

ORIGINAL ARTICLE

Received: May 2017

Accepted: July 2017

Female Cancer Patients' Perceptions Regarding Health-related Behaviors: Qualitative AnalysisMarjan Mardani-Hamooleh¹, Taraneh Taghavi- Larijani², Haydeh Heidari^{3*},
Mohsen Avazpour⁴

A B S T R A C T

Background: Cancer is a growing challenge worldwide. Although it affects both sexes, women tend to be more vulnerable to it than men. This study aims to elucidate the perceptions of women afflicted with cancer regarding health-related behaviors.

Methods: This is a qualitative study with content analysis. Participants included 22 women with cancer in Tehran. The participants were recruited by purposive sampling and were administered semi-structured, face-to-face interviews. The interviews were transcribed and reviewed to yield the findings. Initially, semantic resemblances and differences were reviewed and subcategories were defined. Subsequently, after repeated review, the related subcategories were placed in one category.

Results: The participants in this study were aged 27 to 65 years, most were married (14 women) and homemakers (20 women). Moreover, their education ranged from elementary school to a bachelor's degree. Regarding cancer type, most were diagnosed with breast cancer (12 women) and the duration of the disease ranged 2-5 years. Data analysis yielded 2 categories and 4 subcategories. The category "physical health-related behaviors" consisted of two subcategories: "health-related behaviors pertaining to physical activities after cancer" and "physical activities after treatment". The category "psychosocial health-related behaviors" consisted of two subcategories: "mental health-related behaviors" and "socio-cultural health-related behaviors".

Conclusion: Our findings highlight the fact in order to improve the health of women with cancer, aspects of health other than physical health (e.g. psychosocial health) need to be addressed. Since, according to our findings, health-related behaviors of women with cancer are deeply affected by culture, it appears that countering the cultural taboos pertaining to cancer will improve these women's health. Achieving this outcome requires extensive cultural interventions in the healthcare system. We propose community-based educational interventions to correct cultural beliefs of the community to improve health for this vulnerable group.

Keywords: cancer, patient, women's health, qualitative analysis

2

1. Department of Nursing, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran.

2. Department of Nursing, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran.

3. Modeling in Health Research Center, Department of Nursing, School of Nursing and Midwifery, Shahrekord University of Medical Sciences, Shahrekord, Iran.

4. Department of Emergency Medicine, Yasuj University of Medical Sciences, Yasuj, Iran.

***Corresponding Author:**

Haydeh Heidari

Modeling in Health Research Center,
Nursing Department, Nursing and
Midwifery School, Shahrekord
University of Medical Sciences,
Rahmatieh Street, Shahrekord, Iran.

Tel: (+98)3813335648

fax: (+98)381 3346714

Email: haydehheidari@gmail.com



2017; 9(2): 2-10

www.bccrjournal.com

INTRODUCTION:

Cancer is a growing challenge worldwide¹. Over the last decade, the overall incidence of cancers has remained constant in women, while diminishing by an annual 2% in men. Moreover, cancer-related death has fallen by an annual 1.5% in both sexes². This disease is considered a major challenge in Middle Eastern countries, as well, with an estimated 45% rise in mortality by 2030³. In Iran, cancer constitutes the third leading cause of death, occurring in 48-112 cases per million in women and 51-144 cases per million in men in different regions of the country⁴. Low- and middle-income countries have the highest rates of gastric, esophageal, liver, and cervical cancers. Among factors contributing to malignancies in these countries, increased cigarette smoking and low physical activity have been noted⁵. A diagnosis of cancer is a life-changing event for a person; the patient will not be able to continue his/her life as before, and almost all patients will encounter considerable problems in all aspects of personal, familial, and social life⁶. In addition, cancer will compromise the patient's spiritual life^{7,8}. Notwithstanding, cancer patients are eager to learn more about their disease and thus, require informational support from healthcare personnel⁹. Although cancer affects both sexes, some studies suggest the greater importance of addressing health and its related behaviors in women. The findings of a qualitative study in Sweden revealed that women are more vulnerable to cancer compared to men¹⁰. Similarly, a qualitative German study reported that quality of life is poorer for women with cancer than men¹¹. A study on cancer patients in Denmark concluded that in comparison to men, women have more neglected emotional and physical needs which warrant special attention¹². A Greek study on cancer patients demonstrated that women experienced higher levels of stress than men¹³. On the other hand, the findings of a study in Malaysia suggested that female cancer patients

will have better health provided that they are married, live with their families, or have children¹⁴. Taken together, these findings highlight the importance of investigating health-related behaviors in women with cancer, as this knowledge will help healthcare providers to recognize the behaviors contributing to improved health in these women, thus fulfilling one of the crucial responsibilities of healthcare workers: improving health in vulnerable groups. It appears that the perceptions of women with cancer regarding the concept of health and its related factors are influenced by cultural and social factors. For this reason, it will be desirable to apply qualitative methodologies to elucidate the perspective of these women regarding health-related behaviors and their associated factors, based on their own statements in a natural environment. In other words, a qualitative methodology will help the researchers to open their way into the minds of these vulnerable women and receive their points of view to identify their understanding of the concept of health. Therefore, considering the socio-cultural basis of health and the influence of socio-cultural factors on women's perception of health-related behaviors, we conducted the present study to elucidate the perceptions of female cancer patients regarding health-related behaviors.

METHODS:

The current study uses a qualitative methodology. Since the health-related behaviors in women with cancer are formed on the basis of socio-cultural interactions and encounters, a qualitative methodology will provide the optimal means to explore this basis. In fact, the nature of qualitative studies will yield valuable data of this kind to the researcher. We used content analysis in this study. Content analysis consists of analyzing written, spoken, or visual communications through inferences from the raw data to summarize and categorize them. In inductive content analysis, the categories and their titles flow from the text of data¹⁵. In this study,

we applied inductive content analysis.

The participants were recruited by purposive sampling. Sampling was performed on women with cancer with maximum diversity (including age, education level, employment, marital status, and type of cancer) until data saturation. In this study, 22 patients were subjected to in-depth, semi-structured, face-to-face interviews. The duration of interviews ranged 35 to 45 minutes. Each patient was interviewed once, and in total, 22 interviews were administered. The inclusion criteria were being diagnosed with cancer, female gender, and more than one year duration of the disease. We did not confine our participants to any specific cancer type or stage, and chose our participants from women with a broad range of cancer types at different stages. Prior to the interview, the researcher agreed with the patients on time and location. The study environment consisted of institutes affiliated with the Tehran University of Medical Sciences. During the interview, the participant was initially asked, "How would you describe your health?". In order to gather more information, other questions were asked, such as "What factors do you believe to affect your health?" and "Under what conditions have you thought that your health was being threatened?". The interview continued with follow-up questions such as "What do you mean by...?", "Will you provide more details?", or "Can you specify an example?". During the interviews, the administrator encouraged the participants to express their perceptions about the questions and thus attempted to guide their answers towards the objectives of the study.

The interviews were recorded, transcribed in handwriting alongside in-field notes, and then types on a computer. The transcribed texts were reviewed several times and then broken down into the com-

posing meaning units, and finally the smallest meaning units (i.e. codes). The codes were then reviewed to be placed in subcategories based on semantic resemblances and differences. Subsequently, similar subcategories were merged to form one category and finally yield the major categories. The researchers did their best not to involve their own presumptions in the process of data analysis. To determine the robustness of data, we used the criteria for credibility, dependability, confirmability, and transferability¹⁶. In order to assess data credibility, we had persistent engagement with the theme and data. Opinions of the research team were used during the process of interviews and data analysis. Transcriptions of the interviews and the results were shared with some patients. Triangulation was undertaken in data collection (interviews and in-field notes). In order to verify data dependability, we used the opinions of an external observer who was not part of the research team, but was acquainted with the subject matter and content analysis; there was agreement on our findings. To verify confirmability, all activities were documented and a report was prepared on the process of the study. To verify transferability, the findings were shared with two patients who were not part of the study but had similar conditions, and the findings were corroborated.

In order to adhere to ethical guidelines, this study was approved by the Deputy for Research at Tehran University of Medical Sciences. The patients provided their consent in written after being informed about the study objectives. The patients were reassured that their information would remain confidential and that they retain the right to withdraw from the study at any time.

RESULTS:

The participants were aged 27-65 years, most of them were married (14 women) and homemakers (20 women). Moreover, their education level ranged from elementary school to bachelor's degree. Regarding the type of cancer, most had breast cancer (12 women) and the duration of their disease ranged 2-5 years (**Table 1**).

Our analyses yielded two categories and four subcategories. The category "physical health-re-

lated behaviors" consisted of two subcategories: "health-related behaviors pertaining to physical activities after cancer" and "physical activities after treatment". The category "psychosocial health-related behaviors" consisted of two subcategories: "mental health-related behaviors" and "socio-cultural health-related behaviors".

A- Physical health-related behaviors

This category consisted of physical activities after

Table 1. Demographic characteristics of the participants

Patient	Age (years)	Marital status	Education	Employment	Type of cancer	Duration of disease (years)
1	59	Married	Associate's	Homemaker	Breast	5
2	48	Married	Elementary	Homemaker	Breast	5
3	29	Single	High School	Homemaker	Breast	2
4	49	Married	High School	Homemaker	Hematologic	2
5	35	Married	High School	Homemaker	Gastric	3
6	28	Divorced	Bachelor's	Homemaker	Breast	3
7	52	Married	Middle School	Homemaker	Colorectal	2
8	29	Married	Bachelor's	Employed	Breast	4
9	31	Single	High School	Homemaker	Gastric	3
10	62	Married	Middle School	Homemaker	Breast	5
11	28	Single	High School	Homemaker	Hematologic	2
12	34	Married	Associate's	Homemaker	Breast	5
13	32	Divorced	Associate's	Homemaker	Breast	4
14	65	Married	Elementary	Homemaker	Cervical	2
15	45	Married	High School	Homemaker	Breast	4
16	48	Married	High School	Homemaker	Breast	3
17	46	Married	Associate's	Homemaker	Colorectal	2
18	28	Single	Associate's	Homemaker	Hematologic	2
19	27	Single	High School	Homemaker	Breast	3
20	38	Married	High School	Homemaker	Gastric	2
21	39	Married	High School	Homemaker	Breast	5
22	27	Single	Bachelor's	Employed	Hematologic	2

cancer and physical activities after treatment.

A-1- Physical activities after cancer

After being diagnosed with cancer, the participants believed that the disease had compromised their physical health. This disruption in physical health-related behaviors was expressed differently by the patients.

“This disease affects health, because it involves different body parts... For example, we might not be able to take care of some routine activities. Well, I used to be quite active before the disease, very industrious. But what now? I don’t remotely look like my former self.” (Patient 8).

“Since I’ve been diagnosed with cancer, I’m not active enough. I think the disease has made me lose the ability to manage my affairs”. (Patient 12).

According to the patients, the excruciating pain of the tumor has jeopardized their physical health and rendered them incapable of addressing their home-making activities.

“I had a stomach tumor, I was in a lot of pain, it overwhelmed me. For me, being healthy is being pain-free... This devastating pain took over my health; I couldn’t take care of my house, even though I have two kids.” (Patient 5).

A-2- Physical activities after treatment

Cancer treatment negatively influenced the women’s physical health by disrupting their physical activities such as hiking, going to the gym, or walking in the mountains.

“Chemotherapy made me extremely exhausted. I couldn’t go hiking any more... Hiking is great, but when you’re drained, you just can’t do it... I think doing exercises somehow makes you healthy.” (Patient 10).

“I used to go to the gym, but since my bowel sur-

gery, everything has changed. I’ve simply lost the power to go to the gym.” (Patient 19).

“Exercises made me feel good; ever since I can remember, I’ve been into exercises, with all the hiking and walks in the mountains... After my cancer, I was given these treatments and I just couldn’t carry on.” (Patient 11).

B- Psychosocial-related health behaviors

This category consisted of mental health-related behaviors and socio-cultural health-related behaviors.

B-1- Mental health-related behaviors

In the subcategory of mental health, the patients expressed concerns which had a psychological basis. In their opinion, certain concerns regarding the continuation of their life disrupted their peace of mind.

“Health means that you have peace of mind... With cancer, you have all these worries which take away that peace of mind; worries about survival, how you will go on with your life...” (Patient 9).

Some patients lacked the power to cope with their situation after surgery. They used expressions such as “thorn in the side” and “heap of worries” to convey their profound concerns.

“Finally, I lost part of my body in surgery. It’s been a thorn in my side. Just imagine, they cut off a woman’s breast; how awful... I keep thinking about it.” (Patient 15).

“I’m in constant fear that somebody may want to see my surgery scar... It’ll be terrible to have people see you’re missing a breast... My poor daughter – I could see the fear on her face – asked, “What happened to you, Mom?”. I was devastated, I lost it, I became this heap of worries; what am I going to tell her?” (Patient 21).

The patients sometimes experienced psychological conditions following treatment and its side effects. One women mentioned that writing helped her cope with her emotions.

"When I was a nervous wreck, that is, when I was helpless and I suffered a lot of stress, like when I was taking chemo and especially when I lost my hair... I cried. When my sobs bothered my husband, I took to writing. I think it's better with writing, makes me feel more comfortable." (**Patient 17**).

B-2- Socio-cultural health-related behaviors

In the subcategory socio-cultural health-related behaviors, the patients faced social taboos which arose from the culture and incorrect beliefs of their communities. The participants had recounts of their partners' incorrect beliefs that threatened their social health.

"I have to say this, this country is really poor culturally. When a woman gets cancer, the husband starts thinking about marrying again, and the society approves it. My husband's thinking the same. Well, you just can't jeopardize a woman's health more!" (**Patient 4**).

"Men are like, women aren't allowed to have a deformity. After mastectomy, I had a prosthetic put in, and yet my husband still thinks of me as less of a woman!" (**Patient 16**).

Many patients were concerned about the limitations imposed by the society. Marriage was among the limitations mentioned by the participants.

"There's this idea that cancer patients shouldn't get married, because they're doomed! I don't care about this misconception. I'll wait for my treatment to complete, and then I'll plan for my marriage." (**Patient 22**).

The patients experienced an isolation which was cultural in nature. They used interesting metaphors to convey this concept, and found the society's perceptions of cancer as stigmatizing.

"Culturally, the members of the society have a hard time communicating with a cancer patient. For us women, it's all the more horrible! Like the ugly duckling no one wanted to deal with... It's like cancer is a stigma, this makes you isolated from the whole society." (**Patient 14**).

to be significant in multivariable analysis ($p > 0.05$).

DISCUSSION:

The findings of the present study demonstrated the fact that perceptions of women with cancer regarding health-related behaviors encompass fields pertaining to physical, mental and social health. Concerning physical health-related behaviors, the participants' accounts indicated that these behaviors cover a wide range in two periods; after diagnosis with cancer and after treatment. The women's complaints regarding their inability to perform routine activities and assume household duties are among factors threatening their physical health. Moreover, physical pain caused by the disease rendered these women unable to perform many activities. They mentioned that before their diagnosis and treatment, they were physically active. They also complained about the disruptions caused by their disease and treatment in activities such as hiking, exercising and walking in the mountains. In their opinion, such activities may improve their health. According to the findings of a Canadian study, physical activities constitute a strategy to improve physical health in women with cancer¹⁷. In this regard, another Canadian study emphasizes the fact that addressing the adverse effects of cancer treatment

requires rehabilitation programs to improve the patients' physical health. Such programs attempt to restore the patients' physical capacities to the extent possible through physical activities¹⁸.

The findings of the current study regarding psychosocial health-related behaviors indicated that these behaviors may be categorized in two groups of mental health-related behaviors and socio-cultural health-related behaviors. In the subcategory mental health-related behaviors, the patients' accounts reflected their concerns and fears that menaced their psychological health. The majority of these fears pertained to fear of losing body parts. In addition, there was constant worry and mental occupation about deformity and fear of the surgical scar seen by others. Furthermore, the participants in this study did not feel positively about the consequences of chemotherapy, which they experienced most prominently in the form of hair loss. Similarly, an Australian study reported that hair loss was the most bitter experience in women after chemotherapy, which was immensely irritating to them mentally¹⁹. In addition, a study in Turkey reported hair loss following chemotherapy to negatively affect women's psychological health²⁰. According to the participants' accounts, our study reveals that psychological health of women with cancer is compromised. This issue has received attention from researchers throughout the world. A Canadian study highlighted the need for improving psychological health for women with cancer²¹. Moreover, a study in the United States demonstrated the positive effects of emotional support for women with cancer in terms of improving their mental health²². The findings of a Spanish study indicated that emphasizing concepts such as happiness, optimism, and self-worth is crucial for female cancer patients, and psychological interventions are needed to improve mental health in these individuals²³. In an Iranian study, a group

therapy intervention was conducted on women with cancer, which resulted in improved depression²⁴.

The female cancer patients in this study recounted that cancer therapy and its adverse effects, such as hair loss, were associated with certain psychological conditions (e.g. crying) and writing was helpful to cope with them. It appears that the participants in this study used this technique to obtain a better understanding of their disease and improve their health. Similarly, a Greek study reported that improving female cancer patients improved their psychological health through enhancing their perception of the disease²⁵. In addition, the findings of a systematic review indicated that writing skill is one of the ways to substantially improve mental health in women with cancer²⁶. This observation was corroborated by an English study with similar findings²⁷.

Our findings suggest that mental health-related behaviors of women with cancer will affect other family members, such as children and spouses. This observation underlines family-oriented considerations when providing psychological care for women with cancer. In this regard, a German study explored the impact of family-oriented interventions on mental health of female cancer patients and their children. According to the results, implementing family-oriented interventions led to improved mental health in the women and their children²⁸.

In general, our findings profoundly highlight the importance of addressing mental health-related behaviors of female cancer patients alongside their physical treatment. This finding needs to be taken into account by healthcare authorities; as depicted by a Dutch study, female cancer patients with greater perception of mental health will have greater levels of general health and higher overall quality of life²⁹.

Another finding of the present study is the fact that

health-related behaviors of women with cancer are inevitably interwoven with the cultural context of their society. According to these women, there are certain taboos in our culture which stem from incorrect beliefs and opinions in the society. For instance, female cancer patients detested the cultural poverty and the incorrect prevailing opinion which deprives them of the right to marry because they may face death. In the patients' opinion, other members of the society perceive cancer as a stigma. With regard to social health-related behaviors, the women encountered a spectrum of cultural taboos. They experienced that their spouses may consider re-marriage following a diagnosis of cancer. Additionally, after surgery, the spouses failed to accept their disfigurement. The women in this study attributed these incorrect beliefs to the cultural poverty prevailing in our communities. Similarly, female cancer patients in Bahrain were concerned about losing their husbands as their disease might encourage their husbands to choose a second wife. The Bahraini women attributed this behavior to the cultural challenges of their society³⁰. Among other taboos mentioned by the participants with cultural roots, one might recognize the difficulty faced by the patients to establish relationships with other members of the society, leading to their isolation. The participants described that people of the society perceive cancer as a stigma. In this regard, a Jordanian study reported that female cancer patients experienced their disease as a stigmatized condition³¹.

Overall, our findings demonstrate that exploring the health-related behaviors of women with cancer will be futile without considering the cultural context of the society. Therefore, addressing these issues may be helpful in supporting these patients and improving their health. It appears that the attention focused on conventional cancer therapies has obscured the other aspects of health in women with cancer.

On a deeper level, this study revealed that in Iran, health-related behaviors of female cancer patients are immensely influenced by cultural issues. Thus, it appears the curtailing the cultural taboos related to cancer in Iran may improve the general health of female cancer patients. This outcome requires extensive cultural interventions in the Iranian healthcare system. On this basis, we recommend the implementation of society-oriented educational interventions to correct the society's cultural beliefs in order to improve health in women with cancer.

ACKNOWLEDGEMENT:

This study is the result of the proposal No. 20231, Tehran University of Medical Sciences. We wish to express our gratitude to all participants.

REFERENCES:

1. Wilkinson WM, Rance J, Fitzsimmons D. Understanding the importance of therapeutic relationships in the development of self-management behaviours during cancer rehabilitation: a qualitative research protocol. *BMJ Open*. 2017; 7(1):e012625.
2. Siegel RL, Miller KD, Jemal A. Cancer Statistics, 2017. *CA Cancer J Clin*. 2017; 67(1):7-30.
3. Silbermann M, Daher M, Fahmi-Abdalla R, Jaloudi MA, Hassan AA. The Middle East Cancer Consortium promotes palliative care. *Lancet*. 2015; 385(9978):1620-1.
4. Seyedfatemi N, Mardani Hamooleh M, Borimnejad L, Tahmasebi M. Palliative Care as the Driving Force for Providing Psychological Comfort to Patients with Cancer: A Hermeneutic Study. *Iranian Journal of Cancer Prevention*. 2016; 9(5):e4516.
5. Torre LA, Siegel RL, Ward EM, Jemal A. Global Cancer Incidence and Mortality Rates and Trends-An Update. *Cancer Epidemiol Biomarkers Prev*. 2016; 25(1):16-27.
6. Seyedfatemi N, Mardani Hamooleh M, Borimnejad L, Tahmasebi M. Concept Analysis of Family-centered Care in Cancer Using Hybrid Model: A Qualitative Study. *Basic & Clinical Cancer Research*. 2014. 6(4):14-20.
7. Hosseini L, Lotfi Kashani F, Akbari S, Akbari ME, Sarafraz Mehr S. The Islamic Perspective of Spiritual Intervention Effectiveness on Bio-Psychological Health Displayed by Gene Expression in Breast Cancer Patients. *Iran J Cancer Prev*. 6;9(2):e6360.

- gy and hepatology from bed to bench. 2015;8(1):19.
8. Khorami-Markani A, Yaghmaie F, Khodayarifard M, Alavimajd H. Oncology Nurses Spiritual Health Experience: A Qualitative Content Analysis. *Basic & Clinical Cancer Research*. 2015. 7(1):24-34.
 9. Khoubbin khoshnazar T, Akbari ME, Rassouli M, Lotfi Kashani F, Sajjadi M. Reaching out for the Truth; A Need Universal to Every Woman with Cancer: A Qualitative Content Analysis. *Basic & Clinical Cancer Research*. 2016. 8(3):23-31.
 10. Armuand GM, Wettergren L, Rodriguez-Wallberg KA, Lampic C. Women more vulnerable than men when facing risk for treatment-induced infertility: a qualitative study of young adults newly diagnosed with cancer. *Acta Oncol*. 2015;54(2):243-52.
 11. Geue K, Sender A, Schmidt R, Richter D, Hinz A, Schulte T, et al. Gender-specific quality of life after cancer in young adulthood: a comparison with the general population. *Qual Life Res*. 2014;23(4):1377-86.
 12. Holm LV, Hansen DG, Larsen PV, Johansen C, Vedsted P, Bergholdt SH, et al. Social inequality in cancer rehabilitation: a population-based cohort study. *Acta Oncol*. 2013;52(2):410-22.
 13. Kouzoupis AV, Lyrakos D, Kokras N, Panagiotarakou M, Syrigos KN, Papadimitriou GN. Dysfunctional remembered parenting in oncology outpatients affects psychological distress symptoms in a gender-specific manner. *Stress Health*. 2012;28(5):381-8.
 14. Ramadas A, Qureshi AM, Dominic NA, Botross NP, Riad A, Thirunavuk Arasoo VJ, et al. Socio-demography and medical history as predictors of health-related quality of life of breast cancer survivors. *Asian Pac J Cancer Prev*. 2015;16(4):1479-85.
 15. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today*. 2004; 24(2): 105–112.
 16. Lincoln YS, Guba EG. *Naturalistic Inquiry*. Sage Publications Inc, London. 1985.
 17. Caperchione CM, Sabiston CM, Clark MI, Bottorff JL, Toxopeus R, Campbell KL, et al. Innovative approach for increasing physical activity among breast cancer survivors: protocol for Project MOVE, a quasi-experimental study. *BMJ Open*. 2016;6(8):e012533.
 18. Brunet J, St-Aubin A. Fostering positive experiences of group-based exercise classes after breast cancer: what do women have to say? *Disabil Rehabil*. 2016;38(15):1500-8.
 19. Jayde V, Boughton M, Blomfield P. The experience of chemotherapy-induced alopecia for Australian women with ovarian cancer. *Eur J Cancer Care (Engl)*. 2013;22(4):503-12.
 20. Can G, Demir M, Erol O, Aydiner A. A comparison of men and women's experiences of chemotherapy-induced alopecia. *Eur J Oncol Nurs*. 2013;17(3):255-60.
 21. Mack DE, Meldrum LS, Wilson PM, Sabiston CM. Physical activity and psychological health in breast cancer survivors: an application of basic psychological needs theory. *Appl Psychol Health Well Being*. 2013;5(3):369-88.
 22. Yoo W, Namkoong K, Choi M, Shah DV, Tsang S, Hong Y, et al. Giving and Receiving Emotional Support Online: Communication Competence as a Moderator of Psychosocial Benefits for Women with Breast Cancer. *Comput Human Behav*. 2014;30:13-22.
 23. Victoria Cerezo M, Ortiz-Tallo M, Cardenal V, De La Torre-Luque A. Positive psychology group intervention for breast cancer patients: a randomised trial. *Psychol Rep*. 2014;115(1):44-64.
 24. Dowlatabadi MM, Ahmadi SM, Sorbi MH, Beiki O, Razaivi TK, Bidaki R. The effectiveness of group positive psychotherapy on depression and happiness in breast cancer patients: A randomized controlled trial. *Electron Physician*. 2016;8(3):2175-80.
 25. Giannousi Z, Karademas EC, Dimitraki G. Illness representations and psychological adjustment of Greek couples dealing with a recently-diagnosed cancer: dyadic, interaction and perception-dissimilarity effects. *J Behav Med*. 2016; 39(1):85-93.
 26. Zhou C, Wu Y, An S, Li X. Effect of Expressive Writing Intervention on Health Outcomes in Breast Cancer Patients: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *PLoS One*. 2015;10(7):e0131802.
 27. Phelps C, Butler C, Cousins A, Hughes C. Sowing the seeds or failing to blossom? A feasibility study of a simple ecotherapy-based intervention in women affected by breast cancer. *Ecancermedicalscience*. 2015;9:602.
 28. John K, Becker K, Mattejat F. Impact of family-oriented rehabilitation and prevention: an inpatient program for mothers with breast cancer and their children. *Psychooncology*. 2013;22(12):2684-92.
 29. Iskandarsyah A, de Klerk C, Suardi DR, Soemitro MP, Sadarjoen SS, Passchier J. Satisfaction with information and its association with illness perception and quality of life in Indonesian breast cancer patients. *Support Care Cancer*. 2013;21(11):2999-3007.
 30. Jassim GA, Whitford DL. Understanding the experiences and quality of life issues of Bahraini women with breast cancer. *Soc Sci Med*. 2014; 107:189-95.
 31. Alqaisi NM, Dickerson SS. Exploring common meanings of social support as experienced by Jordanian women with breast cancer. *Cancer Nurs*. 2010; 33(5):353-61.