J Clin Res Paramed Sci. 2019 June; 8(1):e85003. doi: 10.5812/jcrps.85003.

Published online 2018 December 31. **Research Article**

The Effectiveness of Acceptance and Commitment Therapy (ACT) on Reducing the Severity of Perceived Pain in Women with Breast Cancer

Shahram Mami [1, *], Hojatallah Tahmasebian [1, **] and Mohammad Mehdi Jahangiri [2]

[1] Department of Psychology, Ilam Branch, Islamic Azad University, Ilam, Iran
[2] Department of Psychology, Mahallat Branch, Islamic Azad University, Mahallat, Iran

[*] *Corresponding author*: Department of Psychology, Ilam Branch, Islamic Azad University, Ilam, Iran. Email: shahram.mami@yahoo.com
[**] *Corresponding author*: Department of Psychology, Ilam Branch, Islamic Azad University, Ilam, Iran. Email: hojat_t47@yahoo.com

Received 2018 October 06; **Accepted** 2018 December 23.

Abstract

Background: Breast cancer is one of the most prevalent and painful cancers amongst women in the world. The purpose of this study was to investigate the effectiveness of acceptance and commitment therapy on reducing the severity of pain in women with breast cancer.

Methods: This was a quasi-experimental study which was conducted on 30 women with breast cancer referring to Ilam Medical Center in 2018. Patients were randomly assigned into two groups of experimental and control groups. Participants in the pre-test stage completed the multivariate questionnaire for the West Haven-Yale. At the next stage, the experimental group participants were exposed to 8 sessions of acceptance and commitment therapy while the control group did not receive any special treatment. Both groups completed the same questionnaire again at the posttest stage.

Results: In terms of severity pain, mean scores of the experimental and control groups at the pretest stage were 76.66 and 74.98, respectively. Meanwhile, mean scores of the mentioned groups at the posttest stage were 70.08 and 74.06. The mean score of the experimental group in the posttest phase was decreased after the intervention compared to the control group.

Conclusions: The results of the study reveal that acceptance and commitment therapy is a suitable intervention model for reducing the severity of perceived pain in breast cancer patients.

Keywords: Acceptance and Commitment Therapy, Pain, Breast Cancer

1. Background

The breast cancer is the second leading cause of death in women (1). It is estimated that by 2020, 70 percent of new cases of breast cancer will be observed in developing countries (2). The International Association for the Study of Pain (IASP) reported that the prevalent of pain in breast cancer is between 40% to 89% (3) and 17 million people complain of cancer pain.

Cancer pain or cancer treatment side effects impact on 50 to 90 percent of the patients (4). This leads to emotional disturbance and consequently decrease quality of life in patients (5). Cancer pain is affected by the neuropathic, psychological, social and spiritual variables and ends to social dysfunction (6). Pain is a multidimensional phenomenon. According to the International Association of Pain, pain is defined as an unpleasant emotional experience associated with actual or potential tissue damage and has sensory and emotional dimension. Sensory aspects of pain refers to severity of pain and emotional dimension refers to amount of an unpleasant emotional experience (7). In other words, pain is what a patient expresses as long as he experiences it. This definition emphasizes psychological concept of pain and its control (8). Pain is a breakdown situation so that not only confronts the patient with pain distressing experience but also is related to many stressful factors which impact other different parts of patient's life. Therefore, living with chronic pain requires tolerating emotional stress. Also, pain reduces the person's emotional and emotional abilities. The persistent desire of the individual to escape from the pain is often unattainable. This ultimately leads to frustration and depression, which weakens the patient's morale (9).

On the other hand, Cancerous crises have a negative effect on the patient's response to pain and even her healing (10). Several drug therapies have been used to reduce cancer pain such as non-steroidal analgesics, opiate painkillers (11), and antidepressants (12, 13). However, these

drug agents often do not completely resolve all signs of mental stress or pain. Since these drugs are mostly consumed in the long term produce a range of side effects (14). Hence, non-pharmacological strategies which are widely used in pain management and emotional distress management are applied (15). One of the most famous interventions is mind meditation which is rooted in Buddhism teaching (16). From acceptance and commitment therapy perspective which is the integration of consciousness and the principles of cognitive behavioral therapy, human suffering is rooted in mental flexibility which is made through cognitive defusion and experiential avoidance. What is considered harmful is the tendency to absorb experiences and combat them by experiential avoidance (17). Acceptance and commitment therapy is a special treatment process "psychological flexibility" which focuses on behavioral changes not reducing the symptoms (18). The main purpose of this approach seeks to undermine excessive struggle with anxiety and experiential avoidance attempts to down-regulate and control unwanted private events (thoughts, images, bodily sensations). The goal is to enhance more flexible and mindful ways of relating to anxiety so individuals can pursue life goals important to them (19). In this approach as soon as thoughts, feelings, memories, etc. were labels as signs and symptoms a struggle arouse among them. This is because these symptoms are defined as a traumatic and ailmental phenomenon. Acceptance and commitment change the relationship between emotions and problematic thoughts so that people do not perceive them as symptoms and even learn to understand them harmlessly (20). In fact, there is less focus on symptoms and more focuses on improving quality of life (21). In a randomized trial, the results showed that an acceptance-based approach was effective on the mood and quality of life of breast cancer patients (22). In a meta-analysis evidence-base evaluation with 60 randomized controlled trials on psychiatric disorders, somatic disorders, and stress at work the results revealed that the success of this approach for chronic pain is more effective than anxiety and depression. That is to say ACT is not yet well-established for any disorder (23). In another study the effectiveness of applied relaxation and acceptance and commitment therapy in a randomized, controlled clinical trial with a sample size of 60 chronic pain patients was compared. The results showed that the ACT approach with regard to its role as psychological flexibility as a mediating factor to reduce severity of pain is more effective than applied relaxation (24). The recent researches on acceptance and commitment therapy show that this treatment can be an appropriate treatment for chronic pain (25, 26). On the other hand, since acceptance and commitment interventions have shown significant advances in psychological components such as quality of life and mental flexibility, as well as reduction of symptoms in distress, emotional disturbances, and physical pain in cancer patients (27).

2. Objectives

The purpose of this research was to determine the effectiveness of acceptance and commitment therapy (ACT) on reducing the severity of perceived pain in women with breast cancer.

3. Methods

The design of this study is semi experimental with pre-test-posttest design with control group. The statistical population included all women with breast cancer who referred to Ilam health centers in 2012. An appropriate sample according to research criteria was selected using available sampling method. The patients' criteria for entry and exit were as follow: Entrance-obtaining at least 60 scores from West Haven-Yale Multidimensional Pain Inventory (WHYMPI), minimum guidance school education, age range between 30 to 45 years, informed consent, and not undergoing psychotherapy. The exit criteria were: Having mental disorders according to clinical interview DSM-5, the presence of underlying illness such as migraine headaches and arthritis causing pain, absent more than two sessions. After the selection of patients, they were randomly assigned in groups (15 in the experimental group and 15 in the control group). WHYMPI was performed before the intervention for the experimental and control group. WHYMPI is used to identify the biological, psychological and social factors of pain (multiple dimensions of chronic pain). This inventory is used for pain management to examine the course of changes during the treatment period and estimate the treatment outcomes. The WHYMPI is a 48-item, 12-scale inventory that is divided into three parts. A 20- minute is allocated for patients' response. Patient's responses to WHYMPI items are made on a 6-point scale from 0 to 6. The inventory is divided into three parts: Important dimensions of the chronic pain experience, patients' perceptions of spouses and patients' report of the frequency with which they engage in four categories of common everyday activities. These parts include: Support, pain severity, perceived life control, affective distress, assesses or significant others display solicitous, patients' perception of his disability in household

chores, outdoor work, and social activities. In this study only the first part (important dimensions of chronic pain experience) was used.

For this study, the Cronbach's alpha for first part of the inventory was 0.86, or the second part was 0.78 and for the third part was 0.75. On the other hand, the reliability of pain interference with daily activities scale was reported 0.91 based on Cronbach's alpha. The reliability coefficient of the inventory was equivalent to 0.95 according to re-test method (28). After presenting WHYMPI, acceptance and commitment therapy were performed in 8 sessions for 90 minutes once a week for the experimental group. After the intervention, the above mention inventory were taken as posttest from both groups. To analyze the data SPSS version 21 was used. Descriptive statistics (mean, standard deviation ...) and inferential statistics of covariance analysis were used to analyze the data. A summary of the content of the meetings is listed in Table 1.

4. Results

As it can be observed in Table 2, Mean of pain severity pretest in experimental group were 76.66 and 74/98 in control group. However, after intervention the mean of pain severity posttest in experimental group were 70.08 and 74.06 in control group.

As shown in Table 3, there was a significant difference between adjusted means of participants pain scores in posttest (F = 48.41) based on group membership (experimental and control group) (P = 0.01). Therefore, acceptance and commitment therapy was effective in reducing the severity of pain in experimental group (R squared = 0.54).

5. Discussion

The purpose of this study was to investigate the effect of acceptance and commitment therapy on pain reduction in women with breast cancer. The results of Table 3 showed that the difference between the two groups was significant in the pain intensity variable (F = 48.41; P = 0.001). This finding is in line with Ost (23) research, Kemani et al. (24), Johnston et al. (25), and Scott and McCracken (26). Mosher et al. (29) in an attempt to assess the effectiveness of acceptance therapy and commitment to psychological symptoms in breast cancer patients came to this conclusion that acceptance and commitment therapy was effective in reducing pain and improving the quality of sleep in patients with breast cancer. It seems that the acceptance and commitment therapy has reduced the participants 'intensity of perceived pain through factors such as adoption without judgment, being in the moment, coping with the inner experiences without avoiding, suppressing or attempting to change negative emotions. In fact, cancer patients need strategies to maintain their power of adaptability and coping ability. Similarly, acceptance and commitment therapy helped these people fail to conceive themselves as failures, injuries, or hopelessness, and life has meaning and value for them. All of these items can be a factor in improving the psychological well-being of individuals. Acceptance and commitment therapy with its impacts on changes in emotional regulation and individual behavioral changes was able to change individual's life style and attitudes. On the other hand, the acceptance of breast cancer which was painful according to the researches (3, 4, 30) helped the participants to be familiar with the techniques of mindfulness, self as background and experience psychological flexibility instead of experiential avoidance and describing themselves as process and content "I am suffering from cancer and feeling pain". Moreover the patients change their attitudes toward the situations. Other dimensions of this type of therapy include faults, relationship with the present with the strengthening of self-observer, identifying values and commitment to value. They allow patients the opportunity to adjust their feelings and change their perception of pain. Thus, the results revealed that the main framework of the acceptance and commitment therapy indicate an intervention model for reducing the perception of severity of pain in patients with breast cancer. These patients can accept the pains and release themselves from emotional exasperation trap. This approach with introducing a six-process model led to awareness of weakened self-awareness and their uncertain values. Consequently, they learn which components of their problem need to be accepted and which one needs change the basis of this approach is that difficult thoughts and emotions are inevitable aspects of human life, not the problems that must get rid of them. Because life involves painful events, and efforts to avoid pain make it more widespread. One of the limitations of this research is the lack of follow-up courses and the limited statistical community in Ilam city.

Acknowledgments

The authors send their warmest thanks and gratitude to all of the patients who participated in this study.

Table 1. Summary of ACT Sessions

Sessions	Therapeutic Intervention
First session	Creating a collaborative relationship, reviewing treatment and goals, completing the questionnaire
Second session	Teaching the "if after" mentality and control methods, describes the relationship between "pain, creativity and function"
Third session	Description of acceptance concepts, cognitive faults, values, conceptualization of control as a problem of performance measurement
Fourth session	Discuss values, barriers to values, discover practical values of life
Fifth session	Addressing the concept of cognitive fault, reviewing more mental frameworks and practicing exercises
Sixth session	Review prior session's experience Self-observation as a background, self-conceptual weakening and self-expression as observer, performance measurement, showing separation between oneself, internal experiences
Seventh session	Review prior session's experience Understanding tendency, commitment to barriers, application of the techniques of mindfulness, observation of internal experiences as a process
Eight session	Review prior session's experience, commitments issues, prevent recurrence

Table 2. Means and Standard Deviation of Severity of Pain in Control and Experimental Group in Pretest and Posttest

Group	Variable	Number	Pretest	Posttest
Experimental	Severity of pain	15	76.66 ± 6.11	70.08 ± 5.47
Control	Severity of pain	15	74.98 ± 5.37	74.06 ± 5.06

Table 3. The Results of Analysis of Covariance of the Severity of Pain in the Experimental and Control Group

Sources of Changes	Sum of Squares	Degree of Freedom	Means of Squares	F	Level of Significance	Eta Coefficient
Pretest	1295.339	1	1295.339			
Group	200.789	1	200.784	48.41	0.01	0.54
Error	111.995	27	4.15			
Total	158885	30				

Footnotes

Conflict of Interests: The authors declare that there is no conflict of interest in the current research.

Ethical Consideration: There were no ethical considerations for this study.

Funding/Support: There is no funding/support for this project.

References

1. Cancer Research UK. *Breast cancer incidence statistics*. 2018. Available from: http://www.cancerresearchuk.org/cancer-info/cancerstats.
2. Vendrell I, Macedo D, Alho I, Dionísio MR, Costa L. Treatment of cancer pain by targeting cytokines. *Mediators Inflamm*. 2015;**2015**:1–11. doi: 10.1155/2015/984570. [PubMed: 26538839]. [PubMed Central: PMC4619962].
3. International Association for the Study of Pain (IASP). *Epidemiology of cancer pain*. 2011.
4. Turk DC, Sist TC, Okifuji A, Miner MF, Florio G, Harrison P, et al. Adaptation to metastatic cancer pain, regional/local cancer pain and non-cancer pain: Role of psychological and behavioral factors. *Pain*. 1998;**74**(2-3):247–56. [PubMed: 9520239].
5. Mantyh PW, Clohisy DR, Koltzenburg M, Hunt SP. Molecular mechanisms of cancer pain. *Nat Rev Cancer*. 2002;**2**(3):201–9. doi: 10.1038/nrc747. [PubMed: 11990856].
6. Singh P, Chaturvedi A. Complementary and alternative medicine in cancer pain management: A systematic review. *Indian J Palliat Care*. 2015;**21**(1):105–15. doi: 10.4103/0973-1075.150202. [PubMed: 25709198]. [PubMed Central: PMC4332115].
7. Breivik H, Collett B, Ventafridda V, Cohen R, Gallacher D. Survey of chronic pain in Europe: Prevalence, impact on daily life, and treatment. *Eur J Pain*. 2006;**10**(4):287–333. doi: 10.1016/j.ejpain.2005.06.009. [PubMed: 16095934].
8. Crichton P, Morley S. Treating pain in cancer patients. In: Turk DC, Gatchel RJ, editors. *Psychological approaches to pain management: A practitioner's handbook*. Guilford Press; 2002.
9. de Heer EW, Ten Have M, van Marwijk HWJ, Dekker J, de Graaf R, Beekman ATF, et al. Pain as a risk factor for common mental disorders. Results from the Netherlands mental health survey and incidence study-2: A longitudinal, population-based study. *Pain*. 2018;**159**(4):712–8. doi: 10.1097/j.pain.0000000000001133. [PubMed: 29252911].
10. Mardani Hamoleh M, Roozitallab M, Ehteram E. The effect of psycho educational program on stress and depression among cancer patients. *J Fasa Univ Med Sci*. 2011;**1**(1):53–8.
11. Caraceni A, Hanks G, Kaasa S, Bennett MI, Brunelli C, Cherny N, et al. Use of opioid analgesics in the treatment of cancer pain: Evidence-based recommendations from the EAPC. *Lancet Oncol*. 2012;**13**(2):e58–68. doi: 10.1016/S1470-2045(12)70040-2. [PubMed: 22300860].
12. Magni G, Arsie D, De Leo D. Antidepressants in the treatment of cancer pain. A survey in Italy. *Pain*. 1987;**29**(3):347–53. [PubMed: 3614969].

13. Laoutidis ZG, Mathiak K. Antidepressants in the treatment of depression/depressive symptoms in cancer patients: A systematic review and meta-analysis. *BMC Psychiatry*. 2013;**13**:140. doi: 10.1186/1471-244X-13-140. [PubMed: 23679841]. [PubMed Central: PMC3674917].
14. Bernstein DA, Borkovec TD, Hazlett-Stevens H. *New directions in progressive relaxation training: A guidebook for helping professionals*. Greenwood Publishing Group; 2000.
15. Kaushansky K, Lichtman MA, Beutler E, Kipps TJ, Seligsohn U, Prchal JT. *Williams hematology*. 8th ed. New York: McGraw-Hill Medical; 2010.
16. Kabat-Zinn J, Hanh TN. *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. Delta; 2009.
17. Blackledge JT, Hayes SC. Emotion regulation in acceptance and commitment therapy. *J Clin Psychol*. 2001;**57**(2):243–55. [PubMed: 11180150].
18. Hann KE, McCracken LM. A systematic review of randomized controlled trials of acceptance and commitment therapy for adults with chronic pain: Outcome domains, design quality, and efficacy. *J Contextual Behav Sci*. 2014;**3**(4):217–27. doi: 10.1016/j.jcbs.2014.10.001.
19. Eifert GH, Forsyth JP, Arch J, Espejo E, Keller M, Langer D. Acceptance and commitment therapy for anxiety disorders: Three case studies exemplifying a unified treatment protocol. *Cogn Behav Pract*. 2009;**16**(4):368–85. doi: 10.1016/j.cbpra.2009.06.001.
20. Harris R. *ACT made simple: An easy-to-read primer on acceptance and commitment therapy*. New Harbinger Publications; 2009.
21. Hayes SC, Levin ME, Plumb-Vilardaga J, Villatte JL, Pistorello J. Acceptance and commitment therapy and contextual behavioral science: Examining the progress of a distinctive model of behavioral and cognitive therapy. *Behav Ther*. 2013;**44**(2):180–98. doi: 10.1016/j.beth.2009.08.002. [PubMed: 23611068]. [PubMed Central: PMC3635495].
22. Branstetter AD, Wilson KG, Hildebrandt M, Mutch D. Improving psychological adjustment among cancer patients: ACT and CBT. *Assoc Adv Behav Therap New Orleans*. 2004;**35**:732.
23. Ost LG. The efficacy of acceptance and commitment therapy: An updated systematic review and meta-analysis. *Behav Res Ther*. 2014;**61**:105–21. doi: 10.1016/j.brat.2014.07.018. [PubMed: 25193001].
24. Kemani MK, Hesser H, Olsson GL, Lekander M, Wicksell RK. Processes of change in acceptance and commitment therapy and applied relaxation for long-standing pain. *Eur J Pain*. 2016;**20**(4):521–31. doi: 10.1002/ejp.754. [PubMed: 26684472].
25. Johnston M, Foster M, Shennan J, Starkey NJ, Johnson A. The effectiveness of an acceptance and commitment therapy self-help intervention for chronic pain. *Clin J Pain*. 2010;**26**(5):393–402. doi: 10.1097/AJP.0b013e3181cf59ce. [PubMed: 20473046].
26. Scott W, McCracken LM. Psychological flexibility, acceptance and commitment therapy, and chronic pain. *Curr Opin Psychol*. 2015;**2**:91–6. doi: 10.1016/j.copsyc.2014.12.013.
27. Fashler SR, Weinrib AZ, Azam MA, Katz J. The use of acceptance and commitment therapy in oncology settings: A narrative review. *Psychol Rep*. 2018;**121**(2):229–52. doi: 10.1177/0033294117726061. [PubMed: 28836916].
28. Mirzamani SM, Safari A, Holisaz MT, Sadidi A. [Validation of the West Haven-Yale multidimensional pain inventory (WHYMPI) for Iranian patients with chronic pain]. *Qom Univ Med Sci J*. 2007;**1**(3):13–25. Persian.
29. Mosher CE, Secinti E, Li R, Hirsh AT, Bricker J, Miller KD, et al. Acceptance and commitment therapy for symptom interference in metastatic breast cancer patients: A pilot randomized trial. *Support Care Cancer*. 2018;**26**(6):1993–2004. doi: 10.1007/s00520-018-4045-0. [PubMed: 29327085]. [PubMed Central: PMC5924573].
30. International Association for the Study of Pain (IASP). *Psychosocial interventions for cancer pain*. 2011.