when both were high in self-efficacy. (Porter, 2008)

**CONCLUSION**

We conducted a retrospective review of self-efficacy studies for breast cancer patients; we compared and critiqued them and analyzed the key recommendations for designing a standard self-efficacy intervention for breast cancer patients and pointed out the merits and demerits of the existing studies. This review will be of use to future researchers in designing and implementing their studies to promote breast cancer patient’s self efficacy.

**Implication for Practice**

To improve self efficacy of breast cancer patients, researchers in the future are advised to pay more attention to the following aspects:

1. Using a variety of learning strategies including lectures, discussions, demonstrations, goal setting, contracting, modeling, mental practice, homework, recall-enhancing methods, workbooks, texts, and videotapes, and provide mutual aid and support.
2. Involving significant others, such as spouse or family members, and encourage collaboration with other health care providers and self-efficacy of caregivers.
3. Applying encouragement, persuasion, and direct or indirect support for the desired changes.
4. Using both individual and small-group intervention approaches, especially collaborative and active participation strategies.
5. Applying different technologies like telephone or internet.

**REFERENCES**


