

Comparison of the effectiveness of dialectical behavior therapy, fluvoxamine and their combination on depression in women with breast cancer

Running Title: Depression and breast cancer

Mohsen Rafiei^{1*}, Abolfazl Azizi Borujeni², Azadeh Seif Hosseini³, Yasmin Dadashpour⁴

¹M.A. of Clinical Psychology, Department of Psychology and Educational sciences, Semnan university, Semnan, Iran.

²M.A. of General Psychology, Department of Psychology, Shahrekurd Branch, Islamic Azad University, Shahrekurd, Iran.

³PhD student in Psychology, Department of Psychology, Gorgan Branch., Islamic Azad University, Gorgan, Iran.

⁴M.A. of General Psychology, Department of Psychology, Nowshahr Branch, Payame Noor University, Nowshahr, Iran.

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Corresponding author

M.A. of Clinical Psychology,
Department of Psychology
and Educational sciences,
Semnan university, Semnan,
Iran.

Tel/Fax: +98-9188405311

E-mail

Mohsenrafie7272@gmail.com

Abstract

Aims: This study aimed to compare the effectiveness of dialectical behavior therapy, Fluvoxamine, and their combination on depression in women with breast cancer.

Methods: This was a quasi-experimental study with a pre-and post-test design. The study population was women with breast cancer who were referred to health centers in region two in 2021. Forty-five people were selected by convenience method and then randomly placed in three groups (each n=15), including dialectical behavior therapy, Fluvoxamine (medication), and a combination of both. The first group received eight sessions of 90 minutes of dialectical behavior therapy, the second group received 200 mg of oral Fluvoxamine daily, and the third group received a combination of both methods. Data were collected by Depression Inventory and analyzed by multivariate analysis of covariance and Bonferroni post hoc test.

Results: The results showed that in the pre-test stage, the groups were not significantly different in terms of depression and dialectical behavior therapy ($p > 0.05$), but in the post-test stage, there was a significant difference ($p < 0.05$). The combined method significantly reduced depression compared to dialectical behavior therapy and medication, but there was no significant difference between dialectical behavior therapy and medication in reducing depression. Also, dialectical and combination behavior therapy significantly reduced depression in comparison with Fluvoxamine.

Conclusion: Based on the results, a combination method can relieve depression in women with breast cancer.

Keywords: Depression; Fluvoxamine; Dialectical Behavior Therapy; Breast Cancer

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Introduction

Depression is a mental disorder usually rooted in family relationships and beliefs. In certain circumstances, the patient loses life expectancy and often suffers from suicidal ideation, self-harm, and other harm. Major depressive disorder is a common disorder with about 15%, which reaches 25% in women. Depression in women is twice as high as in men, which may be due to different stresses, childbirth, and helplessness. Learned and hidden hormonal effects (1). There is ample evidence that some benign breast diseases predispose a person to breast cancer. Epithelial hyperplasia and the atypical fibrocystic changes increase breast cancer risk four to five times in women (2). Also, women who have benign breast diseases such as duodenal fibroadenoma, sclerosis, moderate or severe epithelial hyperplasia have a slightly higher risk of breast cancer. The emotional response of women with breast cancer varies from mild mood swings to anxiety and depression (3). The crisis of breast cancer diagnosis for a woman requires a period of adjustment and return to regular medical practice. However, about 20 to 30% of patients with breast cancer experience anxiety and depression, dysfunction, and low self-esteem after being diagnosed with breast cancer (1).

One way to reduce the psychological problems of women with depression is to use dialectical behavior therapy (4). Dialectical behavior therapy is derived from the third wave of psychotherapy and is one of the methods of cognitive-behavioral

therapy that emphasizes behavioral changes (5). In this method, the direction of treatment is to control the client's activities, teach behavioral skills (heart therapy), help him feel better, solve problems in life, and achieve a sense of superiority and the pursuit of pleasure (6). This method is based on the principle of acceptance and change. It has four components of fundamental universal consciousness and stress tolerance as components of approval and emotional regulation and interpersonal efficiency as components of change (7). The ultimate goal of dialectical behavior therapy is to accept the individual and their behaviors without judging them, so emotions are genuine and experienced frequently, but the response to them can be modified (8). This method includes basic cognitive-behavioral therapy techniques such as exposure, a chain of behavior analysis, emotion recording, and cognitive reconstruction, and specific techniques of the same way such as accreditation, dialectical thinking, and mindfulness (9).

Another way to reduce the psychological problems of women with postpartum depression is to use medication (10). In recent years, many drugs have been marketed to control and treat psychological issues, especially depression, and play a significant role in preparing patients for psychotherapy (11). The most important drugs are tricyclics such as amitriptyline, which bind to the serotonin and norepinephrine transporter. Another new drug is serotonin reuptake inhibitors (such as

Fluvoxamine), which have fewer side effects than tricyclic drugs (10).

Although research has been done on the effectiveness of dialectical behavior therapy and pharmacotherapy, there are research limitations on their combined force, and in addition, research results are sometimes contradictory. For example, a study by Kleiber et al. (12) showed that teaching dialectical behavior therapy group skills reduced depression. In a study, Eisner et al. (8) found that dialectical behavior therapy reduced negative emotional responses, including depression. In general, various studies have shown that dialectical behavior therapy reduces depression in patients (13). The results of multiple studies have also demonstrated that medication reduces the symptoms of depression (14-15). The results of some reflections on the combined treatment of dialectical behavior therapy and drug therapy show the effectiveness of this treatment model on depression (13).

Since few studies have examined the effectiveness of the combination of Fluvoxamine and psychological therapies with the fluvoxamine method or with the psychological way, sometimes the results of the studies are contradictory. Considering that Fluvoxamine is not viewed as the first line of treatment for depression in one hand, among the proposed drugs, this drug is used as an effective drug to reduce depression from another hand and also due to the high rate of depression in women with breast cancer, inconsistencies in research results, many mood problems faced by women with breast cancer

(especially depression), psychological interventions in addition to drug therapy with Fluvoxamine, have In this regard, the present study aimed to "compare the effectiveness of dialectical behavior therapy methods, fluvoxamine and their combination on depression in women with breast cancer".

Materials and methods

This was a quasi-experimental study with pre-test and post-test design with the control group. The study's statistical population was depressed women with breast cancer who were referred to health centers in the second district of Tehran in the spring of 2021. Inclusion criteria include literacy, age 25-40 years, no history of dialectical behavior therapy and medication, and exclusion criteria include absenteeism for two or more sessions, cancellation of cooperation, and use of the method. Other treatments were given at the same time. The research method was that after coordination with health centers in the second region of Tehran and obtaining their consent to conduct the research, 45 women with depression were identified after reviewing the inclusion criteria and participating in treatment courses were registered. Then, these 45 people were randomly divided into three equal groups by simple random sampling. The groups were randomly selected as dialectical behavioral therapy, pharmacotherapy, and combination groups and underwent the relevant intervention. The inclusion criteria were consent to participate in the study, suffering from breast cancer, lack of concurrence of chemotherapy with the survey, and

no psychiatric drugs. On the other hand, exclusion criteria also included dissatisfaction with collaborating in research and undergoing chemotherapy courses. This study also used SPSS-24 statistical software and multivariate analysis of covariance and Bonferroni post hoc test. Among the three groups in the present study, the first group received eight sessions of 90 minutes of dialectical behavior therapy (two sessions per week) by a clinical psychologist with a certificate of analytic behavior therapy course, the second group received 200 mg of Fluvoxamine daily (for one month) under the supervision of a psychiatrist. The third group received a combination of both methods. The content of the dialectical behavior therapy intervention was designed by Linehan (cited in

16). This content is reported separately in **Table 1**. The groups responded to the following tools in the pre-and post-test stages.

Beck and Clark Depression Inventory:

This questionnaire was designed by Beck and Clark in 1996 and had 21 items (6). The response spectrum to this questionnaire is in the form of a 3-point Liker scale (absolutely = 0 to severe = 3). The range of scores in this questionnaire is between 0 and 63. A high score means higher depression. Also, the predictive validity of the verification tool and its reliability were calculated by Cronbach's alpha method of 0.89 (6). In the present study, the reliability of this questionnaire was calculated using Cronbach's alpha coefficient of 0.88.

Table 1. Content of dialectical behavior therapy intervention by sessions (16)

Meetings session	Content
First	They express rules and regulations, define dialectics, principles, and methods of thinking and behaving dialectically, and are familiar with pervasive consciousness and emotional, rational, and logical mental states.
Second	They teach the basic skills of confusion, such as different methods of paying attention, turning from self-harming behaviors to enjoyable activities, turning attention to another subject, and leaving the situation and relaxation and self-healing.
Third	Training in Advanced Disruption Behavior Skills Including Secure Location Imaging, Discovering Values, Living in the Present, Basic Acceptance, Developing New Coping Plans and Strategies for Stressful Situations
Fourth	Basic mindfulness skills training includes familiarity and practice of inattention and mindfulness skills.
Fifth	Teaching advanced mindfulness skills includes essential acceptance, initiating mind, judgments, and labels, not judging, conscious communication with others, daily use of mindfulness, and recognizing obstacles to its implementation.
sixth	Teaching basic and advanced discipline skills includes knowing how to regulate emotions, reduce physical vulnerability to emotions, increase the occurrence of positive emotions, deal with positive and negative emotions, and problems solving.
Seventh	Teaching the basic skills of effective communication includes recognizing passive-aggressive behavior, fitting one's desires with others, fitting one's wants and needs, learning critical interpersonal skills, and identifying barriers to their use.
Eighth	Teaching Advanced Communication Skills Includes Demand Identification, Motion Severity Adjustment, Bold Drafting, Bold Listening, Saying No, and How to Negotiate and Analyze Interpersonal Problems.

Results

Descriptive indices of the mean and standard deviation of pre-test and post-test depression in dialectical, drug therapy, and combination behavioral therapy groups in women with breast cancer were reported in **Table 2**. The analysis of covariance showed that in the pre-test stage, the groups did not differ significantly in terms of depression and dialectical behavior therapy. But in the post-test phase, there were significant

differences. Examination of the assumptions of multivariate analysis of covariance showed that the results of the Kolmogorov-Smirnov test were not crucial for the variables of depression in the pre-test and post-test stages. Therefore, the assumption of normality was confirmed. The results of the M box and Levin tests were not significant. Thus, the hypotheses of equality of variance-covariance and equality of variances

Table 2. Descriptive indicators of the mean and standard deviation of depression in women with breast cancer

Variables / Groups	Dialectical Behavior Therapy (Mean±SD)		Fluvoxamine (Mean±SD)		Combination (Mean±SD)	
	Pre-exam	Post-test	Pre-exam	Post-test	Pre-exam	Post-test
-						
Depression	27.34±4.07	22.60±3.87	28.34±4.18	23.04±4.32	29.34±4.31	19.14±3.07

matrices were established, respectively. According to the results of the conditions of using the method of analysis of covariance is multivariate. According to the results of **Table 3**, dialectical, Fluvoxamine, and combination behavioral therapy intervention methods had a significant effect on at least one of the depressive variables in women with breast cancer. Therefore, the summary of univariate analysis of covariance in the text of multivariate analysis of covariance to evaluate the effectiveness of intervention methods on each of the variables of depression in women was reported in **Table 4**. According to the

results of **Table 4**, dialectical behavior therapy intervention methods, Fluvoxamine, and combination significantly affect depression in women with depression. Summary of Bonferroni post hoc test to compare the effectiveness of intervention methods in reducing depression in women was reported in **Table 5**. According to **Table 5**, the combined way compared to dialectical behavior therapy and Fluvoxamine significantly reduced depression in women. Still, there is no significant difference between dialectical behavior therapy and Fluvoxamine in reducing their depression.

Table 3. Summary of multivariate analysis of covariance to evaluate the effectiveness of intervention methods on depression in women with breast cancer

Exams	Value	F Coefficient	P-Value	Effect size	Statistical power
Pilay effect	1.011	20.425	0.000	0.504	1
Wilks Lambda	0.193	24.948	0.000	0.552	1
Hotline effect	3.142	29.843	0.000	0.612	1
The biggest root on	2.758	55.184	0.000	0.742	1

Table 4. Summary of univariate analysis of covariance in the context of multivariate analysis of covariance to evaluate the effectiveness of intervention methods on each of the depressive variables in women with breast cancer

M.O.V	S.M	Df	MM	F	P-Value	Effect size	Statistical power
group	217.437	2	108.718	47.751	0.000	0.705	1
Error	91.071	40					

Discussion

The results showed that the combination of Fluvoxamine and dialectical therapy compared to dialectical behavior therapy and Fluvoxamine

significantly reduced depression in women with breast cancer. Still, there was no significant difference between dialectical behavior therapy and Fluvoxamine in reducing their depression.

Table 5. Summary of Bonferroni post hoc test to compare the effectiveness of intervention methods in reducing depression

first group	second group	Mean difference	SE	P-Value
Dialectical Behavior Therapy	Fluvoxamine	0.576	0.561	0.962
Dialectical Behavior Therapy	combinatorial	5.152*	0.586	0.000
Fluvoxamine	combinatorial	4.573*	0.558	0.000

These results are consistent with the results of research by Kleiber et al. (12), Eisner et al. (8), Losappio et al. (14), Koch et al. (15), Miri, and

Nairi (13). As a result, it can be said that the combined method of Fluvoxamine and dialectical therapy was more effective than dialectical

behavior therapy and Fluvoxamine, and there was no significant difference between reducing dialectical behavior therapy and Fluvoxamine in reducing depression. In other words, the drug alone could have a substantial effect on reducing depression. After the three methods of dialectical behavior therapy, Fluvoxamine and combination have the most significant impact in reducing depression. The combined method and the two ways of dialectical behavior therapy and Fluvoxamine also reduced depression almost equally. Since the dialectical behavior therapy techniques include the primary methods used in cognitive-behavioral therapy such as confrontation, behavioral analysis chain, emotion recording, and cognitive reconstruction, and their strategies including accreditation, dialectical thinking, and it is mindfulness. As a result, on the one hand, dialectical behavior therapy is a therapeutic method that has a clear structure and uses behavioral techniques. On the other hand, this method facilitates change and improves health by accepting emotional problems. It also includes dialectic principles and practices (such as self-observation) that lead to change stability. Because postmenopausal women with depression do not perform well in distancing themselves from their emotions and moods, dialectical behavior therapy combines mindfulness exercises with behavioral exercises. It teaches them to observe, accept, and accept their depressed mood and its physiological, mental, behavioral, and emotional consequences in a non-judgmental state and learn ways to overcome these factors by avoiding negative emotions. And reducing rumination reduces depression. It can be said that the use of

antidepressants, especially serotonin reuptake inhibitors while treating depression, its long-term use prevents disease attacks. Also, considering that Fluvoxamine is a potent, selective serotonin reuptake inhibitor with a tendency to be about 100 times more likely to be a serotonin receptor than the norepinephrine transporter, this compound has a slight tendency to dopamine transporter or any other position. It acts as a potent agonist at the receptor, making it the most powerful of all selective serotonin reuptake inhibitors. The same issue may provide antidepressant and anti-anxiety effects in this drug. Considering that depression is associated with cognitive problems, it can be said that Fluvoxamine also plays a role in treating the mental symptoms of depression. Therefore, it plays an essential role in reducing depression. However, one of the main problems with medication is recurrent depression, so it is better to use psychological therapies in addition to or alone for depressive disorder. In general, the results showed that combination therapy was more effective than dialectical behavior therapy and drug therapy in reducing depression. So when drug therapy is combined with a psychological treatment method, it has a double effect, and its results are better than the independent implementation of each of those methods alone.

Conclusion

The present study results showed that the combination of Fluvoxamine and dialectical therapy significantly reduced depression compared to dialectical behavior therapy and Fluvoxamine lonely. However, there is no significant difference between the two methods of dialectical behavior therapy and Fluvoxamine in

reducing depression in terms of the effectiveness of the two methods in improving depressive symptoms.

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