

The effect of mindfulness-based self-care empowerment training on depression of breast cancer patients' spouses and their family functioning

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Abstract

Context: Although spouses play the main role as caregivers, few intervention studies have been performed on the psychological health of breast cancer patients' spouses.

Aims: To determine Mindful-Centered Self-care Empowerment Training Program (MScETP) influencing the breast cancer patients' spouses' depression and their family functioning.

Setting and Design: A quasi-experimental study with one-group pre-and post-test design.

Material and Methods: The sample included 46 randomly selected cancer patients' spouses meeting the inclusion criteria, referring to the specialized clinics of Mazandaran University of Medical Sciences, Sari, Iran. Firstly, the pretest was conducted and then the posttest was done a week following the intervention. Data collection was done by Beck Depression Inventory-II and Family Assessment Device-60 Questionnaire before and after implementing the MScETP.

Statistical Analysis: by ANOVA and dependent t-test by SPSS-22 at significance level as $P < 0.05$.

Results: The results reported the pre- and post-intervention mean (\pm SD) of the spouses' depression as 15.65 (\pm 6.79) and 12.95 (\pm 4.99), respectively. The mean (\pm SD) of six FAD subscales was calculated as it follows: problem-solving 2.30 (\pm 0.33) and 2.15 (\pm 0.29), communication 2.33 (\pm 0.29) and 2.27 (\pm 0.19), roles 2.21 (\pm 0.23) and 2.31 (\pm 0.19), affective responsiveness 2.08 (\pm 0.32) and 2.28 (\pm 0.32), affective involvement 2.62 (\pm 0.40) and 2.27 (\pm 0.29), and behavior control 2.60 (\pm 0.31) and 2.33 (\pm 0.27), and General Functioning Scale 2.35 (\pm 0.27) and 2.11 (\pm 0.23) ($P < 0.05$). As the findings showed, the training significantly affected the breast cancer sufferers' spouses' depression and their family functioning ($P < 0.05$).

Conclusion: The study findings revealed MScETP meaningfully reduced the breast cancer patients' spouses' depression and improved their family functioning.

Keywords: Breast cancer, Depression, Family functioning, Mindfulness, Self-care

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INTRODUCTION

As predicted, cancer as one of the chronic maladies in the world today has afflicted 15 million individuals until 2020. So that, it is anticipated that by 2030, it would be the most significant cause of death. Today, cancer-related statistics in Iran amounts to over 15 times than that of the US and 12 times than that of Europe.^[1] Among the types of cancer, breast cancer is taken as the most prevalent one among women and accounts for 32% of cancer cases in women and the main cause of deaths in the women of 20–45 years and the 2nd cause of deaths in the women of all age brackets.^[2] Breast cancer has been ranked first in Iranian women. Its age-standardized rate increased from 15.96 in 2003 to 32.63 in 2015.^[3] The rate of breast cancer in Iran was estimated at 33.1 cancers/100,000 population and it varies from 15 cancers/100,000 population in urban areas to 34.6 cancers in large metropolitan areas.^[4] Thus, it is highly critical to pay attention to this disease and its implications on the cancer sufferers' family members.^[5]

When getting breast cancer, the patients generally suffer from psychological distress, anxiety, depression, emotional problems, and affective and family disorders. Under such circumstances, the husband as the main companion of the wife plays a distinguished supportive role.^[6] Besides women themselves, diagnosing breast cancer can come up with lots of negative effects on their husbands. For instance, the studies' results reported some symptoms such as psychological–emotional distresses^[7,8] and dropped quality of life^[9] among cancer-suffering women's husbands.^[10] Moreover, in case of not helping the spouses, the disease-induced pressure will have a critical consequence for the quality of marriage relations and the spouses' confidence.^[11] Recent studies reported mood nuisances such as depression and the negative impacts of depression and anxiety^[12,13] in cancer patients' caregivers, especially their spouses.^[13] Adapting to the diagnosis, treating cancer, and leading postcancer diagnosis life for the patient and the family bring about psychological pressure that can influence the quality of life and family functioning.^[14]

So far, various methods have been employed to mitigate such effects on the cancer sufferers' spouses, including the hospital care approaches. Unfortunately, each of such methods itself imposes high costs on the cancer sufferer's family, and thus, they aggravate the task. In this respect, Smith *et al.* (2003) in their research emphasized the importance of using mindfulness techniques in order to adapt to cancerous individuals' family life events and tensions.^[15] To put it scientifically, mindfulness is the nonjudgmental moment-by-moment awareness.^[16]

Training mindfulness programs critically reduces anxiety and stress and promotes the quality of life, the emotional and spiritual well-being, and also the befitting function in the cancer-stricken patients.^[17] To cut down the physical, functional, and affective complications and enhance the cancer patients' quality of life, various interventions have been conducted, of which we can mention self-care techniques. Self-care as a novel approach provides adequate information at the right time for the patients or the caregivers and also leads to remarkable medical cost saving.^[18] Mindfulness is a skill that allows an individual to perceive the events as less distressing at the present time. When people get aware of the present, they no longer focus on the past or the future. Most mental health problems are usually related to the events happening in the past or in the future. For example, those who are depressed feel regretful and guilty about the past, and the ones who are anxious get fearful and anxious when worrying about future problems.^[16,19]

Through reviewing the empirical studies, few studies have been found on the interventions for reducing cancer-induced complications of cancer patients' spouses;^[20] the studies have mainly been done about the patients, caregivers, and their family.^[21,22] Moreover, mindful training effect has only been analyzed on the cancer-stricken patients themselves; therefore, the current research has been designed to address the effect of Mindfulness-based Self-care Empowerment Training Program (MScETP) on the depression of such patients' spouses and on family functioning, so that its results can be employed for promoting the psychological health of the cancer patients' spouses as the main caregivers and improving the family functioning.

MATERIAL AND METHODS

Research design and setting

The study population consisted of all husbands of cancer outpatient women referring to Tooba Specialized Cancer Clinic and Imam Hospital Cancer Center affiliated with Mazandaran University of Medical Sciences, Sari, Iran.

This study was done as a quasi-experiment with one-group pre- and posttest design. By referring to the outpatient clinics and visiting the breast cancer patients with their husbands as their attendants and considering the inclusion criteria which included the following: (1) having the history of wife's breast cancer for at least 6 months; (2) not having the history of psychiatric disease (schizophrenia or other psychotic disorders, depressive and bipolar disorders and etc.) or taking psychiatric drugs; (3) not being a substance abuser; (4) living with the patient; (5) being able to read and

write; (6) willing to participate in the study; and (7) being able to attend the class. The exclusion criteria were as it follows: (1) not participating in any mindfulness and self-care intervention for the last 6 months; (2) treated by a psychiatrist or psychologist; (3) being employed in medical or paramedical groups; (4) severe depression (score 29 and above based on the questionnaire); (5) the death of the patient during the intervention; and (6) not participating in two sessions.

Sample size and sampling procedure

According to the above statistical size of the samples used in similar studies with confidence level 95% and power 80% and based on the research of Ando *et al.*,^[23] the sample size was chosen as 46. The names of 59 breast cancer patients' spouses who met the inclusion criteria were written on the sheets of paper and then 46 ones were selected using the drawing process by simple random sampling.

$$n = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 (\sigma_1^2 + \sigma_2^2)}{(\mu_1 - \mu_2)^2}$$

$$n = \frac{(1.96 + 0.84)^2 (53^2 + 63^2)}{(12 - 86)^2} = 45/92$$

Intervention

The husbands meeting the inclusion criteria were invited to participate in the training courses compatible with the research design. This manner that in the first stage, the participants (the patients' husbands) were tested using Beck Depression Inventories (BDI-II) and the Family Assessment Device (FAD-60) Questionnaire. Then, the participants underwent MScEtP, and when the intervention course got over, the subjects' depression and family functioning level were reevaluated.

The intervention consisted of 8 group session lasting for 90 minutes (in three groups, two 15-person groups and one 16-person group) which was being presented based on the relevant protocol; Through this protocol, the study subjects were trained about the performance and the importance of family role on health and disease, depression and its symptoms, self-care and mindfulness concept, relaxation technique, the concentration boosting techniques (breath meditation and raisin eating technique, training concentration on physical feelings, practicing tough emotions, the technique of concentration on leaves and thoughts and emotions and self-compassion techniques. In the first introduction session, having presented the necessary explanation for 10 min, the cancer patients' husbands were given the pretest, and then considering each group's willingness and their job or living conditions, the training sessions were held twice a week on even days in the mornings and afternoons considering the time agreed upon with the husbands. The intervention was

presented as a mindful self-care training package based on the Mindful Self-Care^[24-28] and Orem's Self-Care Theory concepts.^[29] The package was planned and adjusted to the needs of the cancer patients' husbands, focusing on the concepts of mindfulness and self-care.^[16] Moreover, a manual compiled based on the resources was employed for the intervention. Then, its content was verified by the associated psychiatrist, psychologist, and the psychiatric nurse. The MScETP training was conducted by the student assisted by the design guide. The trainer acquired the due skills during her psychiatric nursing courses and going through various workshops on psychological and mindful therapies. In order for the patients' husbands to follow up the tasks each session before starting the new exercises, the tasks were checked and reviewed by the researcher in the session. When the training sessions finished, the breast cancer patients' husbands were given the measures.

Data collection tool and procedure

After stating the research and attracting their participation and acquiring their consent, the questionnaires including the demographics (education, the number of children, the patient adhering to treatment from their husband's view, their income level, the perceived economic status, the stage of cancer, the treatment type, the type of surgery, and being a member of social networks), BDI-II, and FAD-60 Questionnaire were filled in by the spouses.

BDI was primarily developed by Aaron Beck, Ward, Mendelson, Mock, and Erbaugh in 1961. In this inventory, the subjects were asked to consider their feelings in the recent 2 weeks and answer the items. This 21-item inventory was designed to measure the intensity of depression in adults and teenagers over 13 years old, where each item consisting of 4 statements is scored from 0 to 3, and as a result, the individual can acquire a score range of 0–63.^[30] The higher the numerical value of depression and the closer it is to 63, the more severe the depression. In the research done by Ghassemzadeh *et al.*, the internal consistency (Cronbach's alpha) and acceptable test–retest reliability of BDI were calculated as 0.87 and $r = 0.74$, respectively.^[31]

FAD (McMaster FAD) is a 60-item tool for measuring family functioning developed based on McMaster Model of Family Functioning for the individuals over 12 years old. This model sorts out the family's structural, occupational, and interactional traits and measures 7 dimensions of family functioning as it follows: (1) problem-solving (6 items); (2) communication (9 items); (3) role (11 items); (4) affective responsiveness (6 items); (5) affective involvement (7 items); (6) behavior control (9

items); and (7) general family functioning (12 items). The total score ranges from 1 to 4, where higher scores indicate unhealthy functioning. The study done by Yousefi (2012) reported that the internal consistency-related reliability coefficients which included Cronbach's alpha and split-half were satisfactory for 60 elements and 7 factors (83% and 82%, respectively). Moreover, the discriminating and convergent validity coefficients of McMaster Clinical Rating Scale were analyzed using the measurement tools for the Communication Patterns Questionnaire, the Locus of Control Scale, and the Self-Differentiation of Self Inventory-2, and the correlation coefficient of the three criteria were gained as the following: 46%, 36%, -41%, and -43%, which was significant at $P < 0001$.^[32]

NOTE: FAD subscales' scores range from 1 to 4, where higher scores indicate poorer functioning.

Data analysis

To statistically analyze the research, SPSS-22 (IBM, Armonk, NY, USA) was employed. The study data were analyzed in two parts as the descriptive and inferential statistics. The descriptive statistics included the demographics of the patient's husband, and the descriptive findings were the study variables in terms of the test time (pre- and posttest). In the inferential statistics, the analysis of the paired t-test was performed to discover whether the intervention caused any meaningful change in the means of the test group in the study dependent variables during the posttest stage.

Ethical consideration

This study with the Registration IR.MAZMUS.REC.1398.1102 was approved by the Ethics Committee of Mazandaran University of Medical Sciences. In this research, the participants were asked for a consent form and were assured about their information being kept confidential, and in case of withdrawing and being reluctant to cooperate, nothing would hinder their treatment.

RESULTS

Pursuant to the analysis results, the mean (\pm standard deviation [SD]) of the cancer sufferers' husbands' age was 48.67 ± 12.44 . Furthermore, out of 46 individuals, 5 (10.9%) were high school graduates, 23 (50%) diploma holders, 3 (6.5%) associate degree holders, and 15 (32.6%) undergraduates; moreover, 8 (17%) individuals had one child and 15 (33%) two children and 23 (50%) three or more children.

As seen in Table 1, out of 46 patients, 31 (67.4%) adhered to the treatment in the patient's husband's view. Moreover,

most of the husbands (54.3%) allocated 2–5 h for the patient. The income level of 71.7% of the study subjects was lower than or equal to their cost of living; however, 60.9% of them were satisfied with their economic status. Furthermore, 28.3% of the study patients were in Stage 1, 50% in Stage 2, and 21.7% in Stage 3 in terms of cancer stage; consequently, 43.5% were treated with radiotherapy, 32.6% with medicine, and 23.9% with chemotherapy. Besides, 26% of the patients had total surgery and 37% partial surgeries. Furthermore, 76.1% of the study subjects were the members of social networks.

In this part, ANOVA was implemented to control the pre-and post-intervention factors. These factors included the number of the children, education, the time the husband devoted to the patient, their income level, the stage of cancer, the type of the treatment and the type of the surgery. And regarding this matter that no tangible difference was observed in the main study variables and also no critical difference was seen in the main variables by performing the independent t-test in the variables, i.e., the patient adhered to the treatment from the husband's view, they were satisfied with the economic status and the they continued being a members of social networks before and after the intervention ($P > 0.05$); therefore, we can

Table 1: Demographic characteristics of breast cancer patients and their spouses

Variable	Subscale	Frequency (%)
Education	High school	5 (10.9)
	Diploma	23 (50)
	Associate degree	3 (6.5)
	Bachelor's degree and higher	15 (32.6)
Number of children	One	8 (17)
	Two	15 (33)
	Three and higher	23 (50)
Patient adhering to treatment in the spouse's view	Yes	31 (67.4)
	No	15 (32.6)
Time devoted to patient by spouse	<2 h	13 (28.3)
	2-5 h	25 (54.3)
	Over 5 h	8 (17.4)
Income level	Less than cost of living	18 (39.1)
	Equal to cost of living	15 (32.6)
	More than cost of living	13 (28.3)
Perceived economic status	Satisfied	28 (60.9)
	Dissatisfied	18 (39.1)
Patient's stage of cancer	1 st	13 (28.3)
	2 nd	23 (50)
	3 rd	10 (21.7)
Patient's type of treatment	Medicine	15 (32.6)
	Radiotherapy	20 (43.5)
	Chemotherapy	11 (23.9)
Patient's type of surgery	Total	12 (26)
	Partial	17 (37)
	No surgery	17 (37)
Being a member of social networks	Yes	35 (76.1)
	No	11 (23.9)

attribute the achieved results of the study hypotheses to the effect induced by MScETP (independent variable) on the depression and family functioning (dependent variables).

The mean (\pm SD) of the spouse's depression was calculated as 15.65 ± 6.79 in the pretest and 12.95 ± 4.99 in the posttest. Furthermore, the mean (\pm SD) of the FAD scales was estimated in the pretest and posttest as given in Table 2.

The paired *t*-test results demonstrated that MScETP training exerted positive and meaningful impact on the depression of the breast cancer patients' spouses and the FAD dimensions but not on communication dimension ($P < 0.05$) [Table 3].

DISCUSSION

The present study was performed to outline the effect of MScETP training on depression of breast cancer patients' spouses and their family functioning. The mean (\pm SD) of the cancer sufferers' spouses' age was calculated as 48.67 ± 12.44 , out of whom 5 (10.9%) were under-diploma holders, 23 (50%) diploma holders, 3 (6.5%) associate degree holders, and 15 (32.6%) had undergraduate education. Moreover, 8 (17%) of them had one child, 15 (33%) two children, and 23 (50%) three or more children. In the research done by Moradipour *et al.* among the patients with breast cancer, the education of 48.2% was under-diploma, 34.3% diploma, 7.4% associate degree, 7.4% bachelor's degree, and 2.7% postgraduate. Besides, the mean age of the subjects was calculated as 44.9 ± 7.8 .^[33] In the research done by Sajadian *et al.* among Iranian women with breast cancer, the mean (\pm SD) of age was estimated as 48.8 ± 10.5 , and 14% were illiterate, 27% primary education, 41% diploma, and 18% academicians, out of whom 16% had one child, 37% two, 22% three, and 25% more than 3 children.^[34] In the experimental research which was performed by Pouy *et al.*, the mean (\pm SD) of the patients with breast cancer was 52.11 ± 12.07 , and 50% were illiterate, 43.8% diploma holders, 6.3% college goers and 9.4% had one to three children and 50% had 4–6 children and 40.6% had more than 6 children.^[35] The results achieved by the studies reported that the patients in all studies were in the age range 44–54 yrs. and the majority of the them were high school graduates and diploma holders, and had more than 1 child.

The present study results about the income level indicated that 71.7% of the study subjects had lower income than the cost of living or equal to it, despite the fact that 60.9% of them were content with their economic status. In the study done by Moradipour *et al.*, Zhang *et al.*, and Pouy *et al.*, the economic status of 58.5%, 28.7%, and

Table 2: Overall mean of Family Assessment Device scales' scores before and after training in spouses of breast cancer patients

FAD subscales	Mean \pm SD	
	Pretest	Posttest
Problem-solving	2.30 \pm 0.33	2.15 \pm 0.29
Communication	2.33 \pm 0.29	2.27 \pm 0.19
Roles	2.21 \pm 0.23	2.31 \pm 0.19
Affective responsiveness	2.08 \pm 0.32	2.28 \pm 0.32
Affective involvement	2.62 \pm 0.40	2.27 \pm 0.29
Behavior control	2.60 \pm 0.31	2.33 \pm 0.27
General functioning	2.35 \pm 0.27	2.11 \pm 0.23

FAD: Family Assessment Device, SD: Standard deviation

Table 3: Pre- and posttest differences of depression and family function and its dimension

Variable	Pre- and posttest difference, mean \pm SD	<i>t</i>	<i>P</i>
Depression	2.69 \pm 8.42	2.17	0.035
Problem-solving	0.15 \pm 0.44	2.29	0.026
Communication	0.06 \pm 0.35	1.19	0.241
Roles	-0.10 \pm 0.34	-2.04	0.047
Affective responsiveness	-0.19 \pm 0.46	-2.74	0.009
Affective involvement	0.36 \pm 0.58	4.19	0.001
Behavioral control	0.26 \pm 0.46	3.83	0.000
General family functioning	0.24 \pm 0.40	4.05	0.001

SD: Standard deviation

25% of the breast cancer patients was evaluated as poor, respectively.^[35,36] According to the results achieved through the domestic studies, the patients with breast cancer were living under very poor economic condition, while the breast cancer-suffering patients abroad lived under higher economic status. However, most of the present study patients were satisfied with their economic status.

The present study results revealed 67.6% of the patients adhering to their treatment. Anyanwu *et al.* in their research in Nigeria reported that among breast cancer patients, 70.3% of the patients adhered to their treatment.^[37] Furthermore, in the research conducted by Ziller *et al.*, 63% of the patients and in that by Yu *et al.*, 96% and in that of Neven *et al.*, 82%, and in the study of Hadji *et al.*, 89% of the patients complied with breast cancer treatment.^[38-41] The mentioned studies indicated that due to the nature of cancer, more than two-thirds of the sufferers adhere to the treatment.

According to the results of the present study, the time devoted by the spouses to the breast cancer patients indicated that most of the spouses (4.3%) allocated 2-5 h in this respect. The research of Zhang *et al.* demonstrated that 10% of breast cancer-suffering women's husbands allocated <3 h and 11.3% 5 h and 17.3% 8 h and 61.4% 10 h for the patient.^[36] Considering the time allocated by the husband for the breast cancer patients in this study and in the previous studies being favorable, this issue

denotes this variable's confounding control effect on the dependent variable.

The present study results about the stage of cancer suggested that 28.3% of the study patients were in Stage 1, 50% in Stage 2, and 21.7% in Stage 3 and that 43.5% of the patients were treated by radiotherapy, 32.6% by medicine, and 23.9% by chemotherapy. Furthermore, 26% of them underwent total surgery and 37% partial surgery. The research of Moradipour *et al.* reported the treatment type as follows: 12.2% as chemotherapy, 39.02% chemotherapy plus surgery, and 48.78% a combination of them.^[33] Furthermore, the research of Bani-Asadi *et al.* demonstrated that out of 150 cancer-suffering patients, 8% were in Stage 1, 39% in Stage 2, 41% in Stage 3, and 12% in Stage 4 of cancer.^[42] The study of Khorshidi *et al.* reported that out of 100 cancer sufferers, 21% were in Stage 2, 55% in Stage 3, and 24% in Stage 4 of cancer.^[43] The research of Sajadian *et al.* exhibited that among 51 patients with cancer, 6% were in stage 1, 69% in Stage 2, 17% in Stage 3, and 6% in Stage 4 of cancer and that 6% were treated by surgery, 25% by surgery–radiotherapy, and 69% by surgery–radiotherapy–chemotherapy.^[34] In this research and the previously done studies, the majority of the patients were in Stage 2 of cancer and underwent a combination of the treatments.

The current study results about the membership of the social networks indicated that 76.1% of the study subjects were the members of the social networks. In the research of Dafei *et al.*, only 1.6% were the social networks' members.^[44] The differences between the results of the present study and those of the mentioned study can be attributed to the cultural differences of the two studies and education-induced differences in the two. As said, in the above study, the majority of the study participants were illiterate or had little education and TV and radio was the main information means for them.

Based on the achieved results, the breast cancer patients' spouses' depression declined a week after going through the MScETP training ($P < 0.05$). Consistent with this study, Jahangirpour *et al.* reported that the group mindful training exerted significant effect on lowering depression, hostility, and anxiety.^[45] Whitebird *et al.* (2013), reviewing the research cases of 2007–2010, reviewing the research cases of 2007–2010 to compare Mindfulness-based stress reduction (MBSR) training-induced effect on the stress and physiological health of dementia patients' family caregivers, reported MBSR with higher potential to reduce stress and increase the caregivers' psychological health.^[46] In their research on breast cancer patients, Pouy *et al.*, (...) implied that mindfulness training reduced the depression and anxiety of

the experimental group in the posttest stage.^[35] Moreover, this finding is in agreement with those gained by Evans^[47] and Hofmann *et al.*^[48] Because our mind often interprets and deduces the events and stabilizes reactions and feelings, the mind of the individuals prone to depression consistently tends to focus on doleful and negative thoughts that in turn, sorrow and depression permanently revolves in their mind^[49], MScETP brings about more specific information encoding in the narrative memory by encouraging the individual to exercise paying attention to the characteristics of the experiences by nonjudgmental practices, which in turn can result in more specific retrieval of memory. This practice helps to moderate nonjudgmental feelings and to vividly see and accept the emotions and the physical phenomena when they occur.^[49]

Training MScETP exerted a positive and critical impact on the family functioning of the breast cancer patients' spouses ($P < 0.05$). Consistent with the current study results, Shahbeik *et al.* found that training mindfulness led to increasing the total score of family functioning ($F = 3.078$, $P < 0.05$) in the experimental group and in the posttest.^[50] In line with this research, Pouy *et al.* found that training mindfulness brought about the total score increase of family functioning in the experimental group and in the posttest among the patients with breast cancer.^[35] Fish *et al.* reviewed some studies during 2010–2011 and concluded that Mindfulness-Based Cancer Stress Management was effective in lowering the psychological stresses and promoting the quality of life in the families with cancer sufferers.^[17] Moreover, Sadoughi *et al.* supported the effect of mindfulness-based cognitive therapy on family functioning and communication patterns of divorce applicant couples.^[51] Barandeh *et al.* suggested that training raised the quality of life of the women with breast cancer.^[52] Moreover, these findings were compatible with those of the study done by Vala *et al.*^[53] In this regard, most of the studies showed that mindfulness training exerts effect on family functioning. That in turn affects the relationship with the spouse, children, and relatives and helps marriage adaptability increase and family functioning get promoted.^[54,55]

Furthermore, MScETP has a positive and significant effect on FAD subscales as problem-solving, role, affective responsiveness, affective involvement, behavior control, and general functioning of breast cancer patients ($P < 0.05$); however, it has no significant effect on communication variables ($P > 0.05$). Consistent with this study, Jiang *et al.* reported higher scores for emotional response, behavior control, and communication in stroke survivors, which indicates poor family functioning of these subscales.^[56] In the research of Pourmovahed *et al.*

among married couples, a significant difference was observed between the intervention and control groups in problem-solving ($P = 0.01$), communication ($P < 0.0001$), emotional responsiveness ($P = 0.01$), emotional involvement ($P < 0.0001$), and general functioning ($P = 0.04$).^[57] The differences between the two groups were not significant after the intervention in terms of roles and behavior control, but their domains improved. The difference between the two studies can be explained by the type of participants and the time of the posttest. This may indicate the effect of this type of intervention on communication as a delayed effect required to be considered in future studies. As communication is a vital factor for a family, nurses should teach appropriate communication skills such as listening attentively, expressing sympathy, and using optimistic words for the patients and their spouses.

The results exposed that MScETP left the breast cancer sufferers' husbands with positive and meaningful impact ($P < 0.05$). Pursuant to the studies performed until now, mindful self-care of breast cancer patients' spouses has never been compared before and a week after MScEtP, while other performed studies have somehow mentioned this point that possessing mindful skills leads to increasing the individuals' self-care [58,59], this finding is in agreement with the current study findings. In order to scientifically justify these findings, you can assume that MScEtP trains an individual to be aware of their body and whatever called pleasant or unpleasant sensations created in the body, and promotes this awareness which is accompanied with self care behaviors.^[60]

CONCLUSION

Training MScETP can help breast cancer patients' spouses to come up with higher awareness and acceptance as they learn some skills about the existing condition and go through lower derangement and chaos, and, consequently, their self-care behaviors increase, depression drops, and family functioning gets promoted, too.

Study limitations

Of the limitations, we can mention the problems with sampling the spouses who were mainly men and those of the cultural and educational aspects that might have influenced the active participation of a wide range of such caregivers. So that, the majority of the study samples (82%) were diploma and bachelor's degree holders. Therefore, if the researchers would like to achieve more accurate finding by the actual efficiency of such method, they are advised to employ larger samples and longer follow-ups in the future studies.

Conflicts of interest

There are no conflicts of interest.

Authors' contribution

H. Azimi Lolaty designed and supervised the work. M. Rostamvand contributed to the data collection, writing the first draft of the article. M. Danesh was the advisor of the article. R A. Mohammadpour contributed to the data analysis and interpreting the results. P. Ghasemi Mianaei collected the data.

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