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Research Article

Effectiveness of Acceptance and Commitment Therapy on Psychological Hardiness, Social Isolation and Loneliness of Women with Breast Cancer

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ABSTRACT

Background and objectives: There are alternative and complementary approaches for general health issues and palliative care for women with breast cancer. This study aimed at evaluating the effectiveness of acceptance and commitment therapy (ACT) on psychological hardiness, social isolation, and loneliness of women with breast cancer.

Methods: This was a quasi-experimental study with a pretest-posttest design. The study population consisted of all women with breast cancer who had been referred to the oncology ward of Shohada Tajrish Hospital in Tehran (Iran) in 2020. Thirty subjects were enrolled via purposive sampling and then assigned to an experimental group (n=15) and a control group (n=15). The experimental group received eight sessions of ACT interventions (90 minutes a session), and the control group did not receive any intervention. The subjects were followed-up for eight weeks after the last ACT session. Data were collected using the Lang and Goulet Psychological Hardiness Scale, Social Isolation Questionnaire, and the UCLA Loneliness Scale. The collected data were analyzed using repeated measures ANOVA.

Results: The mean age of subjects and mean duration of marriage were 34.23±6.12 years and 8.46±5.14 years, respectively. Based on the findings, the mean scores of psychological hardiness (p=0.005), social isolation (p=0.001), and loneliness (p=0.001) differed significantly between the study groups in the posttest stage.

Conclusion: According to the results, it seems that ACT is effective in increasing psychological hardiness and reducing social isolation and loneliness of women with breast cancer.

Keywords: Acceptance and Commitment Therapy; Psychological Hardiness; Social Isolation; Loneliness; Breast Cancer

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INTRODUCTION

According to the World Health Organization, breast cancer is the most common cancer in women and the second leading cause of cancer death worldwide (1). Compared to developed countries, women in Iran develop breast cancer a decade earlier (1-4). In many cancers, radiotherapy either alone or in combination with chemotherapy, hormone therapy, immunotherapy, and surgery is a crucial component of curative treatment. More than half of cancer patients suffer from psychosocial dysfunctions (5).

A fundamental concept of psychological hardiness is the ability of a person to resist the physical decline and improve when facing a disease (6). In a study by Farahbakhsh Beh et al. (2019), hardiness traits in women with breast cancer appear to act as a buffer against perceived stress (7).

A high level of hardiness may improve tolerance to unpleasant events. The coping capacity of these people accounts for their resistance to illness, which may stem from understanding life changes as less stressful events or from having less stress tolerance (8). Hardiness has a positive relationship with greater hope (9) and is associated with using the problem-oriented comparative strategies (10). In the absence of adequate treatment, patients may experience a variety of physiological problems. The lack of hardiness causes people to display excessive anxiety since they are unable to remain positive when hardships occur. However, hardiness is influenced by social support, parenting patterns, family, and self-confidence (11).

Cancer patients with an established social network after treatment were less likely to die from cancer recurrences than those without one (12). A research on 10,000 breast cancer cases concluded that women with more isolation are 40% more likely to experience cancer relapse (13). Another study also found that solitary women have

60% higher chance of developing breast cancer and 70% increased chance of death from any cause (14). Overall, there is strong evidence suggesting a link between social isolation and cancer-specific mortality (13, 15, 16).

It is well-established that psychosocial support interventions such as acceptance and commitment therapy (ACT) could contribute to patient survival and improved quality of life (18). Cognitive and behavioral therapy using acceptance and mindfulness, such as dialectical behavior therapy (19) or mindfulness-based cognitive therapy has become increasingly popular in recent years (4, 20). In contrast to trying to alter the physiological events themselves, these interventions aim to change the emotional functions and relationships between psychological events (21).

As part of a trans-diagnostic model that looks at the pathogenic mechanisms of human suffering, ACT combines acceptance and mindfulness processes with commitment and behavior change processes (22). According to research, ACT is effective for treating depression in individual, self-help, and group settings (23, 24). As a major element of ACT, increasing awareness of the psychopathology functioning beneath subclinical and clinical suffering is key to building the capacity for individuals to act as they see fit (21). By targeting physical health, well-being, and mental health, ACT is more than just treating symptoms (21).

Psychological flexibility is achieved through six central processes in the ACT therapeutic approach. Each of the six processes consists of acceptance, cognitive diffusion, contact with the present moment, self-in-context, values, and committed action. The name ACT is derived from its original message, namely accepting that you can't control everything and committing to taking actions that enrich your life (25). Many studies in Iran have examined psychological hardiness and its relationship with quality of life (7), social support (8), hope for the future (9), and optimism (11) in women with breast cancer; however, no research has examined psychological hardiness, social isolation, and loneliness

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from an ACT perspective. Thus, the objective of the present study was to determine effectiveness of ACT in reducing depression, increasing pain acceptance, and improving psychological flexibility in a population of Iranian women with breast cancer.

MATERIALS AND METHODS

The present study was a quasi-experimental research with a pretest-posttest design. The study population consisted of all women with breast cancer who had been referred to the oncology ward of Shohada Tajrish Hospital in Tehran (Iran) in 2020. The subjects were selected through purposive sampling and then randomly assigned to an experimental group (n=15) and a control group (n=15). Furthermore, the estimated sample size was between 15 to 20 individuals for each study group (28).

Inclusion criteria were being a woman with breast cancer (based on medical records and diagnosis) and willingness to participate in the study. Attending other psychotherapy sessions, having a history of psychiatric disorders, and being absent for more than a session were considered as exclusion criteria. The intervention group received eight sessions of 90-minute ACT therapy [according to the protocol described by Hayes et al. (21)], two sessions a week, for four consecutive weeks. The control group received three sessions of ACT therapy approximately one month after the end of the study.

The Lang and Goulet Psychological Hardiness Scale was first designed in 2003 (30). The questionnaire consists of 42 questions and three subscales of control, commitment, and challenge. The questions were scored based on a five-point Likert scale from completely disagree (score of 1) to completely agree (score of 5). The total score was obtained by determining the sum scores in each of the questions. Scores of 42-84, 84-126 and above 126 indicated low, moderate and high psychological hardiness, respectively. Reliability of the Persian version of the scale was verified by obtaining Cronbach's alpha scores of 0.86, 0.75 and 0.61 for the subscales of control, commitment, and challenge, respectively (31). In the present study, a Cronbach's alpha score of 0.71 was obtained for the scale.

The social isolation questionnaire consists of 20 items (10 negative and 10 positive) (32) that are scored from 1 (never) to 4 (always). The overall score is calculated by summing the numbers of the selected items, which is inverted by the number related to the positive tone sentences (5, 6, 9, 10, 15, 16, 19, 20). The questionnaire has three subscales including loneliness due to family relationships (2, 4, 9, 12, 16, 18, 20), communication with friends (1, 3, 5, 10, 11, 15, 19), and emotional sign questions (6, 7, 8, 13, 14, 17). The reliability of the social isolation questionnaire has been confirmed previously (33). In the present study, a Cronbach's alpha score of 0.77 was obtained for the questionnaire.

The University of California, Los Angeles, Loneliness Scale (UCLA) is the most frequently used loneliness assessment tool. The Persian adaptation of the scale consists of 20 original items that are scored based on a five-point Likert scale ranging from never (1) to always (5). The maximum score is 100 and the minimum score is 20. The UCLA uses a diagnostic cut-off score of greater than 70, identical to the Young cut-off score. It must be noted that this cut-off score has not been independently assessed clinically (34). The exploratory factor analysis on the original UCLA revealed three factors (online preoccupation, adverse effects and social interactions) explaining 50% of the variance (34, 35).

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Table 1. Protocol of treatment sessions based on ACT (21)

Meetings	Session details
1	Communicating, introducing members, expressing group rules (including confidentiality, respect, listening, etc.).
2	Familiarity with some of the therapeutic concepts of ACT, including the experience of avoidance, integration, and psychological acceptance.
3	Review of the previous session, training, and implementation of ACT therapy techniques such as cognitive isolation, psychological awareness, and self-visualization.
4	Study of homework, teaching therapy techniques, mindfulness, emotional awareness, wise awareness.
5	Examining homework, teaching therapeutic techniques related to the present, practicing mindfulness techniques, and teaching stress tolerance in order to accept negative emotions.
6	Assessing homework, identifying the values of lives and measuring values based on their importance. Prepare a list of obstacles in the realization of values and create positive emotions.
7	Assessing homework, teaching personal value therapy techniques, engaging in action, and increasing interpersonal efficiency.
8	Review of homework, review and practice of taught therapy techniques with emphasis on regulating emotions and a sense of meaning in real life.

Data were analyzed first using descriptive statistical methods including mean and standard deviation. Inferential statistics including one-way analysis of variance (ANOVA) with repeated measures were used to determine the stability and effect size in three stages pre-test, post-test, and two-month follow-up. The normality of data was confirmed using the Shapiro-Wilk test. Data analysis was carried out in SPSS software (version 23), and statistical significance was set to 0.05.

RESULTS

The mean age of subjects and mean duration of marriage were 34.23±6.12 years and 8.46±5.14 years, respectively. Psychological hardiness scores improved in the experimental group compared to the control group in the post-test and follow-up periods, whereas social isolation and loneliness scores decreased (Table 2).

Table 2. Mean scores of psychological hardiness, social isolation and loneliness in different stages of the study

Variable	Stage	Group	Mean ± SD	P-value
Psychological hardiness	pre-test	Experimental	90±3.334.34	0.563
		Control	17±3.519.34	
	Post-test	Experimental	70±4.057.38	0.005
		Control	65±3.148.34	
	Follow up	Experimental	87±4.015.37	0.032
		Control	40±4.405.34	
Social isolation	Pre-test	Experimental	60±4.256.56	0.568
		Control	57.40 ±3.269	
	Post-test	Experimental	121.4 51.87±	0.001
		Control	07±3.058.57	
	Follow up	Experimental	27±4.431.52	0.001
		Control	27±3.081.57	
Loneliness	Pre-test	Experimental	70±1.720.58	0.058
		Control	60.60±1.920	
	Post-test	Experimental	997.2 13±.53	0.001
		Control	59.97±2.326	
	Follow up	Experimental	066.3 60 ±.53	0.001
		Control	60.33±3.132	

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Table 3. The results of one-way ANOVA on the variables in three stages

Measure	Source	SS	df	MS	F	P	Eta
Psychological hardiness	Steps	74.491	1.847	40.325	23.474	0.001	0.456
	Groups	170.019	1	170.019	4.302	0.047	0.133
	Mauchly' test of sphericity	203.583	2	101.792	35.641	0.001	0618
	Greenhouse-Geisser test	203.583	1.541	132.121	35.641	0.001	0618
	Steps * Group	46.964	1.847	25.424	14.800	0.001	0.346
	Mauchly' test of sphericity	20970. 234	2	111.312	36.460	0.001	0618
	Greenhouse-Geisser test	20970.234	1.541	138.101	36.514	0.001	0618
Social isolation	Steps	114.956	1.690	68.036	14.173	0.001	0.336
	Groups	302.500	1	302.500	8.891	0.006	0.241
	Mauchly' test of sphericity	2356.333	2	1098.722	406.30	0.001	0.949
	Greenhouse-Geisser test	2356.333	1.515	1450.030	406.30	0.001	0.949
	Steps * Group	92.600	1.690	54.805	11.416	0.001	0.290
	Mauchly' test of sphericity	2197.444	2	11178.167	436.032	0.001	0.952
	Greenhouse-Geisser test	2197.444	1.515	1554.876	436.032	0.001	0.952
Loneliness	Steps	169.839	1.738	97.738	27.063	0.001	0.491
	Groups	598.044	1	598.044	43.194	0.001	0.607
	Mauchly' test of sphericity	575.000	2	575.500	179.935	0.001	0.891
	Greenhouse-Geisser test	575.000	1.325	571.488	179.935	0.001	0.891
	Steps * Group	119.272	1.738	68.638	19.005	0.001	0.404
	Mauchly' test of sphericity	643.111	2	321.556	152.864	0.874	0.891
	Greenhouse-Geisser test	643.111	1.325	485.509	152.864	0.874	0.891

Table 4. Paired comparison of the mean of research variables in the study groups between different stages of study

Group	Variable	Paired stages	Mean Difference (I-J)	Std. Error	Sig
Control	Psychological hardiness	pre-test-Post-test	-0.487	0.489	0.985
		pre-test-Follow up	-0.233	0.494	1
		Post-test-Follow up	0.253	0.388	1
	Social isolation	pre-test-Post-test	0.333	0.865	1
		pre-test-Follow up	0.133	0.725	1
		Post-test-Follow up	-0.200	0.590	1
	Loneliness	pre-test-Post-test	0.633	0.709	1
		pre-test-Follow up	0.267	0.705	1
		Post-test-Follow up	-0.367	0.506	1
Experimental	Psychological hardiness	pre-test-Post-test	-3.800*	0.489	0.001
		pre-test-Follow up	-2.967*	0.494	0.001
		Post-test-Follow up	0.833	0.388	0.122
	Social isolation	pre-test-Post-test	4.733*	0.865	0.001
		pre-test-Follow up	4.333*	0.725	0.001
		Post-test-Follow up	-0.400	0.590	1
	Loneliness	pre-test-Post-test	5.567*	0.709	0.001
		pre-test-Follow up	5.100*	0.705	0.001
		Post-test-Follow up	-0.467	0.506	1

There were significant differences between the study groups in the mean scores of psychological hardiness ($p<0.01$), social isolation ($p<0.01$), and loneliness ($p<0.01$) in the study stages (Table 3). Furthermore, the mean scores of all research variables in the experimental and control groups differed significantly ($p<0.01$). The results show that 13.3%, 24.1%, and 60.7% of the individual differences between the two groups were related to psychological hardiness, social isolation, and loneliness, respectively. There were significant difference in the mean scores of variable between the study stages ($p<0.01$) (Table 4). The mean scores of social isolation and loneliness decreased significantly. It appears that the treatment effect is stable over time and does not differ

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significantly between the pre-test and follow-up stages ($p < 0.05$).

DISCUSSION

The results show that ACT increased psychological hardiness in women with breast cancer. The findings of this study explain how ACT, along with related techniques, metaphors, and corrections, can help people accept the situation, recognize negative thoughts, and acknowledge their partiality for failure. It should be noted that ACT is less focused on reducing symptoms and more focused on increasing quality of life. First, ACT increases acceptance by addressing the control-time costs (creative frustration) that apply to internal events and teaches one to distinguish between choice and reasoned judgments and helps choose values (21).

According to the results, ACT was effective in reducing social isolation in women with breast cancer, which is in line with the results of Bluth et al. (36) and Kocovski et al. (37). It is clear that the goal of ACT is to create a rich, complete, and meaningful life. Although related thoughts are not directly addressed in this type of therapy, it does reduce social isolation in women with breast cancer by examining the components of the mind, such as emotions, memories, desires, thoughts, and physical symptoms, all of which contribute to the formation of social isolation (37).

In addition, the use of fusion techniques will reduce social isolation due to better acceptance (of laws, reasons, judgments, past, future, and self) and mind-awareness (being in the present, without self-judgment). Furthermore, ACT particularly emphasize on reducing cognitive integration (37). When cognitive fusion is reduced, it means that the content of one's thoughts is broken. Cognitive fusion training teaches people to see only thoughts and emotions (21). None of the internal events are inherently harmful to human health when experienced, and their harmfulness comes from trying to eliminate or control experiences (21).

The results show that ACT significantly reduced feelings of loneliness in women with breast cancer, which is in agreement with results of studies conducted by Abosaidi Moghadam et al. (38) and Samadi and Doustkam (39). In this regard, it can be argued that the acceptance component in the ACT allows an individual to accept his/her unpleasant inner experiences, which ultimately reduces their impact on the individual's life. Interventions involving ACT seem to be effective in reducing avoidance patterns (22, 38, 39). In addition, ACT teaches clients the values of their lives, in contrast to their previous avoidance-based behaviors. In this therapeutic approach, the person accepts mental experiences and perceptions without any reactions to eliminate these beliefs, so that his/her psychological awareness is increased to correct wrong thinking patterns. As the individual decides and commits, he/she will plan, end avoidance, and reduce social isolation. Therefore, ACT should respond to internal events in an open, non-defensive, and flexible manner because it replaces the desire with avoidance.

The short duration of the follow-up period was one of the limitations of the present study. The use of a non-random sampling method and small sample size are other limitations of the study, which make it difficult to generalize the results.

CONCLUSION

It seems that ACT is effective in increasing psychological hardiness and reducing social isolation and loneliness of women with breast cancer.

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DECLARATIONS

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Ethics approvals and consent to participate

The study was approved by the Ethical Committee of Islamic Azad university of Medical Sciences (code: IR.KHORASGANUMS.REC.1399.087). Written consent was taken from all participants.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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