



The Efficacy of Mindfulness-Based Cognitive Therapy on Disease Perception, Body Image, and Fear of Cancer Recurrence in Women with Breast Cancer

Negar Bateni Moghadam¹, Hassan Heidari^{1*}, Mahdi Zare Bahram Abadi² and Rahim Hamidi Pour³

¹Department of Counseling, Faculty of Humanities, Khomein Branch, Islamic Azad University, Khomein, Iran

²Department of Counseling, Faculty of Psychology and Educational Sciences, Allameh Tabatabaee University, Tehran, Iran

³Department of Counseling, Farhangian University, Tehran, Iran

*Corresponding author: Department of Counseling, Faculty of Humanities, Khomein Branch, Islamic Azad University, Khomein, Iran. Email: heidarihassan@yahoo.com

Received 2023 April 25; Revised 2023 May 21; Accepted 2023 May 26.

Abstract

Background: Currently, the prevalence of breast cancer and its debilitating consequences are increasing, causing adverse personal, family, and social effects in patients. Therefore, patients with breast cancer should try to reduce the injuries described above through various treatment methods.

Objectives: This study aimed to assess the efficacy of mindfulness-based cognitive therapy (MBCT) on disease perception, body image, and fear of cancer recurrence in women with breast cancer.

Methods: This applied study was designed based on a pre-test and post-test. The study included 30 participants, 15 test groups (15 people), and 15 control groups (15 people). A test group was used for MBCT, while the other was not exposed to the intervention. Eight 90-minute sessions were held weekly for the test group for two months. The research tools included the Broadbent Illness Perception Questionnaire (BIPQ), Multidimensional Body-Self Relations Questionnaire (MBSRQ), and Fear of Cancer Recurrence Inventory Questionnaire (FCRIQ). Finally, the resulting data were analyzed by SPSS software Version 25.

Results: The statistical test of covariance analysis showed that the MBCT method significantly affects disease perception, body image, and fear of disease recurrence in women with breast cancer ($P < 0.05$).

Conclusions: Based on the results, the MBCT method can help manage breast cancer in women. Therefore, breast cancer patients can improve their quality of life and life expectancy by learning this treatment method.

Keywords: Quality of Life, Women, Breast Cancer, Mindfulness-Based Cognitive Therapy, Disease Perception, Body Image, Cancer Recurrence

1. Background

Cancer has been defined as a disease in which cells proliferate without control and attacking nearby organs disrupts their function (1). Breast cancer has profound effects on the various functions of patients as the most common cancer in women (2). This type of cancer is a heterogeneous disease caused by the mutual influence of hereditary, individual, and genetic risk factors and hormonal and genetic predisposing factors (3). In addition, breast cancer is one of the most common causes of death in women (4). In Iran, this disease is regarded as the most common cancer among women, and approximately seven thousand women in Iran are affected

by it yearly (5, 6).

The most prominent problems in patients due to breast cancer include changes in body parts with surgery, hair loss, burns caused by radiation therapy, and decreased sexual attraction, which reduces the quality of life (3, 7). Since the breast evokes femininity, attractiveness, and sexuality in women, having breast cancer has a tremendous negative effect on patients' body image (8).

People's body image includes their understanding of physical appearance, attitude, and perception towards the beliefs about the body with multidimensional components consisting of cognitive, emotional, and behavioral elements (9). In other words, body image is a mental evaluation of a person's body and

appearance, and having a good body leads to increased self-confidence in women (10). Breast cancer diagnosis and treatment measures such as surgery, radiation therapy, chemotherapy, breast reconstruction, and mastectomy are related to women's body image (11). In the meantime, sexually active women suffer from many worries and preoccupations about their body image caused by treatment, weight gain or loss, and changes in the appearance and texture of the skin (12, 13).

Women with cancer are often concerned about not being accepted and attracted by their husbands and other essential people. In addition, this concern leads to the fear of negative evaluation by others (14, 15). Fear of negative evaluation and body dissatisfaction in women with breast cancer causes a decrease in self-esteem and withdrawal from society and social groups (16). Worrying about negative evaluations by others increases dissatisfaction with body image, and continuing this dissatisfaction leads to depression and damage to self-esteem (17).

There is a wide range of physical, cognitive, psychological, and social signs and symptoms resulting from the treatments used in breast cancer. Cognitive therapy based on mindfulness, as the third generation of cognitive behavioral therapy, was introduced by McMain et al. (18) to prevent the recurrence of depression. This type of therapy is currently considered one of the most widely used treatments in psychology and is used to change consciousness to create new relationships with thoughts (19). The main element of this treatment is exercises related to increasing awareness and based on the mind. In addition, the main focus of this therapeutic method is on awareness and attention to what is happening now (20).

The prevalence of breast cancer and its debilitating consequences are increasing, causing adverse personal, family, and social effects in patients. Therefore, breast cancer patients should try to reduce the abovementioned injuries through different treatment methods. Currently, limited studies have been conducted on the role of third-generation therapy on body image variables, disease perception, and fear of disease recurrence in women with breast cancer (18-22), and it is necessary to conduct more studies.

2. Objectives

Non-pharmacological and psychological interventions are essential in breast cancer management. Therefore, this study aimed to evaluate the effectiveness of the mindfulness-based cognitive therapy (MBCT) method

on disease perception, body image, and fear of cancer recurrence in women with breast cancer.

3. Methods

This applied study that was designed based on a pre-test-post-test. A total of 30 participants were randomly selected from the oncology department of Omid Hospital, Isfahan, Iran, and then divided into a test group (15 people) and a control group (15 people). MBCT was implemented in one of these groups, while the other group was not exposed to the treatment method. The inclusion criteria were cancer, the age range of 20 - 40 years, education of at least a diploma, not having acute psychiatric diseases, not participating in another training course or program at the same time, and having full consent and declaration of conscious, and voluntary readiness to participate in the research. The exclusion criteria included the absence of more than two sessions in the treatment sessions and the absence of disease recurrence during the treatment sessions. Two 90-minute sessions per week were held for two months in the same treatment department of the hospital for the experimental group, but no therapeutic intervention was performed for the control group. The research tools included the Broadbent Illness Perception Questionnaire (BIPQ), Multidimensional Body-Self Relations Questionnaire (MBSRQ), and Fear of Cancer Recurrence Inventory Questionnaire (FCRIQ). In past studies, the validity and reliability of BIPQ (23, 24), MBSRQ (25-27), and FCRIQ (28) have been approved. Finally, SPSS software Version 25 was used to analyze raw data using mixed analysis of variance with repeated measures at a significance level ($\alpha = 0.05$).

4. Results

The results showed that the frequency of participants based on the age range of 20 - 25, 26 - 30, 31 - 35, and 36 - 40 years old were seven (23.3%), nine (30%), four (13.3%) and ten people (33.4%), respectively. In addition, patients with B.S, M.Sc., and Ph.D education levels were equal to 17 (56.6%), nine (30%), and four people (13.3%), respectively (Table 1). Based on the questionnaires completed by the patients, Table 2 describes dependent variables, including disease perception, body image, and disease recurrence. In addition, the analysis of the variance of the MBCT effectiveness on the three dependent variables in women with breast cancer was presented in Table 3. The study of covariance (ANCOVA) showed that MBCT has a significant effect on all three dependent variables ($P < 0.05$).

Table 1. The Demographic Characterizations of Evaluated Patients

| Variables | No. (%) |
|----------------------------|-----------------|
| Age, y | |
| 20 - 25 | 7 (23.3) |
| 26 - 30 | 9 (30) |
| 31 - 35 | 4 (13.3) |
| 36 - 40 | 10 (33.4) |
| Level of education | |
| Bachelor's degree (B.S) | 17 (56.6) |
| Master of Science (M.Sc.) | 9 (30) |
| Philosophiae doctor (Ph.D) | 4 (13.3) |
| Total | 30 (100) |

5. Discussion

Non-pharmacological and psychological interventions are critical in managing breast cancer. Therefore, this study aimed to evaluate the effectiveness of the mindfulness-based cognitive therapy (MBCT) method on disease perception, body image, and fear of cancer recurrence in women with breast cancer. The study showed that MBCT was significant on all three dependent variables in women with breast cancer.

The results were consistent with those of some previous studies. Cramer et al., Rahmani et al., and Habibollahi and Soltanzadeh reported that the MBCT method was influential on the body image of women with breast cancer (29-31). Johannsen et al. examined the effectiveness of MBCT on the post-treatment pain of women treated for cancer and concluded that this type of therapeutic intervention significantly reduced the pain intensity of the test group with beneficial effects on the quality of life in the long term (32). A review study by Cifu et al. also reported that MBCT was effective on cognitive functions such as executive functions (33). Shairi and Hedarinasab indicated that mindfulness and acceptance-based group therapy (MAGT) significantly reduced the fear of negative evaluation in the experimental group compared to the control group. The results continued three months after the follow-up (34). Based on Lotfi-Kashani et al., MBCT significantly increased life expectancy and reduced the hopelessness of breast cancer patients (35). Feizi Zadeh et al. reported that the MBCT method reduces body dissatisfaction, body anxiety, and fear of negative evaluation in women with mastectomy breast cancer (36).

According to the results, treatment complications

and unattractiveness from other people's perspectives are the leading causes of women's concerns about body image (37). These people show more attention and reaction to situational factors due to their concern about the judgment of others. Therefore, this feeling of concern leads to decreased self-esteem to participate in daily activities and reduced attendance in various social situations. Therefore, these consequences can lead to social isolation (38), negative evaluation of body image, shame, hatred, and depression in breast cancer patients (39).

The MBCT method helps to face a wide range of thoughts, feelings, and inner experiences of a person during four steps. The first step in this treatment is to focus on the present time and people's awareness so that a person can gain awareness in the present moment with an open attitude from psychological world experiences through special exercises. Finally, the person gets rid of focusing on the past and future. In the next step, the person receiving the MBCT method gains self-awareness through behavioral, cognitive, and metacognitive strategies by focusing on thoughts, feelings, and bodily sensations. Then, the therapist is encouraged to experience the emotions that inevitably arise in life as real feelings through acceptance solutions with the development of metacognitive awareness. The MBCT method also assists the patient in becoming aware of the factors causing thoughts and feelings, allowing them to make better choices. Hence, the sick person can eliminate future thoughts, unhealthy habits, and behavioral patterns, ultimately increasing the ability to regulate behavior. The patient can respond consciously to events instead of automatic responses and establishes a new relationship with his thoughts during the process of changing consciousness, which reduces the negative evaluation by the patient (36).

5.1. Limitations

The critical limitation of the study was the lack of access to many samples. Since the researchers were only allowed to conduct research in one hospital and to consider the inclusion and exclusion criteria, the sample size of the present study was limited to 30 people.

5.2. Conclusions

Based on the results, Mindfulness-based cognitive therapy (MBCT) positively affected disease perception, body image, and fear of cancer recurrence in women with breast cancer. Therefore, the MBCT method can

Table 2. The Results of Different Variables in the Stages Before and After the Intervention

| Independent Variables | Dependent Variables | Test Group (N = 15) | | Control Group (N = 15) | |
|-------------------------------------|----------------------------------|---------------------|----------------|------------------------|----------------|
| | | Mean ± SD | Standard Error | Mean ± SD | Standard Error |
| Mindfulness-based cognitive therapy | Disease perception | | | | |
| | Pre-test | 42.8 ± 98.89 | 2.3 | 39.2 ± 6.1 | 1.6 |
| | Post-test | 59.7 ± 6.9 | 1.8 | 48.6 ± 6.0 | 1.5 |
| | Body image | | | | |
| | Pre-test | 131.1 ± 9.4 | 1.5 | 119.1 ± 8.3 | 2.1 |
| | Post-test | 174.8 ± 8.2 | 2.1 | 124.2 ± 7.0 | 1.8 |
| | Fear of cancer recurrence | | | | |
| | Pre-test | 100.3 ± 10.5 | 2.7 | 78.1 ± 8.4 | 2.1 |
| | Post-test | 76.8 ± 20.6 | 5.3 | 92.0 ± 8.0 | 2.1 |

Table 3. The Analysis of Covariance (ANCOVA) of MBCT Effectiveness on Three Dependent Variables in Women with Breast Cancer

| Dependent Variables and Sources | Sum of Squares | df | Mean of Squares | F | P-Value | Partial Eta-Squared | Observed Power |
|----------------------------------|----------------|----|-----------------|---------|---------|---------------------|----------------|
| Disease perception | | | | | | | |
| Pre-test | 162.378 | 1 | 162.378 | 4.330 | 0.047 | 0.138 | 0.519 |
| Group | 695.513 | 1 | 695.513 | 18.546 | < 0.001 | 0.407 | 0.986 |
| Error | 1012.556 | 27 | 37.502 | - | - | - | - |
| Body image | | | | | | | |
| Pre-test | 390.456 | 1 | 390.456 | 8.527 | 0.007 | 0.240 | 0.804 |
| Group | 10476.053 | 1 | 10476.053 | 228.782 | < 0.001 | 0.894 | 1.000 |
| Error | 1236.344 | 27 | 45.791 | - | - | - | - |
| Fear of cancer recurrence | | | | | | | |
| Pre-test | 390.456 | 1 | 390.456 | 8.527 | 0.009 | 0.240 | 0.711 |
| Group | 10476.053 | 1 | 10476.053 | 228.782 | < 0.001 | 0.845 | 1.000 |
| Error | 1236.344 | 27 | 45.791 | - | - | - | - |

help manage breast cancer patients. Consequently, it is suggested to use this treatment method to manage breast cancer alternately.

Footnotes

Authors' Contribution: N. B. M.: Data curation, formal analysis, software, writing - original draft, writing review & editing; H.H.: Supervision, investigation, methodology, project administration, data curation; M.Z.B.A; and R.H.P.: formal analysis, methodology, data curation.

Conflict of Interests: Authors confirm this study has no relevant financial or non-financial competing interests.

Ethical Approval: The study protocol was approved by the Ethics Committee of Arak Branch, Islamic Azad University, Arak, Iran (Code: [IR.IAU.ARAK.REC.1402.011](#)).

Funding/Support: This study did not receive any funding.

Informed Consent: Written consent was obtained from the participants to participate in the present study.

References

- Oberguggenberger A, Meraner V, Sztankay M, Hilbert A, Hubalek M, Holzner B, et al. Health Behavior and Quality of Life Outcome in Breast Cancer Survivors: Prevalence Rates and Predictors. *Clin Breast Cancer*. 2018;**18**(1):38–44. [PubMed ID: [29017754](#)]. <https://doi.org/10.1016/j.clbc.2017.09.008>.
- Alaofi RK, Nassif MO, Al-Hajeili MR. Prophylactic mastectomy for the prevention of breast cancer: Review of the literature. *Avicenna J Med*. 2018;**8**(3):67–77. [PubMed ID: [30090744](#)]. [PubMed Central ID: [PMC6057165](#)]. https://doi.org/10.4103/ajm.AJM_21_18.
- Sun YS, Zhao Z, Yang ZN, Xu F, Lu HJ, Zhu ZY, et al. Risk Factors and Preventions of Breast Cancer. *Int J Biol Sci*. 2017;**13**(11):1387–97.

- [PubMed ID: 29209143]. [PubMed Central ID: PMC5715522]. <https://doi.org/10.7150/ijbs.21635>.
4. Sariego J. Breast cancer in the young patient. *Am Surg*. 2010;**76**(12):1397-400. [PubMed ID: 21265355].
 5. Crivellari D, Aapro M, Leonard R, von Minckwitz G, Brain E, Goldhirsch A, et al. Breast cancer in the elderly. *J Clin Oncol*. 2007;**25**(14):1882-90. [PubMed ID: 17488987]. <https://doi.org/10.1200/JCO.2006.10.2079>.
 6. Greenfield S, Blanco DM, Elashoff RM, Ganz PA. Patterns of care related to age of breast cancer patients. *JAMA*. 1987;**257**(20):2766-70. [PubMed ID: 3573271].
 7. Harirchi I, Kolahdoozan S, Karbakhsh M, Chegini N, Mohseni SM, Montazeri A, et al. Twenty years of breast cancer in Iran: downstaging without a formal screening program. *Ann Oncol*. 2011;**22**(1):93-7. [PubMed ID: 20534622]. <https://doi.org/10.1093/annonc/mdq303>.
 8. Tatro K, Montgomery GH. Cognitive behavioral therapy techniques for distress and pain in breast cancer patients: a meta-analysis. *J Behav Med*. 2006;**29**(1):17-27. [PubMed ID: 16400532]. <https://doi.org/10.1007/s10865-005-9036-1>.
 9. Helms RL, O'Hea EL, Corso M. Body image issues in women with breast cancer. *Psychol Health Med*. 2008;**13**(3):313-25. [PubMed ID: 18569899]. <https://doi.org/10.1080/13548500701405509>.
 10. Paterson CL, Lengacher CA, Donovan KA, Kip KE, Toftagen CS. Body Image in Younger Breast Cancer Survivors: A Systematic Review. *Cancer Nurs*. 2016;**39**(1):E39-58. [PubMed ID: 25881807]. [PubMed Central ID: PMC4607543]. <https://doi.org/10.1097/NCC.0000000000000251>.
 11. Hopwood P, Fletcher I, Lee A, Al Ghazal S. A body image scale for use with cancer patients. *Eur J Cancer*. 2001;**37**(2):189-97. [PubMed ID: 11166145]. [https://doi.org/10.1016/S0959-8049\(00\)00353-1](https://doi.org/10.1016/S0959-8049(00)00353-1).
 12. Moreira H, Canavaro MC. A longitudinal study about the body image and psychosocial adjustment of breast cancer patients during the course of the disease. *Eur J Oncol Nurs*. 2010;**14**(4):263-70. [PubMed ID: 20493769]. <https://doi.org/10.1016/j.ejon.2010.04.001>.
 13. Kolodziejczyk A, Pawlowski T. Negative body image in breast cancer patients. *Adv Clin Exp Med*. 2019;**28**(8):1137-42. [PubMed ID: 30817097]. <https://doi.org/10.17219/acem/103626>.
 14. Alagizy HA, Soltan MR, Soliman SS, Hegazy NN, Gohar SF. Anxiety, depression and perceived stress among breast cancer patients: single institute experience. *Middle East Curr Psychiatry*. 2020;**27**(1). <https://doi.org/10.1186/s43045-020-00036-x>.
 15. Badger T, Segrin C, Dorros SM, Meek P, Lopez AM. Depression and anxiety in women with breast cancer and their partners. *Nurs Res*. 2007;**56**(1):44-53. [PubMed ID: 17179873]. <https://doi.org/10.1097/00006199-200701000-00006>.
 16. Lueboonthavatchai P. Prevalence and psychosocial factors of anxiety and depression in breast cancer patients. *J Med Assoc Thai*. 2007;**90**(10):2164.
 17. Burgess C, Cornelius V, Love S, Graham J, Richards M, Ramirez A. Depression and anxiety in women with early breast cancer: five year observational cohort study. *BMJ*. 2005;**330**(7493):702. [PubMed ID: 15695497]. [PubMed Central ID: PMC555631]. <https://doi.org/10.1136/bmj.38343.670868.D3>.
 18. McMain S, Newman MG, Segal ZV, DeRubeis RJ. Cognitive behavioral therapy: current status and future research directions. *Psychother Res*. 2015;**25**(3):321-9. [PubMed ID: 25689506]. <https://doi.org/10.1080/10503307.2014.1002440>.
 19. Park S, Sado M, Fujisawa D, Sato Y, Takeuchi M, Ninomiya A, et al. Mindfulness-based cognitive therapy for Japanese breast cancer patients-a feasibility study. *Jpn J Clin Oncol*. 2018;**48**(1):68-74. [PubMed ID: 29077901]. <https://doi.org/10.1093/jjco/hyx156>.
 20. Johannsen M, O'Connor M, O'Toole MS, Jensen AB, Zachariae R. Mindfulness-based Cognitive Therapy and Persistent Pain in Women Treated for Primary Breast Cancer: Exploring Possible Statistical Mediators: Results From a Randomized Controlled Trial. *Clin J Pain*. 2018;**34**(1):59-67. [PubMed ID: 28481837]. <https://doi.org/10.1097/AJP.0000000000000510>.
 21. Zhao Y, Liu JE, Lewis FM, Nie ZH, Qiu H, Han J, et al. Effects of mindfulness-based cognitive therapy on breast cancer survivors with insomnia: A randomised controlled trial. *Eur J Cancer Care (Engl)*. 2020;**29**(5). e13259. [PubMed ID: 32424878]. <https://doi.org/10.1111/ecc.13259>.
 22. Tamura N, Park S, Sato Y, Sato Y, Takita Y, Ninomiya A, et al. Predictors and moderators of outcomes in mindfulness-based cognitive therapy intervention for early breast cancer patients. *Palliat Support Care*. 2022;**20**(2):159-66. [PubMed ID: 34158140]. <https://doi.org/10.1017/S147895152100078X>.
 23. Broadbent E, Petrie KJ, Main J, Weinman J. The brief illness perception questionnaire. *J Psychosom Res*. 2006;**60**(6):631-7. [PubMed ID: 16731240]. <https://doi.org/10.1016/j.jpsychores.2005.10.020>.
 24. Bazzazian S, Besharat MA. [Attachment styles, illness perception and quality of life in patients with type I diabetes]. *Contemp Psychol*. 2010;**5**(1):3-11. Persian.
 25. Smith AR, Davenport BR. An Evaluation of Body Image Assessments in Hispanic College Women: The Multidimensional Body-Self Relations Questionnaire and the Appearance Schemas Inventory-Revised. *J Coll Counse*. 2012;**15**(3):198-214. <https://doi.org/10.1002/j.2161-1882.2012.00016.x>.
 26. Argyrides M, Kkeli N. Multidimensional body-self relations questionnaire-appearance scales: psychometric properties of the Greek version. *Psychol Rep*. 2013;**113**(3):885-97. [PubMed ID: 24693817]. <https://doi.org/10.2466/03.07.PRO.113x2926>.
 27. Shemshadi H, Shams A, Sahaf R, Shamsipour Dehkordi P, Zareian H, Moslem AR. Psychometric Properties of Persian Version of the Multidimensional Body-Self Relations Questionnaire (MBSRQ) Among Iranian Elderly. *Salmand*. 2020;**15**(3):298-311. <https://doi.org/10.32598/sija.15.3.61.13>.
 28. Bateni FS, Rahmatian M, Kaviani A, Simard S, Soleimani H, Nejatiasfa A. The Persian Version of the Fear of Cancer Recurrence Inventory (FCRI): Translation and Evaluation of Its Psychometric Properties. *Archives of Breast Cancer*. 2019;**17**:4-80. <https://doi.org/10.32768/abc.201964174-180>.
 29. Cramer H, Lauche R, Paul A, Dobos G. Mindfulness-based stress reduction for breast cancer-a systematic review and meta-analysis. *Curr Oncol*. 2012;**19**(5):e343-52. [PubMed ID: 23144582]. [PubMed Central ID: PMC3457885]. <https://doi.org/10.3747/co.19.1016>.
 30. Rahmani SR, Haji Rasuliyeh Z, Kolahi P. The Effectiveness of Mindfulness-Based Cognitive Therapy on Reducing Physical Body Concern and Quality of Life in Patients with Breast Cancer. *Third International Conference on Recent Innovations in Psychology, Consultation and Behavioral Sciences*. Tehran, Iran. Nikan Institute of Higher Education; 2017.
 31. Habibollahi A, Soltanizadeh M. [Efficacy of acceptance and commitment therapy on body dissatisfaction and fear of negative evaluation in girl adolescents with body dysmorphic disorder]. *J Mazandaran Univ Med Sci*. 2016;**25**(134):278-90. Persian.
 32. Johannsen M, O'Connor M, O'Toole MS, Jensen AB, Hojris I, Zachariae R. Efficacy of Mindfulness-Based Cognitive Therapy on Late Post-Treatment Pain in Women Treated for Primary Breast Cancer: A Randomized Controlled Trial. *J Clin Oncol*. 2016;**34**(28):3390-9. [PubMed ID: 27325850]. <https://doi.org/10.1200/JCO.2015.65.0770>.
 33. Cifu G, Power MC, Shomstein S, Arem H. Mindfulness-based interventions and cognitive function among breast cancer survivors: a systematic review. *BMC Cancer*. 2018;**18**(1):1163. [PubMed ID: 30477450]. [PubMed Central ID: PMC6260900]. <https://doi.org/10.1186/s12885-018-5065-3>.

34. Shairi MR, Heydarinasab L. [The effect of mindfulness and acceptance-based group therapy on decreasing fear of negative evaluation in patients with social anxiety disorder]. *Razi J Med Sci.* 2016;**22**(140):1-11. Persian.
35. Lotfi-Kashani F, Fallahi L, Akbari ME, Mansour-Moshtaghi N, Abdollahi F. Effectiveness of mindfulness-based cognitive therapy on hopelessness among women with breast cancer and gynecological cancer. *Int J Body Mind Cult.* 2018;**5**(1):24-31. <https://doi.org/10.22122/ijbmc.v5i1.112>.
36. Feizi Zadeh M, Nazari Z, Naseri M, Frouzandeh Z, Amani O. [The Effect of Mindfulness-Based Cognitivetherapy on Body Image and Fear of Negative Evaluation of Women with Mastectomy Breast Cancer]. *Iran J Nurs Res.* 2020;**15**(4):58-68. Persian.
37. Chua AS, DeSantis SM, Teo I, Fingeret MC. Body image investment in breast cancer patients undergoing reconstruction: taking a closer look at the Appearance Schemas Inventory-Revised. *Body Image.* 2015;**13**:33-7. [PubMed ID: 25600137]. [PubMed Central ID: PMC4369421]. <https://doi.org/10.1016/j.bodyim.2014.12.003>.
38. Fang A, Hofmann SG. Relationship between social anxiety disorder and body dysmorphic disorder. *Clin Psychol Rev.* 2010;**30**(8):1040-8. [PubMed ID: 20817336]. [PubMed Central ID: PMC2952668]. <https://doi.org/10.1016/j.cpr.2010.08.001>.
39. Kollei I, Brunhoeber S, Rauh E, de Zwaan M, Martin A. Body image, emotions and thought control strategies in body dysmorphic disorder compared to eating disorders and healthy controls. *J Psychosom Res.* 2012;**72**(4):321-7. [PubMed ID: 22405229]. <https://doi.org/10.1016/j.jpsychores.2011.12.002>.