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Effectiveness of behavioral activation group therapy on attributional styles, depression, and quality of life in women with breast cancer

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Abstract

Introduction: Breast cancer is the most common type of cancer in women. This study has been conducted with the aim of investigating the effectiveness of behavioral activation group therapy on attributional styles, depression, and quality of life in women with breast cancer.

Materials and Methods: This clinical trial carried out using a pretest-posttest control group design. Of all the women suffering from breast cancer who referred to Mashhad Omid Hospital in 2015, 30 individuals were selected through convenience sampling method and were randomly assigned into experimental and control groups. The experimental group received 8 weeks of behavioral activation group therapy while the control group was put on the waiting list to get treated. Peterson and Seligman Attributional Style Questionnaire (ASQ), Short Form Health Survey (SF-36), and Beck Depression Inventory II (BDI-II) were applied in the pretest and posttest. Data were analyzed using multivariate analysis of covariance (MANCOVA) by SPSS-22 software.

Results: The results demonstrated that behavioral activation group therapy leads to a change in attributional styles (P<0.001), a significant increase in quality of life (P<0.001), and reduced depression (P<0.001) compared to the control group.

Conclusion: It seems that behavioral activation group therapy can improve the attributional styles, depression, and quality of life in women with breast cancer.

Keywords: Behavioral therapy, Breast cancer, Depression, Quality of life

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Introduction

Cancer is the second leading cause of death after cardiovascular diseases (1). Breast cancer is the most common type of cancer among women and more than 7 million people worldwide lose their lives due to being affected by this cancer (2,3). The incidence rate of this disease is increasing around the world and is still considered as the most common cause of death in low- and middle-income countries (4).

Explanatory styles or methods of people in relation to stressful events can have an important role in their mental health (5). Attribution theory states the processes of explaining the events and emotional and behavioral consequences of these explanations (6). Peterson et al. (7) believe that attributional styles embrace two types of events (positive and negative), each of which has three components: internal-external attribution, stable-unstable attribution and global-specific attribution.

Internal-external attribution means attributing the causes of success and failure to the factors within the person versus attributing them to the factors outside the person, environment or situation. Stable-unstable attribution includes attributing the causes of success and failure to permanent and stable factors versus attributing them to short-term and unstable factors. Also, global-specific attribution is to attribute the causes of success and failure to all situations versus attributing them to a particular situation (8). Seligman raises two theories regarding the attributional styles: Pessimistic attributional style; that is, the attribution of negative events to internal factors, which is followed by depression. And optimistic attributional style which is the attribution of positive events to internal factors and prepares the

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ground for happiness (9,10).

In various psychological studies, attributional styles have been widely used to predict depression (7,11,12). Sanjuan, Perez, Rueda and Ruiz (13) in their research came to the conclusion that the attribution of negative events to internal, stable and global factors has a relationship with not only depression but also anxiety and negative feelings. The more internal, more stable and more global the individual's attributional style, the more severe the depressive reaction will be (14-18). In patients with breast cancer, attributional styles are impaired due to the type of disease. This disease has a long-term negative impact on women's self-esteem and makes them suffer from generalized anxiety and depression, which has a bad and important effect on family function and marital relations and leads to reduced quality of life (19).

Another unpleasant consequence of depression is decreased quality of life (20,21). New research findings indicate that even mild levels of depression are accompanied by a significant reduction in the life quality of adults (22). Quality of life is a subjective concept based on the values and desires in connection with life satisfaction. This construct under education can lead the individual to inner peace in relation to self and society (23). Patients with breast cancer have low life quality due to the perception of numerous cognitive, emotional, social, family and affective problems. These patients, in addition to having psychological problems and disorders, are entangled in difficulties in the dimensions of marital satisfaction and relationship with the family. Further, their relationship with their spouse and children faces difficulty and these problems reduce their quality of life (24).

Behavioral activation therapy is a structured treatment process that enhances the behaviors which increase the individual's contact with reinforced environmental connections. This process leads to improved mood, thinking and life quality of individuals (25,26). The treatment is performed in such a way that the patient engages in selection of alternative responses, integration of these alternatives, observation of results and evaluating them. The aim of cognition in this type of treatment is to establish a relationship between actions and emotional consequences and also systematically replace inefficient behavior patterns with adaptive behavior patterns. Besides, in this type of therapy, quality and improvement of social functioning are taken into consideration (27).

Ryba et al. (28) showed that behavioral activation therapy reduces depression in women with breast cancer. In this type of treatment, the patient is activated in behavioral and social terms through his full involvement in treatment process and his increased constructive interaction with non-patients leads to a reduction in the symptoms of his depression, anxiety and mental pressures and improves his mood (29). Among the most important characteristics of this treatment are being economical in terms of time, cost and facilities, ease of implementation, having a treatment guide and compliance of the treatment protocol with individual characteristics of the patient. Effectiveness of this therapy has been demonstrated in various studies on the treatment of depression in patients with substance abuse (30), depressed people who have been abused in childhood (31), students with major depression (32), people with mixed disorder of major depression and generalized anxiety (33), depression among cancer patients (34) and suicidal behaviors in patients with borderline personality disorder (35).

Group therapy is a method of treating psychological problems and disorders and group participants, through interaction with others in a safe and receptive environment, find this opportunity to experience new behaviors and receive honest feedback from others about the effects of their behavior. According to the therapeutic approach, the role of the therapist is like a stipulator, facilitator and interpreter (36).

Given the impacts of behavioral activation therapy and also numerous benefits of group therapy, this study seeks to examine the effectiveness of behavioral activation group therapy on attributional styles, depression and quality of life in women with breast cancer.

Materials and Methods

The present research is a clinical trial with a pretest-posttest control group design that was conducted with the approval of research deputy of Hakim Sabzevari University and was registered in Iranian Registry of Clinical Trials with the code IRCT201602083372N2. In this project which lasted from March to July of 2015, we first referred to the section of patients with breast cancer after necessary arrangements with the authorities of Omid Hospital in Mashhad and obtaining permission to carry out the research. Then, all the women suffering from breast cancer hospitalized in the care center for cancer patients who were interested in attending the study enrolled their names. Afterwards, according to inclusion and exclusion criteria, of all the enrollees, 30 women with breast cancer were selected through

convenience and purposive sampling method and were randomly assigned into two groups (behavioral activation therapy and control). Inclusion criteria of the study were as follows: suffering from breast cancer according to the specialist physician of the hospital, signing the written consent form to participate in the research, having at least a middle school degree and hospitalization in the first quarter of 2015. Exclusion criteria included having mental retardation problems, having a history of attempting suicide at the time of registration, suffering from personality disorder or psychotic disorders, consumption of alcohol and addictive drugs and absence of more than two sessions in treatment.

Before the start of intervention therapy, the subjects in the experimental and control groups took a pretest using Peterson and Seligman Attributional Style Questionnaire (ASQ), Short Form Health Survey (SF-36) and Beck Depression Inventory II (BDI-II). Then, the treatment program was implemented in the experimental group based on group behavioral activation model during 8 sessions of 90 minutes and on a weekly basis according to the protocol provided by Kanter, Busch and Rusch (37). Summary of the sessions has been presented in Table 1. According to the research procedure, the control group received no intervention regarding behavioral activation therapy prior to the posttest. Just for the purpose of observing the ethical principles, the control group patients were told that they remain on a waiting list for about 2 months to receive treatment. It should be noted that all the evaluations were performed by an independent appraiser who was not involved in the treatment of patients and attempt was made to make the subjects in the experimental and control groups remain unaware of the fact that they are being compared with each other although since all of them were hospitalized in the same hospital environment, there is a possibility that they talk to each other and learn about this issue. The subjects in both groups were tested during the two stages (pretest and posttest) and the results of tests were analyzed using SPSS-22 and through multivariate analysis of covariance (MANCOVA). Moreover, Cronbach's alpha method was employed to assess the reliability coefficients of questionnaires in this study.

Table 1. Summary of behavioral activation group therapy sessions

First session	Organization of the group and familiarity with the principles and rules of the group, establishment of a therapeutic relationship with patients and training behavior contracts (written and verbal behavioral contracts between the therapist and patients were proposed in a simple, clear and detailed manner), exchange of views among the group members as to how to achieve the desired goals.
Second session	Training and focusing on Behavioral Activation and also individuals' interaction with the environment and training appropriate Behavioral Activation strategies based on the principles of extinction, shaping, elimination, mental rehearsal, periodic distraction, training procedural skills and mindfulness, playing a short video of The Butterfly Effect
Third session	Psychological training about group healing processes (with four subjects of justifications about the general background of the disease, selection of appropriate treatment methods, individual status and motivational issues) regarding the interaction with other people and using their experiences.
Fourth session	Focusing on the aspects of stress and anxiety of the disease and using positive verbal reinforcement through hope therapy and expressing positive and hopeful statements about small improvements of the patient.
Fifth session	Focusing on aspects of the patient's depression and mood changes through the use of allegory during psycho-education (description of the patient's mood states, hierarchical improvement, recurrence of depression and psychological states were raised in the form of allegory and group discussion).
Sixth session	Focusing on cognitive states and judgments and controlling them and managing the patients' stress (identifying the lifestyle, stress and negative thoughts of patients plus examining through the notes in the forms, investigating personality in relation to stress management, coping with stress, and predicting, identifying and preventing negative consequences and unreasonable attitudes and reconstruction of the consequences of stress in patients), investigating the solutions for depression and stress relief, problem-solving ability, training how to use emotion-focused coping.
Seventh session	Patient education regarding bio-psycho-social components of the illness, training coping skills, cognitive restructuring and assertiveness skill in treatment and efficient use of psychologists and social workers.
Eighth session	Conclusion and providing a summary of the treatment, feedback and providing follow-up strategies.

Research instruments

- *Attributional Style Questionnaire (ASQ):* Attributional Style Questionnaire was first developed by Peterson et al. (38) to assess individuals' attributions for uncontrollable events and includes 48 questions and is measured on a 7-point Likert scale. This questionnaire consists of 12 hypothetical situations (6 good events or success and 6 bad events or failure). For each of the 6 success situations, the lowest score is 1 and the highest score is 7. For 6 failure situations, scoring is reverse. To calculate the total score of positive experiences, we first sum the scores of all positive situations and then the result is divided by their number. The highest score of positive experiences is 21 and the lowest score is 3. The total score for

negative events is calculated through summing the scores of all negative situations and dividing them by their number. The highest score for negative events is -3 and the lowest score is -21. To calculate the total score of events, the total score of positive experiences is deducted from the total score of negative experiences. The best score for all the events is +18 and the worst score is -18. Indeed in this questionnaire, scores of positive and negative events are calculated separately since a low score for a positive event is a negative attribution while a low score for a negative event is a positive attribution (38).

For each event, four questions have been raised. Although the first question which is about the most important cause of this event is not applied in scoring, responding to it is essential so that the subject can answer the next three questions in terms of the following instances. These instances include three internal or external, stable or unstable and global or specific dimensions of the event. Scores can be calculated for each of the aforementioned three dimensions. For example, the internal-external dimension is obtained from the total of the scores of the first question (38). In a study, Bridge (39) reported the reliability coefficient of the questionnaire to be 0.80 using Cronbach's alpha method. Cronbach's alpha coefficients for negative events (internal, stable and global) are respectively 0.62, 0.57 and 0.67 and for positive events (internal, stable and global), they are respectively 0.76, 0.69 and 0.62 (40). In Iran, Cronbach's alpha coefficients for failure events (internal, stable and global) are respectively 0.73, 0.43 and 0.75 and for success events (internal, stable and global), they are respectively 0.74, 0.56 and 0.76 (41). Additionally, the questionnaire validity has been estimated to be between 0.58 and 0.66 through correlation with Anderson and Arnoult Attribution Style Questionnaire, which indicates the high validity of the questionnaire.

In the present study, reliability coefficient of Attribution Style Questionnaire using Cronbach's alpha method was estimated to be 0.78 and 0.75 for internal and external failure, 0.82 and 0.80 for stable and unstable failure and 0.77 and 0.76 for global and specific failure. Also, it was evaluated to be 0.78 and 0.75 for internal and external success, 0.80 and 0.81 for stable and unstable success and 0.81 and 0.82 for global and specific success.

- *Beck Depression Inventory-II (BDI-II):* Beck Depression Inventory II is the revised form of Beck Depression Inventory which has been developed to assess depression. This questionnaire comprises 21 items and the range of its scores is from zero to 63 and its scoring is performed on a continuum from zero to 3 for each item. The scores between 0 and 13 show minor depression; scores from 14 to 19 represent mild depression; scores from 20 to 28 indicate moderate depression and scores between 29 and 63 show severe depression (43). Beck, Epstein, Brown and Steer (44) reported the internal consistency of this instrument to be 0.73 to 0.92 with an average of 0.86 and estimated the alpha coefficients of 0.86 and 0.81 respectively for the patient and healthy groups.

Dobson and Mohammadkhani (45) obtained the questionnaire reliability to be 0.92 for outpatients and 0.93 for students, through Cronbach's alpha method. Furthermore in their research, the questionnaire reliability was reported to be 0.73 with an interval of two weeks through test-retest method. In a research, Kaviani (46) estimated the reliability coefficient, validity and internal consistency of this questionnaire to be respectively 0.77, 0.70 and and 0.91. In the present study, the reliability coefficient of this questionnaire was obtained to be 0.81 using Cronbach's alpha coefficient.

- *Short Form Health Survey (SF-36):* This questionnaire has been designed by Ware and Sherbourne in 1992 and includes 36 questions and is composed of 8 subscales. Each subscale contains 2 to 10 items. Eight subscales of this questionnaire are as follows: physical functioning, social functioning , physical role functioning, emotional role functioning, mental health, vitality, bodily pain and general health perceptions. Moreover, SF-36 has two overall scores. The overall score of physical component evaluates the physical dimension of health and the overall score of mental component evaluates the mental dimension of health. The lowest score in this questionnaire is zero and the highest score is 100. This questionnaire is scored as follows: the total of scores from each subscale is divided by 8 in order to achieve the total score of life quality (47, 48). In the study conducted by McHorney, Ware and Sherbourne, the test reliability was obtained to be between 0.65 and 0.94 and the reliability of internal items and discrimination item was respectively 0.97 and 0.92 (49). This questionnaire was translated in Iran by Montazeri et al. (48) and its reliability coefficient was estimated to be 0.65 to 0.95. Montazeri evaluated the questionnaire reliability coefficient through internal consistency method and assessed its validity using “known group comparison” method and factor analysis. Analysis of internal consistency showed

that except for the vitality scale, other scales of Persian SF-36 enjoy the minimum standard reliability coefficients within the range of 0.77 to 0.90. Statistical test of known group comparison revealed that Persian SF-36 is able to differentiate demographic subgroups in term of gender and age, in the way that older people and women obtained lower scores in all scales. By using factor analysis test, two main components were achieved which justify 65.9% of the distribution among the scales of SF-36 questionnaire (48). Additionally, by correlating the questionnaire reliability with Quality of Life Questionnaire of World Health Organization (WHO), convergent validity coefficient of the questionnaire was reported to be 0.66 (50). In the present study, reliability coefficient of Short Form Health Survey was obtained to be 0.83 using Cronbach's alpha method.

Results

Demographic data showed that 28 individuals of the samples were married and 2 were single. Their age was between 40 and 55 years with an average of 43.7 and their education level was above diploma. Mean and standard deviation of attributional styles, quality of life and depression of two groups have been provided in Table 2.

Table 2. Mean and standard deviation of attributional styles, quality of life and depression

Variable	Group	Pretest Mean (standard deviation)	Posttest Mean (standard deviation)
Internal style (success)	Experimental	1.70 (0.48)	6.40 (0.48)
	Control	1.86 (0.56)	2.06 (0.51)
Internal style (failure)	Experimental	5.30 (0.67)	2.40 (0.51)
	Control	5.33 (0.91)	5.60 (0.50)
External style (success)	Experimental	7.10 (0.56)	1.90 (0.56)
	Control	6.06 (0.79)	5.86 (0.91)
External style (failure)	Experimental	2.10 (0.56)	6.60 (0.51)
	Control	2 (0.65)	1.73 (0.70)
Stable style (success)	Experimental	2.1 (0.56)	7 (0.56)
	Control	2.53 (0.91)	2.66 (0.51)
Stable style (failure)	Experimental	70.40 (0.51)	2.30 (0.82)
	Control	6.93 (0.70)	6.33 (0.48)
Unstable style (success)	Experimental	6.66 (0.52)	2.09 (0.79)
	Control	6.78 (0.86)	6.54 (1.01)
Unstable style (failure)	Experimental	2.10 (0.56)	6 (0.66)
	Control	2.73 (1.27)	2.60 (1.09)
Global style (success)	Experimental	2.60 (0.51)	7.70 (0.67)
	Control	2.46 (0.52)	2.73 (1.03)
Global style (failure)	Experimental	6.90 (0.56)	1.90 (0.56)
	Control	6.20 (0.67)	6.33 (1.39)
Specific style (success)	Experimental	6.80 (0.63)	1.60 (0.69)
	Control	6.93 (0.79)	6.86 (1.59)
Specific style (failure)	Experimental	6.50 (0.84)	2.90 (0.87)
	Control	6.26 (0.70)	6.06 (0.88)
Quality of life	Experimental	26.30 (3.05)	56.80 (7.81)
	Control	25 (2.20)	24.86 (1.55)
Depression	Experimental	55.20 (2.20)	26.80 (2.20)
	Control	54.46 (1.50)	54.93 (1.03)

Results of Table 2 indicate that the scores of posttest compared to the pretest have significantly changed in the experimental group whereas the control group averages did not have significant changes in the two steps. Examining Kolmogorov-Smirnov test results for attributional styles, depression and quality of life in the subjects of both groups demonstrated that overall, the data related to attributional styles, quality of life and depression follows a normal distribution (Table 3).

Table 3. Kolmogorov-Smirnov test results of attributional styles, quality of life and depression

Variable	Group	Kolmogorov-Smirnov Z	Kolmogorov-Smirnov Significance	Group	Kolmogorov-Smirnov Z	Kolmogorov-Smirnov Significance
Internal style (failure)	Experimental	0.21	0.20	Control	0.18	0.20
Internal style (success)	Experimental	0.18	0.20	Control	0.17	0.20
External style (failure)	Experimental	0.18	0.20	Control	0.18	0.20
External style (success)	Experimental	0.19	0.20	Control	0.17	0.20
Stable style (failure)	Experimental	0.14	0.20	Control	0.17	0.20
Stable style (success)	Experimental	0.15	0.20	Control	0.16	0.14
Unstable style (failure)	Experimental	0.16	0.20	Control	0.15	0.20
Unstable Style (success)	Experimental	0.16	0.20	Control	0.14	0.20
Global style (failure)	Experimental	0.20	0.20	Control	0.18	0.20
Global style (success)	Experimental	0.20	0.20	Control	0.20	0.20
Specific style (failure)	Experimental	0.19	0.20	Control	0.14	0.20
Specific style (success)	Experimental	0.20	0.20	Control	0.15	0.20
Quality of life	Experimental	0.17	0.20	Control	0.17	0.20
Depression	Experimental	0.19	0.20	Control	0.16	0.20

Further, by examining the Lewin Test about the equality of error variances, the assumption of the equality of variances was observed for all variables

and error variances of dependent variables in both groups were equal (P>0.05). Analyzing the results of testing the assumption of homogeneity of regression slopes suggested that F value for group interaction and posttest is not significant for all the variables (P>0.05). Thus, the assumption of regression homogeneity is confirmed.

To compare the two experimental and control groups in terms of dependent variables, multivariate analysis of covariance was performed whose results and Wilks' Lambda statistic are significant (P=0.04, F=300.34, Wilks' Lambda= 0.001, η^2= 0.76). Therefore, after controlling the pretest, there is a significant difference between the subjects of experimental and control groups at least in terms of one of the dependent variables (attributional styles, depression and quality of life). To understand in terms of which variable this difference exists between the two groups, one-way analysis of covariance was conducted in the context of MANCOVA and the achieved results have been provided in table 4.

Table 4. Results of one-way analysis of covariance in the context of MANCOVA

Variable	Sum of squares	Mean Square	F	P	Effect size	Statistical power
Internal style (failure)	29.02	29.02	114.52	0.001	0.92	1
Internal style (success)	32.52	32.52	132.50	0.001	0.93	1
External style (failure)	25.68	25.68	246.37	0.001	0.96	1
External style (success)	31.54	31.54	80.63	0.001	0.90	1
Stable style (failure)	36.83	36.83	50.35	0.001	0.84	1
Stable style (success)	16.40	16.40	32.83	0.001	0.78	1
Unstable style (failure)	36.56	36.56	102.39	0.001	0.91	1
Unstable style (success)	21.75	21.75	118.95	0.001	0.93	1
Global style (failure)	26.75	26.75	47.33	0.001	0.84	1
Global style (success)	28.04	28.04	71.26	0.001	0.88	1
Specific style (failure)	44.56	44.56	100.86	0.001	0.91	1
Specific style (success)	57.51	57.51	68.34	0.001	0.88	1
Quality of life	2334.20	2334.20	42.03	0.001	0.82	1
Depression	1435.93	1435.93	227.22	0.001	0.96	1

Results of Table 4 demonstrate that by controlling the pretest, there is a significant difference between the women with breast cancer in the experimental and control groups in terms of life quality (P<0.001, F=42.03) and depression (P<0.001, F=227.22). Considering the results of Table 4, the effect sizes of behavioral activation therapy in quality of life and depression are respectively 82% and 96%. That is, 82% of the individual differences in the posttest scores of life quality and 96% of the individual differences in the posttest scores of depression are related to the effect of behavioral activation group therapy. Besides, the results of Table 4 show reduced internal, stable and global styles in the failure situation, increased external, unstable and specific styles in the failure situation, increased internal, stable and global styles in the success situation and reduced external, unstable and specific styles in the success situation of the experimental group. The rate of effects suggests that high percentages of individual differences in posttest scores of attributional styles are associated with the impact of behavioral activation group therapy.

Discussion

The present study was conducted with the aim of investigating the effectiveness of behavioral activation group therapy on attributional styles, depression and quality of life among women with breast cancer. The results indicated that behavioral activation group therapy leads to a change in the attributional styles of women suffering from breast cancer. In other words, this treatment causes a reduction in internal, stable and global styles in the failure situation, an increase in external, unstable and specific styles in the failure situation, an increase in internal, stable and global styles in the success situation and a reduction in external, unstable and specific styles in the success situation. These results are relatively consistent with the studies conducted by Abramson, Seligman and Teasdale (18) and also Goli, Scheidt, Gholamrezaei and Farzanegan (19) indicating a relationship between breast cancer and impairment in attributional styles and depression and also the study by Radan (51) suggesting that behavioral activation therapy decreases external attribution styles and increases internal attribution styles in cancer patients. Unlike the present study, in the research performed by Radan, relative training of coping strategies was added to the treatment and the treatment was not performed in groups. Overall, effectiveness of the treatment in the present study is greater than what has been reported in the study by Radan, which can be due to the use of group therapy.

Behavioral activation group therapy creates a sense

of struggle for changing the internal and external conditions through changing the attributional style and leads to the creation of strong and invincible spirit in the face of the difficulties of the disease. It can be mentioned that this treatment, by activating the patient, leads to the creation of this perception that he is able to control the situation and thus causes the women with breast cancer to reduce their internal, stable and global attributions in the unpleasant condition of the disease.

Further, the results of this research revealed that behavioral activation group therapy leads to reduced depression in women with breast cancer and these results are congruent with the findings obtained by Hopko et al. (52) who showed that behavioral activation therapy is an effective method in the treatment of depression among the patients suffering from breast cancer. However, in their research, behavioral activation therapy was combined with problem-solving method and was conducted on an individual basis contrary to the present study. Ryba et al. (28) in their study demonstrated that behavioral activation therapy leads to reduced depression in women with breast cancer. This research also, unlike the present study, was conducted on an individual basis. Behavioral activation therapy results in an increase in individual and social interactions with the environment and causes that these patients perceive less psychological stress about their disease through positive verbal reinforcement and making them hopeful in the treatment process. Additionally, this treatment causes the patients to express their ideas, beliefs, exciting feelings and emotions without fear and worry and take more pleasure from their personal and social life and exhibit less sadness. Consequently, it can be said that behavioral activation therapy can reduce feelings of helplessness, tendency for self-reproach and complaints resulting from depression and increase self-confidence in patients through changing lifestyle, creating communication patterns and appropriate coping strategies to cope with the stresses of the disease (25,53).

Moreover, the results of the present study suggested that behavioral activation group therapy leads to increased quality of life in women with breast cancer. These results are consistent with the findings achieved by Naderian (53) stating that behavioral activation group therapy leads to the improvement of life quality in cancer patients. Women suffering from breast cancer have low life quality due to cognitive, emotional, social, family and affective difficulties. These women have a negative mental image of their body which makes a negative impact on their behavior, feelings and values towards themselves and also quality of life (4,53). In the behavioral activation intervention, the patient actively tests his incorrect cognitive plans and problems and organizes them and maintains his peace in the face of disease through relaxation techniques (37). This type of intervention probably causes the patients to have positive feelings and impressions of themselves with regard to their physical state and create a better image of themselves and their life style. Given that the group members engage in the implementation of reinforcement and feedback, empathy and expression of feelings, patients' false beliefs in relation to ostracism from the society are corrected and more social interest takes shape in these patients, which in total will have a great impact on the life quality of these women. Furthermore, this treatment causes women to better accept their physical condition and appearance and have less shyness, fear and sadness in individual and social interactions.

Another reason for the effectiveness of this treatment can be attributed to the beneficial effects of group therapy compared to individual treatment since group therapy can help people learn effective social skills and then try out their learnings on other group members (54). They feel hopeful and confident when observing others' problems which are similar to or perhaps worse than their own problems (55). In connection with the influence of group psychotherapy on cancer patients, Yalom reported that since these patients suppress their feelings about the disease, they are day by day alienated from their own existence and less allow new experiences to permeate into their mind, as a result of which they create pessimistic thoughts, dismal situation, tiredness of life, despair, feeling of loneliness and fear of death for themselves. Their participation in group psychotherapy sessions causes that they look at life with new ideas and a different vision (56).

The implementation of this study on a small sample of women with breast cancer in Mashhad Omid Hospital can limit the generalization of results to the entire breast cancer patients. Besides, non-examination of patients' emotional disorders before starting the treatment and separation of patients based on the type of disorder were other limitations of the study. Additionally, with regard to the absence of a follow-up stage, it is not clear whether or not the results will be maintained in the long term. It is recommended that the future research be

conducted on a larger number of patients, both male and female, and in different cities so that its findings can be extended to other patients. It is also suggested that studies with long-term follow-ups be carried out such that the stability of the results of treatment is evaluated and the best treatment to reduce the complications of this disease is detected through comparing behavioral activation therapy with other psychological treatments. Moreover, investigating the effectiveness of behavioral activation group therapy in other physical and psychosomatic illnesses can approve and develop the results of the present study.

Conclusion

Findings of this research indicated that behavioral activation group therapy affects attributional styles, depression and quality of life in women with breast cancer. This treatment can provide and satisfy the biological needs and lead to integration in social situations and fields among women with breast cancer through assessing behavior and mood, choosing and performing the alternative answer, observing the results of the behavior in the group and evaluating them, identifying the relationship between actions and emotional consequences and systematically replace inefficient behavior patterns with adaptive behavior patterns. Comfortable training, no need for special equipment, easy implementation by patients, short period of treatment, clear and simple techniques, simple homeworks between sessions and also performing the treatment on a group basis were among the possible factors that led to patients' cooperation and significant effectiveness of this treatment in changing the mental state.

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