

Effectiveness of Cognitive Rehabilitation Therapy on Psychological Distress and Self-Compassion in Mastectomized Women with Depression

Mohammad Hossein Pourfereydoun¹, MSc; Zahra Dasht Bozorgi^{1*}, PhD

¹Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

*Corresponding author: Zahra Dasht Bozorgi, PhD; Department of Psychology, Ahvaz Branch, Islamic Azad University, Postal code: 61349-37333, Ahvaz, Iran. Tel: +98 61 33348420; Fax: +98 61 33329200; Email: zdashtbzrgi@gmail.com

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Abstract

Background: Mastectomy damages self-concept and sexual identity and also increases the risk of depression due to changes in the physical appearance of patients. The present study aimed to investigate the effectiveness of cognitive rehabilitation therapy (CRT) on psychological distress and self-compassion in mastectomized women with depression.

Methods: The research was a quasi-experimental study based on a pretest-posttest design with control and experimental groups. The study population consisted of mastectomized women with depression who visited counseling and psychological services centers and clinics in 2021, of whom 40 patients were selected through purposive sampling. The participants were randomly assigned into two groups of 20 members using a table of random numbers. Participants in the experimental group attended ten 90-minute sessions of CRT (two sessions per week). The research instruments included the Kessler Psychological Distress Scale (K10) and Self-Compassion Scale (SCS). The data were statistically analyzed using analysis of covariance in SPSS version 19.

Results: The findings indicated that there was no significant difference between the two groups in the pretest in terms of psychological distress and self-compassion. The mean±SD of psychological distress in the posttest of the CRT group was 15.26±3.43, which was significantly different from the control group (19.26±3.65) ($P<0.001$). The mean±SD of self-compassion in the experimental and control groups were 79.13±7.38 and 71.67±8.39, respectively, which was statistically significant ($P=0.005$). In other words, CRT significantly reduced psychological distress and increased self-compassion in mastectomized women with depression ($P<0.001$).

Conclusion: The study findings suggested the effectiveness of CRT in reducing psychological distress and increasing the self-compassion of mastectomized women with depression. Therapists and health professionals are hence recommended to apply CRT, along with other interventions and therapies, to reduce psychological distress and increase the self-compassion of such patients.

Keywords: Cognitive rehabilitation therapy, Psychological distress, Self-compassion, Mastectomy, Depression, Women

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1. Introduction

Breast cancer is a chronic and non-communicable disease that affects a large number of women (1). Due to its harmful consequences and increasing prevalence in recent years, breast cancer has been categorized as a major health problem of the century by health professionals. It accounts for 22.26% of gynecological cancers and is the most common cancer among Iranian women (2). Mastectomy is a surgical treatment for breast cancer, in which the breast tissue is partially or completely removed (3). Mastectomy damages self-concept and sexual identity and reduces self-esteem due to changes in the patient's appearance (4). Mastectomized patients often experience problems in sexual relationships and develop a negative attitude towards themselves, which can lead to depression if it continues for a long time (5).

Depression is one of the most important neuropsychological disorders that affects about 17% of people in their lifetime, and almost 10% of people worldwide require serious treatment for this disorder (6). Women are almost twice as likely to develop depression in their lifetime as men (7). Women are at risk of developing major depression from their early teens to their mid-50s, and the lifetime rate of major depression is 1.7 to 2.7 times higher than that of men (8). Depression is characterized by a set of emotions and symptoms such as sadness, reluctance, decreased personal and social functioning, and changes in sleep patterns, nutrition, energy level, and motivation that can negatively affect how one feels, thinks, and acts (9).

Psychological distress is one of the common problems that depressed patients face (10, 11). It is an emotional state in which people temporarily or

permanently react to traumatic stresses and desires (12). This construct includes a set of psychological, physiological, and behavioral symptoms such as anxiety, depression, restlessness, loss of intelligence, and sleep disorders characterized by negative, frustrating, irritating, and worrying emotions (13). Psychological distress can reduce communicative and social functions and also stimulate diseases as an emotional disorder associated with stress, anxiety, and depression (14). Patients with depression are not good at problem-solving skills and usually employ inappropriate coping strategies in the face of problems and stressors (15).

Reduced self-compassion is another problem faced by patients with depression (16). Self-compassion consists of three components: self-kindness vs. self-judgment, common humanity vs. isolation, and mindfulness vs. growing replication (17, 18). This construct emphasizes self-acceptance or the acceptance of one's own experiences in the context of self-kindness and shows some sort of support for one's shortcomings and inadequacies (19). When people receive negative feedback in stressful and traumatic situations, self-compassion can help them protect themselves against negative feelings and feedback and continue to live hopefully (20). People with a higher level of self-compassion are more satisfied with their lives, successfully resolve interpersonal conflicts, apply appropriate strategies to solve problems, and live more optimistically (21).

There are various training and therapeutic methods available to improve psychological characteristics, one of which is Cognitive Remediation Therapy (CRT) (22). In recent decades, there has been significant attention given to this method for addressing cognitive and psychological issues, leading to the development of several cognitive rehabilitation programs designed to create cognitive challenges for individuals at different levels. Cognitive rehabilitation is a set of training programs based on the integration of neuroscience and information technology findings, as well as cognitive flexibility theory (23). This type of rehabilitation involves training in cognitive functions such as attention, precision, planning, organization, visual-spatial perception, auditory discrimination, memory, and other executive functions based on the cognitive flexibility theory (24). The aim of this training intervention is to recover lost cognitive capacities and improve

cognitive, neurological, and psychological functions through exercises and the provision of purposeful stimuli (25). As a training method for resolving cognitive and psychological problems, cognitive rehabilitation involves restoring damaged functions through practice and repetition (26).

Although many studies have investigated the effects of cognitive rehabilitation on psychological distress, there is scant research about its effects on self-compassion. Rashidi-Asl and Ashouri (27) showed that CRT improved IQ and cognitive regulation of positive emotions while reducing cognitive regulation of negative emotions in students with hearing impairment. Sayadi and colleagues (28) concluded that CRT significantly reduced anxiety and depression and improved emotion regulation in women with postpartum depression. Sakamoto and co-workers (29) reported that cognitive rehabilitation significantly reduced elderly depression, self-depression, depression associated with traumatic brain injury (TBI), and emotional distress. The findings of Malmberg Gavelin and co-workers (30) indicated that a rehabilitation intervention improved cognitive function, reduced depression, anxiety, and fatigue, and increased the working capacity and aerobic capacity of patients with stress-related exhaustion disorder (ED). Rahmati and colleagues (31) also reported that improving cognitive abilities can increase self-compassion, self-reliance, and positive emotions in the elderly.

Breast cancer is becoming increasingly prevalent (2), and mastectomy can increase the risk of depression by damaging the self-concept of patients. Mastectomized women with depression face many psychological problems, including increased psychological distress and reduced self-compassion. There are several appropriate solutions and training interventions to solve these problems. CRT is a method designed to improve executive functions, but research has proven its effectiveness in improving psychological characteristics. Another point that adds to the significance of this study is that there is scant research on the effects of rehabilitation on self-compassion. Accordingly, this study aimed to investigate the effectiveness of CRT on psychological distress and self-compassion in mastectomized women with depression.

2. Methods

This was a quasi-experimental study based

on a pretest-posttest design with control and experimental groups. The statistical population consisted of mastectomized women with depression who visited counseling and psychological services centers and clinics in Ahvaz in 2021. Purposive sampling was used to select 40 patients who met the inclusion criteria, which included non-clinical depression, at least a high school diploma, being married, being between 36 and 55 years of age, having undergone mastectomy between 3-12 months prior, not being addicted to psychiatric drugs (such as antidepressants and anxiolytics), not having experienced stressful events (such as divorce or death of a close relative) in the past three months, no history of receiving CRT, and not undergoing any therapy or psychological intervention during the study. Exclusion criteria included absence from two sessions, late attendance in four sessions, and unwillingness to continue the study.

After receiving a letter of introduction from the university, the researcher visited counseling and psychological services centers and clinics in Ahvaz to explain briefly for the officials about the study's significance and get permission. Based on the ethical considerations, participants were randomly assigned to two groups of 20 members using a table

of random numbers. The sample size consisted of 20 women per group, based on G-Power software with effect size (0.95), alpha (0.05), and test power (0.90) (32). Participants in the experimental group attended ten sessions of CRT, while those in the control group remained on a waiting list for training. Halajani and colleagues (33) planned and developed the CRT intervention based on the recommendations of Sohlberg and Mateer (34). A clinical psychologist led a 10-session intervention twice a week in a group in one of the counseling and psychological services centers and clinics of Ahvaz. Table 1 presents a summary of the subject and content of these 10 sessions. The CONSORT flow diagram is shown in Figure 1. All participants were evaluated at the pre-test and post-test stages using research instruments.

2.1. Research Instruments

2.1.1. The Kessler Psychological Distress Scale (K10): This 10-item scale was developed by Kessler and co-workers (35). The items are scored based on a 5-point Likert scale (0: never, 1: rarely, 2: sometimes, 3: often, and 4: always). The minimum and maximum scores on this scale are 0 and 40. Higher scores indicate higher levels of psychological distress. Kessler and co-workers (35)

Table 1: Subject and content of cognitive rehabilitation therapy sessions

Session	Subject	Content
1	Introduction and a brief description of the method	Proper communication between the educator and the clients, introduction, familiarity with the rules and objectives as well as cognitive rehabilitation methods and practices
2	Auditory attention practice	Attention practices, including responding to auditory stimuli (numbers, words, and sentences) and making a list of stressful life events
3	Familiarity with the elements of attention	Familiarity with the cognitive rehabilitation worksheet, practicing the attention elements ((reading a text or finding highlighted letters and words), practices to maintain and enhance attention
4	Visual and auditory attention practice	Visual and auditory attention practices, memory training, including selective attention and attention processing, and explaining their role in improving psychological characteristics
5	Attention change practice	Attention change practices to improve comprehension and cognitive development, discussing their relationship with psychological distress and behavioral emotion regulation
6	Mindfulness practice	Descending and ascending order practice to maintain attention and try to improve comprehension by reading a text and simultaneously searching for pre-determined letters and words.
7	Familiarity with memory function	Learning how to improve logical, visual, and auditory memory through numbers, letters, shapes, words, and sentences
8	Memory improvement	Practicing and repeating verbal and visual memory improvement, verbal organizing, developing pairs of association, and discussing their role in reducing psychological distress and increasing self-compassion
9	Executive functions practice	Training and practice strengthening executive functions, including a simple task plan, classification, separation, and problem solving, and discussing their relationship with psychological distress and self-compassion.
10	Memory and attention practice, conclusion and termination	Review and conclusion of previous sessions with the help of participants, commitment to applying the learned skills and practices in real life, appreciation of participants

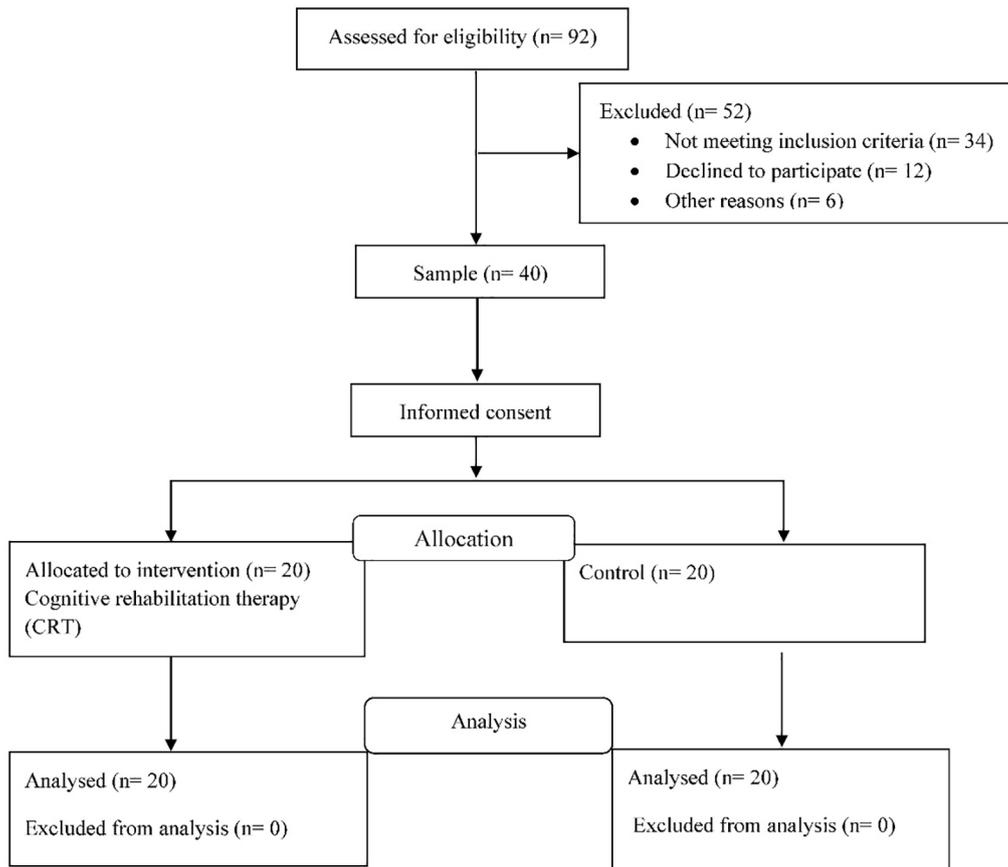


Figure 1: The figure shows the CONSORT flow diagram of the study.

confirmed the convergent validity of this scale through diagnostic interviews for anxiety and mood disorders, and also reported its Cronbach’s alpha to be 0.93. Ataei and colleagues (36) reported that the total average content validity ratio (CVR) and content validity index (CVI) were 0.88 and 0.95, respectively, for the Persian version of the scale. Mandizadeh and Homaei (37) reported a Cronbach’s alpha coefficient of 0.95 for the scale.

2.1.2. Self-Compassion Scale (SCS): This 26-item scale was developed by Neff (38). The items are scored based on a 5-point Likert scale (1: almost never, 2: rarely, 3: sometimes, 4: often, 5: almost always). The total score on this scale ranges from 26 to 120, with higher scores indicating higher levels of self-compassion. Neff (38) confirmed the construct validity of this scale by using exploratory and confirmatory factor analysis and also reported its Cronbach’s alpha coefficient and test-retest reliability coefficient (at an interval of two weeks) to be 0.90 and 0.91, respectively. Azizi and co-workers (39) reported the CVR and CVI for the Persian version of the scale to be 0.92 and 0.90, respectively. Mohammadali and colleagues (40) reported the reliability of this questionnaire as 0.77

based on Cronbach’s alpha coefficient.

2.2. Statistical Analyses

The normal distribution of the data was measured based on the Kolmogorov-Smirnov test. The equality of variances was evaluated based on Levene’s test, and the equality of covariance was evaluated based on Box’s M test. The obtained data were statistically analyzed using the Chi-square, the independent t-test, and the analysis of covariance in SPSS version 19 at the significance level of 0.05.

3. Results

As the attrition rate was equal to 0 in both the experimental and control groups, analyses were performed on two groups of 20 members. The mean±SD age of mastectomized women in the CRT and control groups was 43.28±5.72 and 42.74±6.11, respectively. The demographic variables of the mastectomized women are presented in Table 2. The Chi-square test showed no significant difference between the CRT and control groups in terms of demographic characteristics (Table 2).

Table 2: Demographic variables of the mastectomized women

Groups	Mean±SD age (years)	Time elapsed from the mastectomy (months)	Education		Marital status	
			High school	College education	Single	Married
CRT	43.28±5.72	9.35±2.68	7 (35.00)	13 (65.00)	4 (20.00)	16 (80.00)
Control	42.74±6.11	8.71±3.11	6 (30.00)	14 (70.00)	3 (15.00)	17 (85.00)
P	0.775	0.550	0.739		0.681	

CRT: Cognitive Rehabilitation Therapy

Table 3: Mean±SD of the research variables in experimental and control groups

Variable	Phase	CRT	Control	P (between group)
		Mean±SD	Mean±SD	
Psychological distress	Pre-test	19.60±3.60	19.00±3.07	0.574
	Post-test	15.26±3.43	19.26±3.65	0.001
P (within group)		0.001	0.809	-
Self-compassion	Pre-test	70.20±7.57	73.13±6.36	0.193
	Post-test	79.13±7.38	71.67±8.39	0.005
P (within group)		0.001	0.839	-

CRT: Cognitive Rehabilitation Therapy

The t-test results indicated that there was no significant difference between the two groups in terms of the pre-test levels of psychological distress and self-compassion. However, a significant difference was observed between the two groups in the post-test levels of psychological distress ($P=0.001$) and self-compassion ($P=0.005$). In the control group, there was no significant difference between the pre-test and post-test scores of the research variables. The mean±SD of the psychological distress scores in the experimental group during the pre-test and post-test phases were 19.60 ± 3.60 and 15.26 ± 3.43 , respectively. Additionally, the mean±SD of the self-compassion scores in the experimental group during the pre-test and post-test phases were 70.20 ± 7.57 and 79.13 ± 7.38 , respectively ($P<0.001$) (Table 3).

The results indicated that CRT significantly changed both psychological distress and self-compassion in mastectomized women with depression. In fact, mean values suggested that this intervention reduced psychological distress and improved self-compassion.

4. Discussion

This research aimed to investigate the effectiveness of cognitive rehabilitation therapy (CRT) on psychological distress and self-compassion in mastectomized women with depression. The study findings showed that CRT reduced the psychological distress of mastectomized women with depression. To justify this finding, CRT improves learning, attention,

perception, reasoning, and decision-making skills of individuals, helping them make better decisions and act more consistently to resolve or reduce their conflicts. Since CRT aims to improve cognitive disorders and functions, increasing one's attention, focus, and interpersonal understanding skills can improve performance in various areas, including problem-solving. These factors can play an effective role in reducing anxiety through correct perception of positive and negative events (30, 33). Patients with depression also suffer from frontal lobe disorder, which affects the part of the brain responsible for executive functions. It is quite natural that such patients suffer from dysfunctional attention, focus, and working memory, slowness of information processing, and poor cognitive functions. CRT can reduce psychological distress and improve self-compassion by improving attention, focus, and information processing (28). These factors make CRT play an effective role in reducing psychological distress in mastectomized women with depression.

Another finding of the study was that CRT increased self-compassion in mastectomized women with depression. There was no similar study in the literature to compare these findings. However, this is somewhat consistent with the findings of Rahmati and colleagues (31), who reported a significant positive relationship of cognitive competence with self-compassion, self-control, and positive emotions in the elderly. To justify this finding, it can be stated that self-compassion acts as a protective factor against negative emotions, increasing well-being, and

cognitive competence plays a major role in improving self-compassion (31). Cognitive competence can also indirectly improve self-compassion by affecting emotions, i.e., increasing positive emotions and decreasing negative ones. In addition, cognitive rehabilitation practices have been developed based on neuropsychology theory and the assumption that cognitive flexibility can be improved by creating opportunities to stimulate a particular area of cognition. Cognitive flexibility, defined as the ability to generate responses and change performance-based responses, aims to develop and enhance cognitive and executive functions, stabilize previous behavioral patterns, establish new behavioral patterns for cognitive and motor activities, or provide cognitive mechanisms to compensate for damaged functions of the nervous system. Therefore, cognitive rehabilitation practices can enhance positive psychological characteristics by increasing cognitive flexibility (41). Based on the above-mentioned points, CRT can increase self-compassion in mastectomized women with depression.

4.1. Limitations

In this study, participants were selected only from among mastectomized women with depression who had visited counseling and psychological services centers and clinics in Ahvaz, Iran. There was no follow-up stage to measure the stability of the results, and the use of self-report questionnaires was another limitation of this study.

5. Conclusion

The study findings generally suggest the effectiveness of CRT in reducing psychological distress and increasing self-compassion in mastectomized women with depression. These findings can be helpful for therapists, health professionals, or others who are in contact with female cancer patients or those undergoing a mastectomy. Therefore, it is necessary to plan to apply CRT to improve the health-related characteristics of such patients, especially in reducing psychological distress and increasing self-compassion. Health professionals and therapists are recommended to apply CRT along with other training and therapeutic methods to adjust the psychological characteristics of such patients, particularly psychological distress and self-compassion.

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Ethical Approval

The Ethics Review Board of Islamic Azad University Ahvaz Branch approved the present study with the code of IR.IAU.AHVAZ.REC.1400.149. Also, written informed consent was obtained from the participants.

Conflict of Interest: None declared.

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