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ORIGINAL RESEARCH

The effectiveness of acceptance and commitment therapy in the quality of life and anxiety of death in women suffering from breast cancer

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Abstract

Objective: The effectiveness of acceptance and commitment therapy (ACT) in quality of life and death anxiety in women suffering from breast cancer.
Materials and Methods: This study was a quasi-experimental research with a non-equivalent control group design. All women suffering from breast cancer and being treated at Imam Khomeini Hospital in year 2019. The sample was randomly selected. Thirty people were selected 15 of whom were randomly assigned to the experimental group and 15 were randomly assigned to the control group. During eight 90-minute sessions, the experimental group received the ACT intervention. Both groups were evaluated before and after the intervention with quality of life questionnaires and death anxiety, and multivariate analysis of covariance and variance was used to analyze the data. Data analysis was performed with SPSS24.
Results: The findings suggested that the quality of life and death anxiety in the experimental group were significantly different from the control group.
Conclusion: The training program based on ACT had an impact on the quality of life and death anxiety of women suffering from breast cancer.

Keywords: Acceptance and commitment therapy, Quality of life, Death anxiety, Breast cancer

Introduction

Today, cancer is one of the most important health problems in the world, and the number of people suffering from this disease is increasing in most countries. This increase is due to several factors, the most important of which are the stresses of urban living, eating habits, smoking and the presence of carcinogens in the workplace and life. If the prevalence of this disease increases in the same way, according to the World Health Organization, out of every 5 people, one person will definitely suffer from one of the forms of cancer (Ilkhani, 2001).

Breast cancer is the most important health concern in women because it is the most common type of cancer after lung cancer and the second leading cause of cancer mortality among women (Kruk, Aboul, 2004). According to the World Health Organization, more than 1.1 million new cases of breast cancer are diagnosed in women each year worldwide, which is 10 per cent of all new cancers and 23 per cent of all cancers in women. The incidence of breast cancer is 67.8 per 100,000 women in developed countries, 23.8 per cent in less developed countries and 37.5 per cent in the world. In Iran, breast cancer accounts for 22.26% of women's cancers (Statistical Center for Cancer Statistics, 2004). According to 2003 statistics, the prevalence of breast cancer in Iranian women is 20 new cases per 100,000 women per year; assuming that the population of women in Iran is 30 million, the number of new cases of breast cancer per year will be 6,000 (Montazeri et al., 2003).

Cancer has many negative consequences for patients, including reduced quality of life and mental well-being, increased depression, anxiety, frustration, and anger, among which depression, anxiety, and frustration are more prevalent (Sharpiro & Scharrz (2001). Cancer also disrupts daily functions, social activities, and peace of mind, and instead plays new roles, making patients more dependent on others and less able to support others and unable to participate in normal social activities. All of these problems, in addition to prolonged hospitalization, frequent visits to the doctor, various treatments, their side effects, and high treatment costs, reduce the quality of life of patients (Shell & Chris, 2007).

Quality of life is used as a criterion for evaluating the results of treatment and the condition of patients with physical and mental disorders (Kohner, 2005). Testa et al., (2005) define the impactful and constructive dimensions of quality of life as follows: the physical, social, and psychological realms of health that are influenced by one's experiences, beliefs, expectations, and perceptions. However, the quality of life must be measured from different physical, psychological and social dimensions. Patients with breast cancer face many physical, psychological and social problems, which leads to a decrease in the quality of life of these patients. Evidence from various studies implies that breast cancer plays an important role in maintaining people's health. Also, breast cancer increases the negative effects of stresses that result from the environment and society, and consequently will have a direct and positive effect on the quality of life (Kalagan, 1993).

One of the problems that cancer patients face even after the end of treatment is worrying about their health and fear of death, which, according to ontological psychologists, is one of the most painful psychological and quality of life problems. Research shows that death anxiety has the highest rate (71%) in cancer patients (Shine and Tyler, 2009). Anxiety about death means fear of dying oneself and others. In other words, it means predicting one's own death and being afraid of the process of death and dying oneself and important people in life (Roger, Michael, Sue, Gail and Jaspin, 2016). Firstton and Catlett (2009) also define death anxiety as a feeling of unhappiness with fear of death of oneself or others, considering death as the end of life or the embodiment of a funeral.

Kooq et al. (1987) have shown that ACT-based interventions lead to less pain sensitivity. ACT is based on the principle that avoiding pain leads to disability and reduced quality of life. According to this theory, avoidance occurs when logical thoughts and feelings have an inappropriate and extreme effect on behavior and, in the process of treatment, are considered as a core intervention. This type of treatment, unlike many treatments, focuses on reducing or controlling the symptoms of the disease or on promoting the level of acceptance of negative reactions that are not directly changeable

(thoughts and physical feelings) in order to improve the activity levels.

Recent research on ACT has provided satisfactory and reasonable results for the use of ACT in clinical practice, especially in patients suffering from cancer. However, the effectiveness of this treatment on the psychological characteristics and quality of life of these patients in Iran has been less studied. Therefore, ACT affects the quality of life and death anxiety of women with cancer. Sampling method: the sample was randomly selected. 30 people were selected 15 of whom were randomly assigned to the experimental group and 15 were randomly assigned to the control group. During eight 90-minute sessions, the experimental group received the ACT intervention; Both groups were evaluated before and after the intervention with quality of life questionnaires and death anxiety, and multivariate analysis of covariance and variance was used to analyze the data. The reason for selecting 15 people for each group was the reference to scientific sources. In studies with quasi-experimental research methods, 15 subjects are proposed for each group (Delavar, 2009). The following tools were used to collect the required data.

Death anxiety scale

The death anxiety scale is the most widely used of its kind. This scale is a self-administered questionnaire consisting of 15 yes-no questions; the answer is a sign of anxiety. The range of scores on this scale is from zero to fifteen, and a high score (score above the average of 8) represents a high degree of death anxiety. Answering each item as a Likert 5 option is through *completely disagree*, *disagree*, *no opinion*, *agree* and *completely agree*. The reliability and validity of this questionnaire have been investigated by Rajabi and Bahrani (2001), according to which the reliability coefficient has been reported to be 0.6 and the internal consistency coefficient as 0.73.

Quality of Life Questionnaire (WHOQOL-BREF)

The Quality of Life Questionnaire is a 36-item questionnaire that assesses four areas of physical health, mental health, social relationships, and environmental health; The questionnaire also has two other questions that do not evaluate any of those dimensions and deals with the health and quality of life in general. It should be noted that the field of physical health deals with issues such as the strength of the movement, work capacity and energy of pain and sleep. The field of mental health evaluates thinking about physical appearance, negative emotions, positive emotions, self-confidence, thoughts, learning, memory and mental state, social relations personal communication and social support and environmental health as well as financial resources, security of the physical environment and place of residence. The lowest score in this questionnaire is 0 and the highest is 100. The score of the titles in that dimension determines the score of each dimension. This questionnaire has been translated and validated in more than forty countries throughout the world (Nejat, Montazeri, Holakouee, Majdzadeh, 2008). The reliability of this questionnaire in Iran has been reported by Nejat et al. (2008) in all fields, above 0.7 and in the field of social relations, the value of Cronbach's alpha is equal to 0.55.

Materials and Methods

In coordination with Imam Khomeini Hospital in Tehran and inviting women suffering from breast cancer and selecting those who would like to cooperate, 30 people were selected and divided into two groups of 15 people. They were then asked to complete quality of life and death anxiety questionnaires. In completing the questionnaire, the subjects were told that this was only for research purposes, and they were assured that the answers would be confidential. After that, during the 8-session period, the experimental group received its therapy twice a week for 90 minutes each session. At the end of the session, they completed the re-examination of the questionnaires.

Table 1: Summary of treatment sessions and therapy protocol.

Session	Description of meetings along with homework
First	Familiarity of members with the therapist and with each other, description of group rules, familiarity and general description of the therapeutic approach. Homework: Listing 5 examples of the most important problems that patients face in life.
Second	Assessing the assignment of the previous session, assessing patients' problems from the perspective of ACT (extracting the experience of avoidance, mixing and value). Homework: preparing a list of advantages and disadvantages and methods of controlling problems
Third	Assessing the assignment of the previous session, determining the inefficiency of controlling negative events using metaphors and teaching the tendency towards negative emotions and experiences. Homework: Recording cases in which patients have managed to get rid of dysfunctional control methods
Fourth	Assessing the assignment of the previous session, learning how to separate evaluations from personal experiences, and taking a position to observe non-judgmental thoughts. Homework: Recording cases where patients have been able to observe and not evaluating experiences and emotions.
Fifth	Assessing the assignment of the previous session, relating to the present and considering oneself as a background (chessboard metaphor) and teaching mindfulness techniques. Homework: Recording cases in which patients are able to observe thoughts using mindfulness techniques.
Sixth	Assessing the assignment of the previous session, identifying the values of patients' lives and measuring the values based on their importance. Homework: Making a list of obstacles to achieving values.
Seventh	Assessing the assignment of the previous session, presenting practical solutions in removing obstacles while using metaphors and planning for commitment to pursuing values
Eighth	Summing up the concepts reviewed during the meetings, asking members to explain their achievements to the group and their plan to continue living after the test.

Results

For statistical analysis of data, descriptive statistical methods (such as frequency distribution tables, statistics, mean, variance, standard deviation, etc.) were used and in the inferential statistics section, multivariate analysis of covariance and variance was used.

Examining the normality of data distribution (Kolmogorov-Smirnov test)

Many statistical tests, including parametric tests, are based on the normality of data distribution and are assumed to be based on the normal distribution of data in a population or at the level of samples selected. Therefore, the analyst needs to know the type of distribution of those variables before dealing with statistical analyses of variables. The Kolmogorov-Smirnov test can be used to determine whether the variables follow the assumption that they are normally distributed.

Table 2: The normality of data distribution

The dependent variables	Group	Stage	Kolmogorov-Smirnov		
			Value	N	Sig.
Death anxiety	Experimental	Pretest	0.967	15	0.816
		Posttest	0.923	15	0.218
	Control	Pretest	0.966	15	0.792
		Posttest	0.970	15	0.851
Quality of life	Experimental	Pretest	0.952	15	0.552
		Posttest	0.965	15	0.784
	Control	Pretest	0.946	15	0.446
		Posttest	0.948	15	0.493

As can be seen in this test, the probability levels (p-value) in all research variables are greater than the error level of 0.01. Due to the value of P and the non-rejection of the null hypothesis, the data distribution is considered to be in accordance with the normal distribution. As a result, parametric tests have been used in testing the research hypothesis.

Testing the research hypotheses

The main hypothesis: Acceptance and commitment therapy affects the quality of life and anxiety of death of women suffering from breast.

Table 3: Box test results to check the homogeneity assumption of the scattering matrix (N = 30/30).

Statistical Index	Box Statistics	F Statistics	Df 1	Df 2	Sig
Groups	1.46	0.215	6	5.68	0.972

Based on the values (p = 0.972, F = 0.215), the homogeneity test of scattering matrices is not significant. The data in Table 3 are related to testing the slope homogeneity. This table is executed before the covariance is performed to evaluate the interaction between the auxiliary random variable (pretest of death anxiety and quality of life) and the group variable (i.e. the factor) in predicting the dependent variable (posttest of death anxiety and quality of life).

Table 4: Results of covariance analysis of dependent variables in experimental and control groups for testing the interaction (N = 30).

Source		The sum of the degrees of freedom squares	Df	Mean squares	F	Sig.
Interactive effect of peer and group	Death anxiety	1.48	2	0.742	0.322	0.728
	Quality of Life	30.26	2	15.13	0.884	0.427
Error						
	Death anxiety	52.91	23	2.30		
	Quality of Life	393.47	23	17.10		
Total						
	Death anxiety	2861	30			
	Quality of Life	79999	30			

According to the data in table 4, the interaction between the anxiety of death and quality of life and group pre-test is not significant. Therefore, covariance is performed only to test the effects of the main variables post-test of death anxiety and the quality of life and group. This is to understand if the means in the two experimental and control groups are the same.

Table 5: Results of The covariance analysis test (MANCOVA) for the main hypothesis

Test	Value	F	Df	Error Df	Sig.
Wilkes Lambda Test	0.406	11.19	3	23	0.001

According to table 5, because at the 95% confidence level and the measurement error of

0.05%, the significance level of the Wilkes Lambda test is calculated to be less than 0.05, there is a significant difference between the two groups in at least one of the dependent variables.

Table 6: Summary of multivariate variance analysis of death anxiety and quality of life in experimental and control groups with elimination of interaction (N = 30 = 30).

Source		Sum of squares	Df	Mean squares	F	Sig.	Effect value
Between groups	Death anxiety	24.44	1	24.44	11.23	0.003	0.310
	Quality of Life	151.24	1	151.24	8.92	0.006	0.263
Error							
	Death anxiety	54.39	25	2.17			
	Quality of Life	423.74	25	16.95			
Total							
	Death anxiety	2861	30				
	Quality of Life	79999	30				

As can be seen, the results of multivariate analysis of variance for death anxiety (Eta= 0.310, P = 0.003, F=11.23) and quality of life (Eta=0.263, P = 0.006, F = 8.92) shows that there is a significant difference between the two groups; In other words, there is a significant difference between the death anxiety and the quality of life of the experimental group and the control group. Thus, given that there is a significant difference between the mean of the two experimental and control groups in the variables of death anxiety and quality of life, the research hypothesis is confirmed and the null hypothesis which states that there is no significant difference between the mean of death anxiety and quality of life of the two groups is rejected. First Sub-Hypothesis: Acceptance and commitment therapy affects the quality of life of women suffering from breast cancer.

Table 6a: Box test results to check the assumption of homogeneity of the scattering matrix (N = 30).

Statistical Index	Box statistics	Statistics F	Df1	Df2	Sig.
Groups	6.19	0.522	10	3.74	0.876

According to the F value (p = 0.876, F= 0.522), the homogeneity test of scattering matrices is not significant. The data in Table 7 are related to the slope homogeneity test. This table is executed before the covariance is performed so that the interaction between the auxiliary random variable (physical health pre-test, mental health, social relations and environmental health) and the group variable (ie the factor) in predicting the dependent variable is evaluated.

Table 7: Results of covariance analysis of dependent variables in experimental and control groups for interaction test (N = 30).

	Source	Sum of squares	Df	Mean squares	F	Sig.
Interactive effect of peer and group	Physical health	0.792	2	0.396	0.336	0.718
	Mental health	1.20	2	0.602	0.169	0.846
	Social relations	6.34	2	3.17	1.71	0.203
	Environmental health	8.18	2	4.09	2.14	0.141
Error	Physical health	25.92	22	1.17		
	Mental health	78.60	22	3.57		
	Social Relations	40.67	22	1.84		
	Environmental health	42	22	1.90		
Total	Physical health	6146	30			
	Mental health	5532	30			
	Social Relations	1972	30			
	Environmental health	8103	30			

According to the data in Table 7, the interaction between physical health pretest, mental health, social relationships, and environmental and group health is not significant. The non-significance of the interaction shows that the data support the homogeneity hypothesis of regression slopes. Therefore, the implementation of covariance is done only to test the effects of the main variables after physical health, mental health, social relations and environmental and group health. Are the averages of the samples in the two experiments and control groups the same?

Table 8: Results of the covariance analysis test (MANCOVA) for the main hypothesis

Test	Value	F	Group Df	Df error	Sig.
Wilkes Lambda Test	0.522	4.81	4	21	0.001

According to Table 8, because the significance level of all tests was calculated to be less than 0.05 at 95% confidence level and measurement error, the null hypothesis is rejected and the research hypothesis is confirmed; That is, there is a significant difference between the two groups in at least one of the variables tested.

Table 9: Summary of multivariate analysis of variance of quality of life components in experimental and control groups with elimination of interaction (N = 30)

Source		Sum of squares	Df	Mean squares	F	Sig.	Eta
Between group	Physical health	3.85	1	3.85	3.45	0.075	0.126
	Mental health	31.65	1	31.65	9.51	0.005	0.284
	Social Relations	9.42	1	9.42	4.81	0.038	0.167
	Environmental health	4.83	1	4.83	2.31	0.141	0.088
Error	Physical health	26.7	24	1.11			
	Mental health	79.80	24	3.32			
	Social Relations	47.02	24	1.95			
	Environmental health	50.19	24	2.09			
Total	Physical health	6146	30				
	Mental health	5532	30				
	Social relations	1972	30				
	Environmental health	8103	30				

As can be seen, the results of multivariate analysis of variance for mental health (Eta= 0.284, p = 0.005, F = 9/51), social relations (Eta=0.167, p= 0.038, F = 4/81) shows that there is a significant difference between the two groups; In other words, there is a significant difference between mental health and social relationships of the experimental group and the control group. Thus, given that there is a significant difference between the mean of the two experimental and control groups in the variable of mental health components and social relations, the research hypothesis is confirmed and the null hypothesis stating that there is a difference between the mean of the components of mental health and social relations is rejected. As can be seen, the results of multivariate analysis of variance for physical health (Eta= 0.126, p = 0.075, F = 3.45) and environmental health (Eta=0.088, p= 0.141, F= 2.31) indicates that there is no significant difference between the two groups; In other words, there is no significant difference between environmental health and physical health of the experimental group and the control group. ACT affects the death anxiety of women suffering from breast cancer.

Table 10: Levin test results to examine the assumption of equality of group variances (N = 30)

Statistical index	F	Df 1	Df 2	Sig.
Groups	0.001	1	28	0.973

According to Table 10, the value of F obtained is not significant. Therefore, equality of variances is established and performing the covariance is possible. The data in Table 11 are related to the slope homogeneity assumption test. This table is executed before the covariance is performed to evaluate the interaction between the auxiliary random variable (death anxiety pre-test) and the group variable (ie, the agent) in predicting the dependent variable (death anxiety post-test).

Table 11: Consequences of death covariance analysis in experimental and control groups for interaction test (N = 30)

Source	Sum of squares	Df	Mean squares	F	Sig.
Group (a)	2.61	1	2.61	1.25	0.273
Pre-test (b)	166.84	1	166.84	80.11	0.001
Interaction a*b	0.263	1	0.263	0.126	0.725
Error	54.14	26	2.08		
Total	2861	30			

According to the data in Table 11, the interaction between the pretest of death anxiety and the group is not significant. The ineffectiveness of the interaction indicates that the data supports the homogeneity hypothesis of regression slopes. Therefore, covariance is performed only to test the effects of the main variables of post-test death anxiety. That is, are the means of the samples the same in the two experiment and control groups? The results of a covariance analysis of death anxiety in the experimental and control groups are shown in Table 12 with the elimination of interaction.

Table 12: Summary of covariance analysis of death anxiety in experimental and control groups with the elimination of interaction (N = 30).

Source	Sum of squares	Df	Mean squares	F	Sig.	Eta
Death anxiety pre-test	171.5	1	171.05	84.88	0.001	0.759
Between groups	24.55	1	24.55	12.18	0.002	0.311
In-groups	54.41	27	2.01			
Total	2861	30				

As can be seen in Table 12, the results of the univariate analysis of covariance for the variability of death anxiety (Eta= 0.311, p=0.002, F= 12.18) indicate that there is a difference between the two groups. In other words, there is a significant difference between the death anxiety of the experimental and the control groups. Thus, given that there is a significant difference between the mean of the two experimental and control groups in the variable of death anxiety, the research hypothesis is confirmed and the null hypothesis stating that there is no significant

difference between the mean of the death anxiety of the two groups is rejected.

Discussion

ACT affects the quality of life and death anxiety of women suffering from breast cancer.

The results of the study indicate that in the post-test stage, there was a significant difference between quality of life, loneliness and death anxiety of women suffering from breast cancer. This means that ACT has had a significant effect on the quality of life and anxiety about the death of women suffering from breast cancer. This finding is consistent with the results of Dadami and Momeni (2017), Arbabi (2016), Barghi Irani et al. (2015), Anvari and Ebrahimi (2017). In explaining this finding, it can be claimed that the goal of treatment is to accept and commit to changing the functions of thoughts by manipulating the verbal context in which thought occurs. ACT encourages clients to change their relationships with other inner thoughts and experiences and to see them as mental events that come and go one after another. Clients learn to see thoughts only as thoughts, feelings only as feelings, and memories only as memories. In areas where avoidance of experiential avoidance occurs, cognitive fault and acceptance processes help the individual break down avoidance patterns and their regulatory rules (Hayes et al., 2013). Thus, in this course, women suffering from cancer learn to fight the discomfort associated with negative emotions such as depression and anxiety and engage in activities that bring them closer to the goals of life (values). Receiving acceptance and commitment instead of teaching more and better strategies for change by reducing unwanted thoughts and feelings teaches clients to acquire the skills to be aware of and observe unpleasant thoughts and feelings. Thus, how these women respond to negative thoughts and their emotions have changed and as a result they are less affected by thoughts related to death and can reduce their anxiety about death, and eventually these women can experience a higher quality of life after the course of treatment. In addition, in explaining this finding, we should mention the processes governing treatment based on acceptance and commitment. One of the most important treatment techniques based on acceptance and commitment is to define values and commitments. Encouraging patients suffering from breast cancer to identify values and set goals, apply and ultimately commit to achieving goals and moving in the direction of values despite the problems will cause this group of patients to achieve goals and happiness. Getting out of the vicious circle of negative emotions such as anxiety, stress, frustration, and depression, which in turn exacerbate problems, can help relieve anxiety, reduce anxiety, and improve quality of life. One of the main techniques of this course has been mindfulness training. Mindfulness training offers a variety of ways to deal with dysfunctional thoughts and related emotions, such as anxiety, impulses, anxiety, and depression. This approach can help free people from automatic thoughts, habits, and unhealthy behaviors, and thus play an important role in reducing stress and regulating behavior and managing shocks and emotions. In the state of consciousness, the individual is instantly aware of the mental method and learns the skills of identifying more useful methods. There are two main ways to be conscious: one is to do and the other is to be. In the conscious mind, one learns to move the mind from one method to another in the present moment (Sharifi, Akhteh, Alipour, Fahimifar, Taghadosi, Karimi and Najafi, 2015). In this regard, and in explaining these findings, it can be stated that since women suffering from cancer have learned how to communicate differently with dysfunctional and irrational thoughts and their negative emotions and feelings, and this treatment method by creating thoughts and emotions reduce vulnerabilities and irrational sensitivities in stressful situations and help the women adjust their behaviors better and more appropriately. Therefore, awareness training helps these women to think about death anxiety and as a result of this process; their quality of life will improve.

ACT affects the quality of life of women suffering from breast cancer.

The results of the study showed that in the post-test stage, there was a significant difference between the components of mental

health and social relations of quality of life of these women in the experimental and control groups; This means that ACT has had a significant impact on the components of mental health and social relationships and the quality of life of women suffering from breast cancer. This finding is consistent with the results of Dadashi and Momeni (2017), Arbabi (2016), Barghi Irani et al. (2015), Anvari and Ebrahimi (2017). Adaptability to the treatment process and psychological training can play an important role in achieving this goal, especially in the therapeutic approach based on acceptance and commitment, which he believes references are never seen as failed, damaged, or hopeless. Instead, this approach is always a form of empowerment that makes life based on values, richness, and meaningful available to all. Pain is also considered a part of life, not an external existence to get rid of it and progress is not defined by an absolute level of success, but an increasing choice, including the present and the step forward towards a valuable life. Implementation of ACT, while providing a platform for the acceptance of emotions, using mindfulness techniques and other methods of treatment helps patients get rid of the fruitless struggle and tries to eliminate negative emotions and experiences and encourages patients to pursue values and commitment to act on values; As a result, it can lead to better quality of life.

ACT affects the death anxiety of women suffering from breast cancer.

The results of the study showed that in the post-test stage, there was a significant difference between the death anxiety of women suffering from breast cancer in the experimental and control groups; This means that ACT has had a significant effect on the death anxiety of women suffering from breast cancer. This finding is consistent with the results of Dadashi and Momeni (2017), Arbabi (2016), Barghi Irani et al. (2015), Anvari and Ebrahimi (2017). The main goal is to create psychological flexibility, that is, to create the ability to make practical choices among the various options that are most appropriate, rather than simply to avoid thoughts, feelings, memories, or disturbing tendencies, or to impose oneself on the individual. In this treatment, the individual's psychological acceptance of mental experiences (thoughts, feelings) is increased and, in turn, effective control actions are reduced. The patient is taught that any action to avoid or control these unwanted mental experiences is ineffective or has the opposite effect and exacerbates them and must be accepted (these experiences without any internal or external reaction to eliminate them). 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 behaviors in the present moment. In the third stage, the individual is taught to separate himself from these mental experiences (separation of cognition) so that he can act independently of these experiences. Fourth is the attempt 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. Fifth, helping the individual to recognize and clearly define his or her core personal values and turn them into specific behavioral goals (enlightenment of values) ultimately, to motivate committed action, that is, to focus on specific goals and values. These mental experiences can be depressing thoughts, obsessions, trauma-related thoughts, fears, etc. (Forman and Hebert, 2008). Considering the above cases for the ACT, it can be concluded that the implementation of ACT on women suffering from breast cancer can cause these patients to become more self-aware and use mental flexibility on thoughts. Negative and irrational beliefs and unrealistic expectations become more prevalent, all of which can ultimately reduce the mortality rate of these women's anxiety. In addition, despite the training of mindfulness, the ability to see thoughts as independent thoughts is done impartially, general awareness is gained through regular and frequent practice in mindfulness training. Inclusive awareness is defined as paying attention to a particular way in the present and without judgment. Inclusive awareness is defined as paying attention to a particular way in the present and without judgment. From a contemporary point of view, the all-encompassing nature of awareness is the use of voluntary attention control to form a kind of cognitive model of alternative information processing, which is generally at odds with the cognitive model (as opposed to the more common model) which further disrupts our

lives. It makes it impossible for us to get rid of the emotional states of failure, and thus women suffering from breast cancer who have been trained in mindfulness have been able to free themselves from thoughts related to the anxiety of death and be less affected by these destructive thoughts and finally experience less death anxiety.

Another effective process of ACT is the commitment to introduce alternatives to control, that is, willingness and acceptance. In these components, it is possible for patients to accept unpleasant internal experiences without trying to control them, and doing so makes those experiences seem less threatening and have less of an impact on a person's life. Also, the processes of mindfulness used in this therapy create a different perspective on mental events and allow the person to observe mental events and consider them as an event and not as a part of themselves. In this process, they also look at thoughts that are associated with death anxiety as a mental event and thus are less affected by these thoughts. One of the limitations of the research is that the research sample is limited to women aged 45-35 who referred to Imam Khomeini Hospital in Tehran, which can limit the generalizability of research findings. The poor collaboration of some patients in performing tasks led to the collection of data based on the self-report scale and these reports are prone to distortion due to subconscious defences, bias in response, and personal introduction methods. Due to the limited research population, women aged 45-35 who referred to Imam Khomeini Hospital in Tehran, it is suggested that in future research, other geographical and ethnic areas and other types of cancers in men be examined. It is suggested that the effects of therapy based on acceptance and commitment to quality of life and death anxiety in women with breast cancer be compared with other therapeutic approaches to identify more effective ones.

In future research, other data collection tools are needed to evaluate the effectiveness of ACT to quality of life and death anxiety in women suffering from breast cancer, including a semi-structured interview to obtain more in-depth and comprehensive data. Based on the results of the study and the effect of ACT on the quality of life and death anxiety in women suffering from breast cancer, it is recommended that institutions such as the Ministry of Health use this therapy to improve the quality of life and other psychological disorders of cancer patients.

Conflict of interest

The authors have no conflict of interest to declare.

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