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The Comparison Effect of the Positive Thinking Training with and without Written Disclosure and Acceptance and Commitment Therapy on Perceived Stress in Women with Breast Cancer

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Abstract: The aim of this research was to study the comparison effect of the positive thinking training with and without written disclosure and acceptance and commitment therapy on perceived stress in women with breast cancer. This design of the study was pretest, posttest control group. The sample include 60 women with breast cancer (15 group experimental 1 (positive thinking training with written disclosure), 15 group experimental 2 (positive thinking training), 15 group experimental 3 (acceptance and commitment) and 15 group control) were randomly assigned. The perceived stress Cohen et al. (1983) scale was used to collect data. For analyzing the results we used covariance (MANCOVA and ANCOVA) and Bonferroni test. The results indicated that positive thinking training with written disclosure; positive thinking training without written disclosure and ACT decreased the perceived stress in women with breast cancer in three experimental groups in comparison to the control group. According to results the positive thinking training with written disclosure was more effective compare to positive thinking training without written disclosure and ACT on the perceived stress in women with breast cancer.

Keywords: Positive thinking training, written disclosure, acceptance and commitment therapy, perceived stress

Introduction

Breast cancer is one of the main causes of death of women in the world and it should be mentioned that it is the second cause of death due to cancer (Lei et al., 2021). Breast cancer accounts for approximately 21% of all cancers in the world (Mubarik et al., 2019). Breast cancer is a solid mass that starts from the breast ducts, invades the frontal tissue, and the appearance of a large mass in the axillary lymph nodes is a sign of host failure . It can be said that despite these problems, pointing out that the breast is an important part of a woman's body image and any kind of abnormality in this part can lead to cognitive problems for these women (Saeedi et al., 2019). The clinical symptoms caused by the illness make the person suffer from high perceived stress; disrupt his personal-social relationships and personal-social adaptation. In these women, the feeling of boredom, sadness, despair, discouragement, loneliness, and dissatisfaction overcomes them. The adverse effects of high perceived stress in these people can destabilize the mental state during illness (Pikler & Winterowd, 2003). It should be said that perceived stress is one of the obvious problems in these people. Research shows that stress includes physical, mental, and emotional reactions that are experienced as a result of

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changes in the needs of a person's life. These changes can be big or small and disturb the patients. Perceived stress disrupts a person's perceived ability and confidence in facing stress and leads a person to mood problems (Clarke, 2012). It should be said that breast cancer is considered as an inveterate disease in the society, and after its diagnosis, the person experiences stress due to unrealistic fear of death, reduction of social energy, so that it pulls the person towards mental disorders. Psychological disorders in breast cancer patients who have various mental, physical, cognitive, emotional-social problems, cause high stress perception, which affects the self-belief of these patients. It increases the negative information about itself and the patient faces many family-social problems (Pikler & Winterowd, 2003). In these patients, the problem of pain and chronic pain causes various problems, and these patients are dealing with chronic pain and usually have stress, disturbance in interpersonal relationships, disturbance in sleep, fatigue, reduction of physical and psychological functions. Baron et al. (2011) consider stress with a mixture of cognitive characteristics, an environment that is largely influenced by physical-mental conditions. Stress is influenced by the external situation and is interpreted by the individual in different ways. People's perception, depending on how stressful they perceive a given situation, can affect its psychological capacity. Stress is one of the psychological states and includes various types of minor distress in a daily activity to a debilitating disease that disrupts the spectrum of mental health (Dahabre et al., 2022). Pasha and Bozorgian (2011) indicated that women who get breast cancer perceive a very high level of stress compared to healthy women. Research shows that stress involves a mental and physical reaction, which can cause a disorder in a person, and when these women perceive stress, they perceive their physical and psychological well-being as threatened (Clarke, 2012).

Psychological interventions are needed to reduce the perceived stress, but it should be seen what educational intervention can moderate these problems of women with breast cancer. One of these methods whose impact is investigated is teaching positive thinking. When a person's thinking is negative, the feeling also becomes negative, and with negative thinking, negative feeling, negative action comes from the person. Teaching positive thinking skills helps people to know themselves better, to be curious about their opinions about themselves and life. In positive thinking training, women are encouraged to recognize their positive, good experience, to recognize their role in increasing their self-respect and self-esteem. They also learn to take a stand, shape their lives personally, rather than passively accept whatever happens to them (Pikler & Winterowd, 2003). Rezaei Ardani et al. (2015) concluded that The cognitive behavioral stress management training is effective on stress, anxiety, and quality of life in women with cancer. Ghahraman (2018) concluded that positive thinking training is effective in reducing the anxiety of women with breast cancer. From the point of view of behavioral sciences and psychology, the mental and physical condition originates from mental-psychological arrangement and positive thinking. Studies show that the skill of positive thinking is an effective way to reduce cognitive disorders (Seligman & Csikszentmihalyi, 2014).

On the other hand, teaching positive thinking combining with written disclosure, which is a method that causes emotional organization by expressing negative emotional experiences in the form of

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writing, can be an effective method. Lepore (1997) investigated whether expressive writing enhances emotional adaptation to a stressful event (graduate entrance exams) by reducing event-related intrusive thoughts or by desensitizing people to such thoughts. Results indicated expressive writing did not affect the frequency of intrusive thoughts, but it moderated the impact of intrusive thoughts on depressive symptoms. Brati (2018) showed that disclosure training in women with breast cancer reduced the perceived stress.

Theoretically, written disclosure reduces the stress by breaking the inhibition process and thus reduces psychological and physical problems. Also, the theory of cognitive changes about this intervention states that the disclosure of writing by expressing emotions and feelings in the form of words causes a revision of approaches, emotional experiences and improves the way of organization (Graybeal et al., 2002).

It should also be said that in order to reduce perceived stress, metacognitive beliefs, and death anxiety, the treatment approach based on commitment-acceptance can be used, which has been shown in research to have an effective role in reducing cognitive-emotional problems (Rector, 2013). Shahani (2018) showed that commitment and acceptance therapy has a significant effect on reducing death anxiety and stress in women with breast cancer. Mohabbat-Bahar et al. (2015) showed that group training based on acceptance and commitment therapy is an effective method in reducing anxiety and depression. Henderson et al. (2012) investigated the effectiveness of a mindfulness-based stress-reduction (MBSR) program on quality of life (QOL) and psychosocial outcomes in women with early-stage breast cancer, using a three-arm randomized controlled clinical trial (RCT). The MBSR intervention appears to benefit psychosocial adjustment in cancer patients, over and above the effects of usual care or a credible control condition.

In this treatment, first of all, it is tried to increase the psychological acceptance of the person regarding mental experiences (thoughts, feelings) and also to decrease ineffective control actions. In the second step, the person's psychological awareness is increased in the present moment, that is, the person becomes aware of all his mental states, thoughts, and behavior in the present moment. In the third stage, a person is taught to separate himself from these mental experiences (separation of cognition), so that he can act independently of these experiences. Fourth, trying to reduce the excessive focus on the self-image of the personal story (such as being a victim) that the person has created for himself in his mind. The fifth is to help the individual to know his main personal values, clearly define them and turn them into specific behavioral goals (clarification of values). Finally, creating motivation for committed action means activity aimed at goals, specified values along with acceptance of mental experiences. These mental experiences can be anxiety, depressing thoughts, thoughts related to events (trauma) and fears. It should be said that women suffering from breast cancer are under high stress due to their emotional, cognitive, mood and physical problems, which can disrupt the treatment process in these women and have a negative impact. The comparison of three treatment methods for these patients is because each treatment has a positive effect on reducing the cognitive problems of the

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patients, and considering the special condition of breast cancer patients, there is a concern that which treatment has a greater effect on reducing the stress of these patients.

Written disclosure therapy, which helps a lot in the treatment of emotional disturbance, is one of the methods that, if combined with positivity training, can probably increase the recovery rate, but considering that the ACT therapy, which is highly effective in reducing cognitive problems during research, it should be seen which of the treatments has the necessary and greater effectiveness in treating the stress problem of these patients.

Due to the severity of the symptoms of this disease and the high level of disability, therapists have always sought to find the best effective methods to reduce the physical-psychological problems of women with breast cancer on the one hand and increase their ability on the other hand, and this issue is very important for therapists. Since each treatment approach can have different effectiveness on the different symptoms of these patients, therefore, comparing the various interventions would be beneficial. Consequently, the aim of the present study is to compare the effectiveness of positive thinking training with and without disclosure and commitment and acceptance therapy on the perceived stress of women with breast cancer, and it is considered whether there is a difference between the effectiveness of positive thinking training with and without disclosure and commitment-acceptance therapy on perceived stress in women with breast cancer?

Material and Methods

In this research, a quasi-experimental research method (pre-test-post-test design with an equal control group) was used. This design was used because the current research is looking for the change caused by comparing the effectiveness of positive thinking training with and without written disclosure and commitment-acceptance therapy on perceived stress in women with breast cancer. Before implementing the intervention of positive thinking training with and without disclosure and commitment-acceptance therapy, women with breast cancer selected in each group were measured by the pre-test of perceived stress. The role of the pre-test in this plan was to control and compare the perceived stress of test groups 1, 2, 3 and control in the pre-test and post-test. Then, after the positive thinking training sessions with and without disclosure and commitment-acceptance therapy, a post-test of perceived stress was performed on the three experimental groups and the control group. As a result, it was determined whether there were changes in perceived stress in women with breast cancer caused by positive thinking training sessions with and without disclosure and commitment-acceptance therapy and whether there was a difference in effectiveness between the three interventions.

In order to comply with the ethical principles, the people of the 3 experimental groups and the control groups were assured that the results are only at the disposal of the researcher and are only used for analysis and use in this research. The people of the control group were presented with a book about stress management. The people of the control group have been assured that the treatments will be

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carried out at the right time for them. All participants completed the informed consent form before beginning the study. The statistical population in the present study consisted of all women with breast cancer who referred to the Omid Center in Bandar Abbas city in 2019. The sample size was based on previous research and according to Cochran's formula, including 60 women with breast cancer with an error rate of 0.05, who were selected as accessible sampling. In this way, first a list of women with breast cancer was prepared according to the list and based on the inclusion criteria, which include not being in the stage of mastectomy and chemotherapy, living in Bandar Abbas city at the time of the treatment sessions, the ability to attend the treatment sessions, not using psychiatric drugs three months before and during the research, minimum literacy level, minimum illness duration of 6 months, absence of severe neurological-psychiatric diseases such as major depression, epilepsy, vision problems, severe hearing and also according to the exclusion criteria which include suffering from psychotic disorders, cognitive-personality disorders, starting other psychotherapy at the same time, absence in more than two treatment sessions. So, 60 patients were selected according to Cochran's formula. Then, 15 women with breast cancer were randomly assigned to experiment group 1 (positive thinking training), 15 women with breast cancer to experiment group 2 (positive thinking training with written disclosure), 15 women with breast cancer to experimental group 3 (acceptance - commitment treatment) and 15 women with breast cancer to the control group.

Tools: Perceived stress questionnaire was used to collecting data. This questionnaire was developed by Cohen et al. (1983). The questions are designed for the respondents to express their opinion about the uncontrollability, unpredictability, and hardship of their lives. This questionnaire contains 14 questions and its scoring is in a range from 1 (none) to 5 (very much). The questions 4-5-6-7-9-10-13 are scored in reverse. The minimum and maximum of the perceived stress questionnaire is equal to 14 and 70, respectively. The validity of the questionnaire in the research of Pasha and Bozorgian (2011) was explained by the factor analysis method in a total of 66.01% of the variance of the test, which indicated the high validity of the questionnaire, and the reliability of the questionnaire was reported with Cronbach's alpha and half-measures methods of 0.87 and 0.88. In the present study, the reliability of the questionnaire was obtained with Cronbach's alpha method of 0.87.

Positive thinking skill training sessions: Positive thinking training sessions based on the power of positive thinking book by Peale (2012) were conducted during eight 90-minute sessions in the experimental group (1). The summary of the contents was provided in table 1.

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Table 1. Summary of positive thinking skill training sessions without written disclosure

Sessions	Contents
1	Introductory meeting Conducting the pre-test Introduction and contracting for the training process Foundations of positivity approach The effect of positive attitude on the achievement of emotional-emotional dimensions Description of the meaning and concept of positive thinking
2	Modeling positivity to deal with stress Flexibility: includes adaptability to change, stability in chaos, authoritative leadership Bonding: support, respect, reconciliation of damaged relationships and forgiveness Self-awareness training, self-knowledge
3	Teaching positivity processes Sharing excitement: talking about pleasure, pain, mutual empathy, accountability, pleasurable interactions, humor Collaborative problem solving: problem identification, brainstorming, joint decision-making, focusing on goals, relying on successes Self-acceptance training Increasing the dignity of the defect in the situation of illness.
4	Tips to strengthen a positive attitude in the treatment process Making sense of difficulty: normalization, sense of coherence and explanatory documents Positive outlook: hope, courage and encouragement, seizing opportunities, accepting what cannot be changed Open expression of feelings Identification of responsibilities Responsible behavior
5	Positive hope Learning to have hope in the process of challenge Evaluation of psychological pressure, potential forces on the individual and positive thinking about their abilities Strengthen your positive thinking Optimism, hope Identification training with negative-irrational thoughts
6	Strengthening positive thinking in women by controlling psychological pressure Facilitate adaptation Family processes affecting stress control Learning to share emotions and get support Teaching positivity, identifying your positive characteristics
7	Forming fflexibility to challenges with positivity to have spirit Teaching positive self-talk about oneself and its effect on behavior and cognitive dimensions
8	Summary of positive thinking skill training Teaching the relationship between positive thoughts and emotions and behavior Summary of meetings Providing suggestions and conducting post-test

Positive thinking skill training sessions with written disclosure: Positive thinking training sessions with written disclosure based on the power of positive thinking book by Peale (2012) and Pennebaker and Susman (1988) disclosure method was carried out during eight 90-minute sessions in the experimental group (2). The summary of the contents was provided in table 2.

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Table 2. Summary of positive thinking skill training sessions with written disclosure

Sessions	Contents
1	Introduction meeting Conducting the pre-test Introduction and contracting for the training process Foundations of positive attitude approach with attitude writing approach Writing about unpleasant emotions Description of the meaning, the concept of positive thinking in writing king
2	Modeling positivity to deal with stress Flexibility: includes adaptability to change, stability in chaos, authoritative leadership Bonding: support, respect, reconciliation of damaged relationships and forgiveness Self-awareness training, self-knowledge
3	Teaching positivity processes Sharing excitement: talking about pleasure, pain, mutual empathy, accountability, pleasurable interactions, humor Collaborative problem solving: problem identification, brainstorming, joint decision-making, focusing on goals, relying on successes Self-acceptance training Increasing the dignity of the defect in the situation of illness.
4	Tips to strengthen a positive attitude in the treatment process Making sense of difficulty with the method of behavioral exposure Open expression of feelings with the method of written disclosure
5	positive hope positive hope Learning to have hope in the process of challenge Strengthen your positive thinking Learning to identify with negative, irrational thoughts and revealing thoughts about life and death
6	Strengthening positive thinking in writing Learning to share negative emotions
7	Forming fflexibility to challenges with positivity to have spirit Behavioral disclosure about dysfunctional thoughts
8	Summary of sessions Providing suggestions Conducting post-test

Acceptance and Commitment therapy sessions: Acceptance-Commitment based therapy intervention sessions based on the practical guide of Luoma et al. (2007), were conducted during eight 90-minute sessions in the experimental group (3). The summary of the contents was provided in table 3.

Table 3. Summary of commitment and acceptance therapy sessions

Sessions	Contents
1	Implementation of pre-test, establishment of therapeutic relationship with patients
2	Familiarizing with the concepts of commitment therapy, creating insight in patients towards the problem and challenging negative thoughts and negative emotions
3	Teaching creative hope, familiarity with discomforts, problems caused by lack of control on stress level and destructive emotions
4	Creating acceptance, mindfulness by letting go of trying to control and creating cognitive, mood, emotional isolation
5	Teaching discussion about value-oriented life
6	Education and discussion about choices, realistic goals, obstacles and their evaluation
7	Articulating values, actions, engagement with passion, commitment
8	Discussing the concept of being, summarizing, asking for opinions, presenting final suggestions, performing the post-test.

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Results

The mean and standard deviation of the perceived stress of women with breast cancer for test groups 1, 2 and 3 and the control group in the pre-test and post-test stages are presented in Table 3. Also, the results of the Kolmogorov-Smirnov test for the normality test and the results of the Levene's test regarding the assumption of equality of variances are presented in Tables 4 and 5. According to Tables 4 and 5, the assumption of normality of data and homogeneity of variance was confirmed.

Table 3. Mean and standard deviation of perceived stress in the experimental (1), (2), (3) and control groups in the pre-test and post-test stages

Variable	Group	Phase	Mean	SD	n
Perceived stress	E1	Pretest	63.60	4.08	15
		Posttest	17.01	2.32	15
	E2	Pretest	56.26	4.54	15
		Posttest	23.21	4.37	15
	E3	Pretest	64.40	5.12	15
		Posttest	22.53	1.45	15
	Control	Pretest	52.60	4.54	15
		Posttest	54.10	4.37	15

Table 4. The results of the Kolmogorov-Smirnov test regarding the assumption of normality of the distribution of grades

Variable	Group	K-S	
		Value	p
Perceived stress	E1	0.20	0.08
	E2	0.18	0.16
	E3	0.17	0.16
	Control	0.15	0.09

Table 5. The results of Levene's test regarding the assumption of equal variances of the scores of the research variables

Variable	F	DF1	DF2	p
E1 perceived stress	2.89	1	28	0.09
E2 perceived stress	3.01	1	28	0.07
E3 perceived stress	3.32	1	28	0.06

In Table 6, the results of analysis of covariance on the mean post-test scores of the perceived stress of the experimental groups (1, 2, 3) and control with the pre-test control are presented.

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Table 6. The results of covariance analysis on the mean post-test scores of the perceived stress of the experimental groups (1, 2 and 3) and control with pre-test control

Variable	Source	SS	DF	MS	F	p	ETA	Power
E1 perceived stress	Group	425.18	1	425.18	41.23	0.001	0.89	1
E2 perceived stress	Group	549.24	1	549.24	59.17	0.001	0.85	1
E3 perceived stress	Group	311.27	1	311.27	28.56	0.001	0.80	0.99

According to Table 6, by pre-test control, there is a significant difference between the women with breast cancer in the experimental group (1) and the control in terms of perceived stress ($F = 41.33$ and $p < 0.001$). In other words, positive thinking training with disclosure writing has reduced the perceived stress in the experimental group (1). According to value of ETA (0.89), 89% of individual differences in post-test scores of perceived stress of women with breast cancer are related to the effect of positive thinking training with written disclosure. Also, according to the findings, there is a significant difference between the perceived stress of the experimental group (2) and the control group ($F = 28.56$ and $p< 0.001$). In other words, positive thinking training has reduced perceived stress in the experimental group (2). ETA value is equal to 0.85 and according to it, 85% of individual differences in post-test scores of perceived stress of women with breast cancer are related to the effect of positive thinking training. Finally, there is a significant difference between the perceived stress of the experimental group (3) and the control group ($F=28.56$ and $p<0.001$). In other words, commitment-acceptance therapy has reduced the perceived stress of women with breast cancer in the experimental group (3). ETA value is equal to 0.80. In other words, 80% of the individual differences in the post-test scores of perceived stress of women with breast cancer in the experimental group (3) are related to the effect of ACT intervention. Bonferroni's post hoc test was used to compare the experimental groups (Table 7).

Table 7. Comparison of positive thinking training with and without disclosure and ACT on perceived stress

Variable	Comparison	Mean difference	p
Perceived stress	Teaching positive thinking with disclosure writing - ACT	5.18	0.001
	Teaching positive thinking with disclosure writing - teaching positive thinking	5.08	0.001
	Positive thinking training - ACT	1.18	0.28

According to Table 7, there is no significant difference between the effectiveness of positive thinking training with ACT, but there is a significant difference between the effectiveness of positive thinking training with written disclosure and positive thinking training without written disclosure, and between the effectiveness of positive thinking training with written disclosure and ACT. According to the values of the means, it was found that positive thinking training with disclosure writing is more effective in reducing perceived stress in women with breast cancer than positive thinking training and ACT.

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Discussion

The purpose of this research was to compare the effectiveness of positive thinking training with and without disclosure writing and acceptance- commitment therapy on perceived stress in women with breast cancer. The results revealed that there is a significant difference between the women with breast cancer in the experimental group (1, 2 and 3) and the control group in terms of perceived stress. In other words, positive thinking training with disclosure writing, positive thinking training and ACT reduced the perceived stress of women with breast. Also, the results showed that there is no significant difference between positive thinking training with ACT on reducing perceived stress, but it was found that the effectiveness of positive thinking training with disclosure writing with positive thinking training and ACT on reducing perceived stress in women with cancer. Our results are in line with previous studies. For instance, Ghahraman (2018) indicated that positivity therapy group was effective on concern about body image and anxiety of women with breast cancer. In another study, Lepore (1997) showed that expressive writing moderates the relation between intrusive thoughts and depressive symptoms. Also, Brati (2018) indicated that disclosure training is effective on perceived stress, negative self-evaluation in women with breast cancer. Mohabbat-Bahar et al. (2015) showed that group training based on acceptance and commitment therapy is effective on anxiety and depression of women with breast cancer

It can be said that women with breast cancer suffer from perceived stress due to cognitive conflict with cancer, which causes cognitive disorders and anxiety in these women. In the present research, it was found that positive thinking training intervention with disclosure writing is effective in reducing perceived stress in women with breast cancer. It can be explained that the project of teaching positive thinking with disclosure writing caused emotional discharge in a constructive way and created a positive thought to give meaning in women.

The stress caused by cancer, which had created fear and worry about death for women, was reduced with the technique of controlling emotions and attitudes in the form of positive thinking and revealing emotions, and the ability to cope with mental pressure improved in these women. On the other hand, it was determined that positive thinking training intervention is effective in reducing perceived stress in women with breast cancer. The intervention of teaching positive thinking in women with breast cancer by strengthening positive thinking, giving positive and constructive meaning to thoughts and attitudes caused stress, tension and anxiety decrease in these women.

Also, in the current research, it was found that ACT is effective in reducing the perceived stress of women with breast cancer. Due to the fact that the ACT intervention increased the emotional awareness of the person, that is, the person became aware of all his emotional states, thoughts and behavior in the present moment, it caused the quick decisions caused by cognitive impulse and perception of high stress to decrease. ACT by creating activities aimed at specified goals and values along with acceptance of experiences, evaluation of mood, selection of emotional response and integration of emotion caused more adaptation to the conditions and caused patients to be unable to use emotion expression. It can be said that ACT due to the high growth of flexibility, acceptance, and

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contact with the present moment, self-observation, values and committed action caused patients to learn to look at thoughts, imaginations and memories.

However, in the current research, it was determined that there is a significant difference between the effect of positive thinking training with disclosure writing and positive thinking training and ACT on reducing the perceived stress of women with breast cancer. In addition, positive thinking training with disclosure writing had a greater effect on reducing the perceived stress of women with breast cancer. It should be said that positive thinking training with disclosure writing helps more in growth, facilitation of mutual understanding, mutual support than the other two treatments, and it is a multidimensional intervention that helps patients adapt more, and this intervention is probably due to the combination of positive thinking technique and written disclosure of emotion caused more flexible mental performance in patients. Therefore, it can be said that teaching positive thinking through written disclosure, in addition to creating a positive outlook, acceptance and recognition of positive experiences, due to the technique of expressing negative emotional experiences in the form of writing, causes cognitive-emotional organization and improves confusion, anxiety, and worry, because according to the theory of cognitive changes Regarding this intervention, written disclosure with the method of positive thinking led to the expression of emotions, feelings in the form of words and the organization of these women's beliefs, and it played a greater role in adapting to stressful events and improved the psychological, physical, and interpersonal relationships of these women.

It can be said that positive thinking training is an effective intervention in reducing the perceived stress of death in women with breast cancer. Positive thinking training with written disclosure due to the development of self-esteem, optimism, expectation of encountering positive consequences, self-efficacy and connection with positive feeling is more effective on reducing perceived stress. As a result, it can be said that positive thinking training with disclosure writing is a more effective intervention in reducing perceived stress in women with breast cancer.

In addition to the obtained findings, the present study has some limitations. First, no research was found on the effectiveness of positive thinking training with and without disclosure writing and commitment and acceptance therapy on the perceived stress of women with breast cancer, and there was a limitation in the alignment report with the research results. Second, the use of drugs prescribed for women with breast cancer could not be controlled by the researcher. Third, due to the type of situation of women, it was not possible to randomly select the research sample and the sample was selected as available. It is recommended that researchers compare the effectiveness of positive thinking training with and without written disclosure and ACT on other cognitive and emotional dimensions in women with breast cancer in the future studies. Also, it is suggested that in future studies, researchers investigate the effectiveness of positive thinking training with and without written disclosure and ACT on perceived stress in other cancer patients. Counseling, treatment centers and hospital clinics pay special attention to the effectiveness of positive thinking training with disclosure writing because of its greater effect on improving perceived stress in women with breast cancer.

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