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# Effectiveness of Acceptance and Commitment Therapy Management on Self-Differentiation and Fear of Disease Progression in Patients with Breast Cancer

**M. Hasannezhad Reskati (PhD)[1], S.H. Hosseini (MD)[2] , R. Alizadeh-Navaei (PhD)[3] , S. Khosravi (MD)[4] , B. Mirzaian (PhD)*[1]**

1.Department of Psychology, Sari Branch, Islamic Azad University, Sari, I.R.Iran
2.Psychiatry and Behavioral Sciences Research Center, Mazandaran University of Medical Sciences, Sari, I.R.Iran
3.Gastrointestinal Cancer Research Center, Mazandaran University of Medical Sciences, Sari, I.R.Iran
4.Hematology, Oncology and Stem Cell Transplantation Research Institute, Tehran University of Medical Sciences, Tehran, I.R.Iran

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## ABSTRACT

**BACKGROUND AND OBJECTIVE:** Fear of disease progression and rejection of what happened and not being able to distinguish oneself from mental processes cause confusion in mental health. Since acceptance and commitment therapy emphasizes on modification of dysfunctional processes such as avoidance and fusion and their change to acceptance and commitment, the present study was conducted to examine the effectiveness of acceptance and commitment therapy on self-differentiation and fear of disease progression in patients with breast cancer.

**METHODS:** This clinical trial was performed on 30 patients referred to the Touba Oncology Center in Sari, who were randomly divided into two groups of experiment and control (n=15). The treatment was performed in eight 90-minute sessions in the experimental group. Participants were assessed and compared based on questionnaire of self-differentiation and fear of disease progression before the experiment and two months after that.

**FINDINGS:** The results showed that fear of disease progression in the pre-test compared to the post-test decreased in the experimental group (135.11±4.27 versus 126.05±3.12) and in the follow-up period, this decease continued in the experimental group (125.32±3.05) ($p<0.05$). In addition, the mean score of self-differentiation in pre-test compared to post-test increased (67.12±12.5 versus 77.17±4.51) and this increase continued in the follow-up period (75.4±3.34) ($p<0.05$).

**CONCLUSION:** The results of the study showed that acceptance and commitment therapy management could be effective in increasing self-differentiation and reducing the fear of disease progression in breast cancer patients.

**KEY WORDS:** *Acceptance and Commitment Therapy, Self-Differentiation, Fear of Disease Progression.*

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***Corresonding Author: B. Mirzaian (PhD)**
**Address:** Department of Psychology, Sari Branch, Islamic Azad University, Sari, I.R.Iran
**Tel:** +98 11 33032891
**E-mail:** Bahrammirzaian@gmail.com

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## Introduction

In 20 geographical regions in 2018, about 18.2 million new cases of cancer have been recorded (1) and one of the major ones that has occurred globally is breast cancer (2). A high percentage of these patients, in addition to physical problems, suffer from psychological and other social problems (3–5). There are always issues such as despair, hopelessness and fear in breast cancer patients (6). Fear of progression (FOP) is defined as the fear and anxiety of patients whose disease will progress or recur with all its social and biological consequences (7). Numerous systematic articles have examined different aspects of fear of disease progression in cancer (8–10).

Koch-Gallenkamp et al. reported that 13% of a combined sample of colorectal, rectal, prostate, and breast cancer survivors suffered from moderate to severe fear of progression (11). Savard et al. found that fear of disease progression would be fully persistent over time or slightly reduced in the first few months after diagnosis (12) or during rehabilitation (13). Most people with cancer have described the fear of progression to be severe, difficult, and multidimensional (14). This fear is greater in young people with low incomes and is related to marital status, employment and income level (15).

Another variable that predisposes a person to psychological problems is low self-differentiation (16). The individual's ability to differentiate the cognitive process from the emotional process he or she is experiencing reflects the degree of differentiation (17). People with low levels of self-differentiation are at high risk for psychological problems due to their high levels of chronic anxiety (18). However, people with high levels of self-differentiation choose active, realistic, and problem-oriented responses instead of avoidance or emotion-oriented responses (19).

Interventions that reduce experiential avoidance and help individuals to recognize and commit to pursuing valuable goals are helpful in improving a variety of life problems (20). Acceptance and commitment therapy approach as an effective intervention in accepting cancer has been able to lead to acceptance, commitment to value and, in fact, psychological flexibility (21,22). Therefore, acceptance and commitment therapy can teach people with low self-differentiation to respond actively and realistically instead of avoiding. This treatment increases a person's psychological connection with his/her thoughts and feelings (23). In fact, it teaches a person to focus on the goal, acceptance, and skills to respond to uncontrollable experiences and commitment to personal values (24), which can also be effective in reducing fear and anxiety about disease progression. O'Hayer et al. in their study on a patient with pancreatic cancer found that acceptance and commitment therapy allowed the patient to identify his/her values by resuming religious communication, improving relationships with trusted family members and friends, and so on. As a result, the patient continued to be treated for cancer despite the side effects that he/she previously considered unbearable (25).

Given the effects of cancer on the health of patients, there is no doubt that performing effective psychological interventions is essential and undeniable (26). Over the years, some patients still suffer from psychological problems after diagnosis and treatment, and since research in this area is usually at the beginning of cancer diagnosis, and most of them do not have a follow-up period after psychotherapy and no research has been done on the effect of this method on the mentioned variables, especially fear of disease progression, which is the beginning of all psychological issues, this study was performed on patients who had been diagnosed with the disease for at least five years. This study was conducted to evaluate the effectiveness of acceptance and commitment therapy management on self-differentiation and fear of disease progression in patients with breast cancer.

## Methods

This clinical trial was performed after obtaining approval from the Ethics Committee of the Islamic Azad University, Sari Branch, with the code IR.IAU.SARI.REC.1397.20 and the clinical trial code IRCT20181209041894N1. It was performed on 30 patients referred to the Touba Oncology Center in Sari and were diagnosed with breast cancer and their names were already in the database. The number of these people was 160. After the phone call, 120 people answered the phone. These people were invited to participate in the study. 62 people announced their readiness to participate in the meetings. After visiting them, an initial interview was conducted. After filling out the questionnaires and obtaining the

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required score, 30 people were selected based on 95% confidence interval, 80% power and previous studies (20) and were randomly grouped into two groups of experimental and control groups (15 patients in each group). After obtaining informed consent, the experimental group was trained for eight 90-minute sessions (27) (Figure 1).

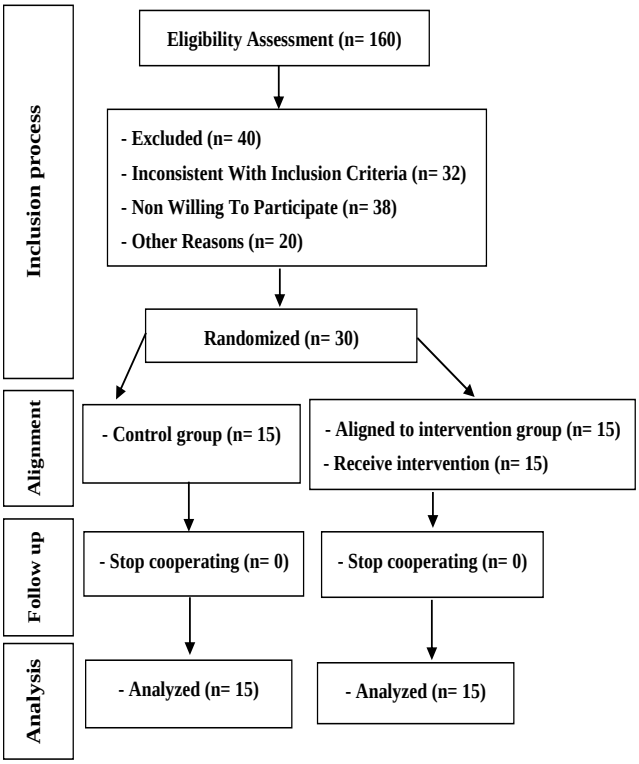


**Figure 1. Randomization steps**

People between the ages of 25 and 60 who have previously undergone chemotherapy or radiotherapy and at least 5 years have passed since the diagnosis and treatment of cancer and have been motivated to participate in the program during the initial interview and at least six months has passed since their participation in psychological courses, were included.

If they had acute mental health problems, such as schizophrenia or mania based on the approval of a psychiatrist, physical problems, attending other psychotherapy courses in the last six months and absence in more than two sessions, they were excluded. Rules and adherence to treatment were explained to participants before staring the sessions. Meetings were held once a week in a private office by two people (an experienced psychologist and a person with MS in Psychology) (Table 1).

**Table 1. Summary of treatment plan (Hayes, Strosahl & Wilson 1999)**

| Summary of the content of acceptance and commitment therapy management |
|---|
| **First Session:** Familiarity of members with each other, description of group rules, general acquaintance and description of the therapeutic approach. Description of cancer and treatments. Using the metaphor of two mountains to establish a therapeutic relationship, assessing people's expectations of treatment. Getting feedback. Homework |
| **Second session:** Assessment of homework, measuring patients' problems from the perspective of ACT, extracting avoidance experience, mixing, creating creative helplessness. Using human metaphor in wells and ropes with monsters, getting feedback. Homework |
| **Third Session:** Examining the task of the previous session, clarifying the inefficiency of controlling negative events using metaphors of bus and passengers and lemon. Teach the tendency to negative emotions and experiences by using breathing exercises and giving space. Homework |
| **Fourth session:** Assessing the task of the previous session, teaching how to separate evaluations from personal experiences and taking a position to observe thoughts without judgment. Acceptance of all internal events and avoidance of painful experiences and awareness of the consequences of avoidance by using the parable of the uninvited guest, using the practice of milk, milk, milk to teach body relaxation. Getting feedback. Homework |
| **Fifth Session:** Examining the homework of the previous session, relating to the present and considering self as a metaphor for the chessboard and teaching mindfulness techniques. Raisin exercise. Getting feedback. Homework |
| **Sixth Session:** Assessing the task of the previous session, identifying patients' life values and measuring values based on their importance. Use the metaphor of two kids in a car, a magic wand, a target symbol. Practice walking consciously. Homework |
| **Seventh Session:** Examining the task of the previous session, providing practical solutions to remove obstacles while using metaphors and planning for commitment to pursuing values. Metaphor of the beggar. Practice river leaves. Homework |
| **Eighth session:** Gathering the concepts reviewed during the meetings, asking members to explain their achievements to the group, and their plan for future. Performing post-test |

The main instructor had spent two courses in the workshops of this method with the professors of this treatment method. The questionnaires included self-differentiation (DSI-SF) and fear of progression (FOP-Q). The fear of progression questionnaire is a multidimensional self-report questionnaire developed

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on a number of patients with cancer, rheumatism, and diabetes by Herschbach. The final version, designed and compiled in Germany, consists of 43 items and has 5 subscales (emotional response, family, job, loss of autonomy and coping with anxiety). The answers are based on 5-point Likert from “never” to “always”. The total score is calculated by adding the scores of the subscales. Higher scores indicate more fear (28,29). Cronbach's alpha for the emotional response is 0.86, the family is 0.72, the job is 0.76, the loss of autonomy is 0.71, and total Cronbach's alpha is 0.91 (30). In the present study, the reliability was 0.85.

The self-differentiation Questionnaire, developed by Drake and Murdock (31), is an abbreviated form of the Scorn and Friedlander Differentiation Scale (1998) and has 20 questions with five subscales of disapproval, emotional instability and stress, mixing of thought and action, avoidance, criticism. This scale defines people's responses on a 6-degree scale from “completely disagree” to “completely agree”. The minimum and maximum scores are 20 and 120, with higher scores indicating greater self-differentiation. The reliability of this scale has been confirmed using Cronbach's alpha method in the range of 0.60 to 0.87 (32,33). Cronbach's alpha was 0.67 in Iran (34) and finally the reliability of this questionnaire in this study was calculated based on Cronbach's alpha of 0.71. After review, the scores were analyzed using SPSS 22 software and MANCOVA statistical test and multivariate analysis of covariance. To perform this test, first the assumptions including the Levene's test and the normality of the data, the correlation intensity and the linearity. The results of the Kolmogorov-Smirnov test for the data of the main and sub-variables of the data showed that the data were normal and finally, $p<0.05$ was considered significant.

## Results

In this study, 10 people in the experimental group (33.3%) and 8 in the control group (26.6%) were married while 6 people (20%) were single in both groups. 11 people had Diploma (36%), 9 people had Associate Degree (30%), and 10 people had B.A. (33.3%) in both groups. The mean age in the experimental group was 42.5±17.5 years and in the control group was 44.5±14.5 years (Table 2). The results of the Levene's test showed that the f value calculated at the error level of 0.05 was not significant, so the condition of equality of variances was observed. In addition, the value of the significance level of the f-test to check the convergence of the regression slope has been higher than the allowable error value of 0.05. Therefore, there was a significant difference between the groups (experiments and controls) in terms of at least one of the small-scale variables of fear of progression and self-differentiation, so a covariance analysis was performed to examine the difference.

**Table 2. Information of participants in the control and experimental group**

| Variable | Examination Group | Control group |
|---|---|---|
| Number of subjects | 15 | 15 |
| Mean age | 42.17±5.5 | 44.14±5.5 |
| **Marital status** | | |
| Single | 6 | 6 |
| Married | 10 | 8 |
| **Education** | | |
| Diploma and sub-diploma | 6 | 6 |
| Associate Degree | 5 | 4 |
| Bachelor's degree | 5 | 5 |
| Master's degree and above | 0 | 0 |

In examining the scores of fear of progression subscale, the acceptance and commitment approach was reduced by intervention, and this effect continued during the follow-up period, and in the scores of the self-differentiation subscale, a significant increase was seen but not in the control group. The lowest effect on pre-test fear of progression subscale compared to the post-test was related to the employment subscale (136.70±8.69 versus 127±8.83) and the lowest effect was on the participation / family subscale (130.06±5 versus 128.15±4.28) ($p= 0.000$) (Table 3).

In addition, the average of the adjusted scores of fear of progression in the pre-test compared to the post-test showed a significant decrease in the experimental group (135.4±11.27 versus 126.05±3.12) and it continued in the follow-up period in the experimental group (125.32±3.05) ($p<0.05$), which indicates the effectiveness of this method over time. The mean score of self-differentiation in the pre-test compared to the post-test had a significant increase (67.21±5.12 versus 77.17±4.51) and this increase persisted in the follow-up period (75.14±3.34) ($p<0.05$), which indicates the effectiveness of this method. The greatest effect on pre-test self-differentiation scales compared to post-test is in emotional instability and stress (60.25±3.66 versus 76.36±2.90) ($p<0.04$) (Table 4).

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**Table 3. Single-variable covariance analysis with repeated measurements**

| Scale | Pre-test Mean±SD | Post-test Mean±SD | Follow up Mean±SD | Degrees of freedom | P-value |
|---|---|---|---|---|---|
| **Fear of progression** | | | | | |
| Emotional reaction | 134.25±7.89 | 127.35±7.27 | 127.34±7.26 | 1 | 0.000 |
| Participation / Family | 130±5.06 | 128.15±4.28 | 128.14±4.27 | 1 | 0.000 |
| Job | 136.70±8.69 | 127.97±8.83 | 127.97±8.82 | 1 | 0.000 |
| Loss of independence | 131.45±4.70 | 126.85±3.49 | 126.84±3.48 | 1 | 0.000 |
| Coping with anxiety | 129.30±3.20 | 125.60±3.01 | 125.59±3.00 | 1 | 0.000 |
| **Self-differentiation** | | | | | |
| Being approved | 63.85±3.19 | 77.43±3.15 | 77.42±3.13 | 1 | 0.000 |
| Emotional instability and stress | 60.25±3.66 | 76.36±2.90 | 76.30±2.85 | 1 | 0.000 |
| The fusion of thought and action | 62.90±3.82 | 77.04±3.12 | 77.00±3.09 | 1 | 0.000 |
| avoidance | 65.3±52.75 | 78.84±3.46 | 78.82±3.44 | 1 | 0.000 |
| Criticism | 65.3±43.62 | 78.13±3.03 | 78.12±3.02 | 1 | 0.000 |

**Table 4. Modified acceptance and commitment therapy treatment scores on fear of disease progression and self-differentiation**

| Scale | Test | Group | Mean±SD |
|---|---|---|---|
| Fear of progression | Pre-test | Experimental | 135.11±4.27 |
| | | Control | 133.12±4.20 |
| | Post-test | Experimental | 126.05±3.12 |
| | | Control | 132.25±4.14 |
| | Follow up | Experimental | 125.32±3.05 |
| | | Control | 132.20±4.11 |
| Self-differentiation | Pre-test | Experimental | 67.21±5.12 |
| | | Control | 65.12±4.15 |
| | Post-test | Experimental | 77.17±4.51 |
| | | Control | 64.11±3.28 |
| | Follow up | Experimental | 75.14±3.34 |
| | | Control | 63.10±3.13 |

## Discussion

The results of the present study showed that acceptance and commitment therapy management had a significant effect on fear of progression and self-differentiation in patients with breast cancer. This is a sign of reduction in fear and anxiety. The findings of this study are consistent with some findings (35,36) and inconsistent with others (25). In a study by Ostadian Khani et al. on 15 patients with motor disabilities, found acceptance and commitment therapy to be effective in reducing their social phobia (35). A study by Malmir et al. on 10 patients with panic attacks in six 90-minute sessions showed that acceptance and commitment therapy could also be helpful for fear-related anxiety in patients with panic attacks (36). González-Fernández et al., in their review of 19 articles, reported that acceptance and commitment therapy was useful in the psychological treatment of oncological patients, and that these individuals had a better emotional state and quality of life and greater psychological resilience (37).

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The results of the mentioned studies are consistent with the findings of the present study. O'Hayer et al. reported that a 54-year-old woman who suffered from energy depletion and depression due to pancreatic cancer and seriously wanted to discontinue treatment, was treated with acceptance and commitment therapy for five weeks. After this period, the patient was able to express her feelings. She spoke and allowed her mind to make the best use of the rest of her time, to have more time and deeper relationships with friends and family, and to help her create an emotional distance from the thought that "cancer is God's punishment" (25).

This finding is consistent with the present study, but the treatment was performed individually and did not have a follow-up period. Mosher et al. performed acceptance and commitment therapy on 50 lung cancer patients and their caregivers over the course of six sessions, and after six weeks of follow-up, their results showed that the procedure was not effective in pain and fatigue, but changed the patient's tolerance for treatment (38). This finding is inconsistent with the present study, which could be due to the implementation of this method by telephone, because in ACT, there is a need to implement certain techniques. Findings of this study show that the subscales of fear of progression such as emotional response, participation, loss of independence, employment, coping with anxiety have decreased significantly.

Explaining how acceptance and commitment therapy affects the subscales of fear of progression in breast cancer patients, it should be noted that the more concerned a person is about the course of his/her illness, the more likely it is that the disease will affect his or her job performance, his/her relationship with the spouse and family members and his/her personal affairs (30). Acceptance and commitment therapy and its therapeutic techniques are about observing and describing experiences without judgment in the present. This helps people experience the changes in the world as they are, not as they are made up in their minds (39). In fact, when the patient cannot change his/her evaluations of the issues, he/she has a pessimistic interpretation and refrains from evaluating the issues. These people may experience secondary communicational, occupational, and aggressive disorders (40).

Therefore, this treatment helps them to be in touch with their experiences here and now. Another process that is emphasized in this treatment is commitment, the encouragement to clarify goals and values, and the commitment to do what is necessary to achieve these goals. Therefore, it is important to use mindfulness techniques and metaphors to keep these patients in the present time and commitment to valuable action to combat anxiety and reduce fear of disease progression. Fakouri Joybari et al. have also identified this method to be effective in self-differentiation (41), which is consistent with the present study. In explaining the effect of acceptance and commitment therapy on self-differentiation, it should be noted that patients with low levels of differentiation in their relationships with others feel more threatened and vulnerable, and sometimes as a result, they develop defensive behavior (42). Because of the nature of their illness, they often distance themselves from those around them. In fact, using ACT, empirical avoidance is opposed to acceptance, and instead of escaping and avoiding the form and frequency or situational sensitivity of the individual, he/she accepts his/her internal events (43). People with low differentiation, who usually chose the path of avoidance and refused to accept their excitement, used acceptance and commitment therapy techniques to learn active and realistic coping instead of avoiding responses, and to achieve a higher level of differentiation. Because cancer requires strategies to enable patients to maintain adaptability to the treatment process, psychological training can play an important role in achieving this goal, especially in acceptance and commitment therapy, in which the patient is never seen as failed, damaged, or far from recovery (44).

It is recommended that more studies and longer follow-up courses be performed to assess the sustainability of this method. It is also recommended that this procedure be performed on other types of cancer and in comparison with other psychotherapies as well as pharmacotherapy. Limitations of the study: the study was limited to the city of Sari, lack of cooperation due to old age and lack of similar education, which disrupted the continuation of the treatment process. The present study showed that acceptance and commitment therapy on fear of progression and self-differentiation is effective in patients with breast cancer.

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