

# The Effectiveness of Compassion-Based Therapy and Emotion-Focused Therapy on Self-Control and Distress Tolerance in Women with Substance Use Disorder

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Received: July 12, 2025; Revised: October 13, 2025; Accepted: November 19, 2025

## Abstract

**Background:** Substance use disorder (SUD), particularly opioid dependence, poses significant challenges for women and is frequently associated with impaired self-control and reduced distress tolerance—two key factors strongly linked to relapse risk. The present study aimed to investigate the effectiveness of compassion-based therapy (CBT) and emotion-focused therapy (EFT) in improving self-control and distress tolerance among women with SUD.

**Methods:** This quasi-experimental study employed a pre-test, post-test, and three-month follow-up design with a waitlist control group. The study participants were women receiving treatment for SUD in Ahvaz, Iran, in 2023. Forty-five eligible women were recruited through convenience sampling technique and randomly assigned to three equal groups of compassion-based therapy, emotion-focused therapy, and waitlist control group (n=15 each). The intervention groups received eight weekly 90-minute sessions, while the control group continued with routine care only. Outcomes were assessed using the Brief Self-Control Scale (BSCS) and the Distress Tolerance Scale (DTS). Data were analyzed using repeated-measures analysis of variance (ANOVA) in SPSS version 27.

**Results:** Both intervention groups showed statistically significant improvements in self-control and distress tolerance compared with the control group ( $P < 0.001$ ). In the compassion-based therapy group, self-control scores increased from a pre-test mean value of  $32.13 \pm 4.27$  to  $39.26 \pm 5.22$  at post-test ( $P < 0.001$ ). In the EFT group, scores increased from  $33.13 \pm 3.58$  to  $42.13 \pm 4.24$  ( $P < 0.001$ ). The control group showed only a negligible change ( $33.13 \pm 4.30$  to  $33.73 \pm 3.56$ ;  $P = 0.593$ ). Similarly, distress tolerance scores improved significantly in the compassion-based therapy group (from  $34.06 \pm 4.71$  to  $41.38 \pm 4.40$ ;  $P < 0.001$ ) and the EFT group (from  $33.60 \pm 4.68$  to  $41.26 \pm 4.77$ ;  $P < 0.001$ ), while remaining essentially unchanged in the control group ( $33.00 \pm 4.17$  to  $33.26 \pm 4.36$ ;  $P = 0.799$ ).

**Conclusions:** Our findings indicated that both compassion-based therapy and emotion-focused therapy are effective interventions for enhancing self-control and distress tolerance in women with substance use disorder. These approaches offer promising options for improving recovery outcomes and reducing relapse risk in this vulnerable population.

**Keywords:** Substance-related Disorders, Self-compassion, Emotion-focused Therapy, Self-Control

**How to Cite:** Yazdanipour M, Kazemian Moghaddam K, Shahbazi M. The Effectiveness of Compassion-Based Therapy and Emotion-Focused Therapy on Self-Control and Distress Tolerance in Women with Substance Use Disorder. Women. Health. Bull. 2026;13(2):113-122. doi:10.30476/whb.2026.107731.1363.

## 1. Introduction

Substance use disorder (SUD) is a complex and pervasive public health issue, with pronounced disparities across demographic groups. According to the World Drug Report 2025 of United Nations Office on Drugs and Crime (UNODC), an estimated 316 million people worldwide used drugs in the past year (2023 data), equivalent to 6% of the population aged 15–64 (1). Women comprise approximately one-third of drug users globally, though proportions vary by substance (e.g., higher among users of amphetamines and non-medical pharmaceuticals). They also face disproportionately greater barriers to treatment, including stigma and

comorbidities. In regions such as the Middle East and North Africa (MENA), including Iran, opioid use disorders have shown substantial increases in burden over recent decades (e.g., age-standardized DALY rates rose by ~40% from 1990 to 2019 in MENA), with women particularly affected by intersecting vulnerabilities (2). Women with SUD, especially those with opioid dependence, encounter a distinctive set of physiological, psychological, and social challenges that demand targeted interventions (2). These extend beyond the physical effects of addiction to include entrenched psychological and societal factors. Women are more likely to experience comorbid psychiatric conditions—such as depression, anxiety, and

trauma-related disorders—which often act as both risk factors and perpetrators of substance use (3). Additionally, societal stigma, caregiving roles, and socioeconomic inequalities frequently hinder access to effective treatment and support (4). These intertwined factors can profoundly undermine self-regulation and adaptive emotional coping, resulting in marked deficits in key constructs such as self-control and distress tolerance, both of which are central to relapse prevention.

Self-control—defined as the ability to regulate impulses, emotions, and behaviors in pursuit of long-term goals—serves as a fundamental predictor of successful SUD recovery (5). In individuals with substance dependence, impaired self-control typically appears as difficulty resisting cravings, managing urges, and complying with treatment regimens. This deficit in executive functioning heightens the challenge of maintaining abstinence despite adverse consequences and strongly predicts relapse (6). Strong self-control allows individuals to override automatic responses to triggers, employ adaptive coping, and sustain recovery efforts during hardship (7). Consequently, strengthening self-control remains a core aim of interventions designed to promote lasting sobriety.

Closely related yet distinct, distress tolerance—the perceived or actual capacity to endure aversive psychological or physical states (e.g., negative emotions, physical discomfort, or cravings) without resorting to maladaptive escape behaviors—further influences relapse risk (8). Individuals with low distress tolerance are more inclined to use substances as a quick means of alleviating discomfort, rendering them especially susceptible during withdrawal, intense cravings, or emotional distress (9). For women with SUD, who frequently carry a disproportionate load of trauma and emotional dysregulation, robust distress tolerance is essential for navigating recovery challenges without reverting to substance use (10). Improving distress tolerance builds resilience, enabling better confrontation and processing of difficult internal experiences and promoting healthier responses.

Compassion-based therapy (CBT)—often interchangeably termed compassion-focused therapy (CFT)—was selected for this study due to its ability to target shame and self-criticism, which disproportionately affect women with SUD. Moreover, CBT has its own advantages

over traditional cognitive-behavioral methods in attenuating threat-based emotional responses without exclusive reliance on cognitive restructuring. This evidence-based approach fosters self-compassion, compassion toward others, and the ability to receive compassion, integrated with mindfulness elements (11). Rooted in evolutionary psychology and Buddhist principles, CBT specifically counters the profound shame, self-condemnation, and guilt common in addiction. By cultivating a kinder internal dialogue and acceptance of personal suffering, it reduces threat-driven affect and bolsters emotion regulation (12). This framework holds particular relevance for women with SUD, who often internalize societal blame, thereby indirectly enhancing self-control and distress tolerance (13).

Emotion-focused therapy (EFT) was included for its humanistic focus on emotional processing, which empowers individuals to transform maladaptive affective patterns underlying SUD maintenance, yielding sustained improvements in motivation and reduced substance use. Developed by Greenberg, EFT is an evidence-based humanistic approach that views emotions as central to self-organization and therapeutic change (14). It helps clients identify, engage with, understand, regulate, and reorganize emotional experiences. In SUD, EFT enables women to access and process core emotions (e.g., sadness, fear, anger) that may drive substance use as avoidance (15). By increasing emotional awareness and adaptive processing, EFT directly strengthens emotion regulation, which underpins improved distress tolerance (16). This emotional mastery, in turn, supports better self-control by diminishing impulsive substance use in response to distress.

Given the unique psychosocial vulnerabilities in women and the pivotal role of self-control and distress tolerance in long-term recovery, it is essential to investigate targeted interventions. Strengthening these capacities offers substantial potential to enhance abstinence rates and quality of life. Therefore, the present study aimed to assess the effectiveness of CBT and EFT in improving self-control and distress tolerance among women with SUD.

## 2. Methods

### 2.1. Design

The present study employed a quasi-experimental

design with pre-intervention, immediate post-intervention, and three-month follow-up assessments, including a waitlist control group.

## 2.2. Selection and Description of Participants

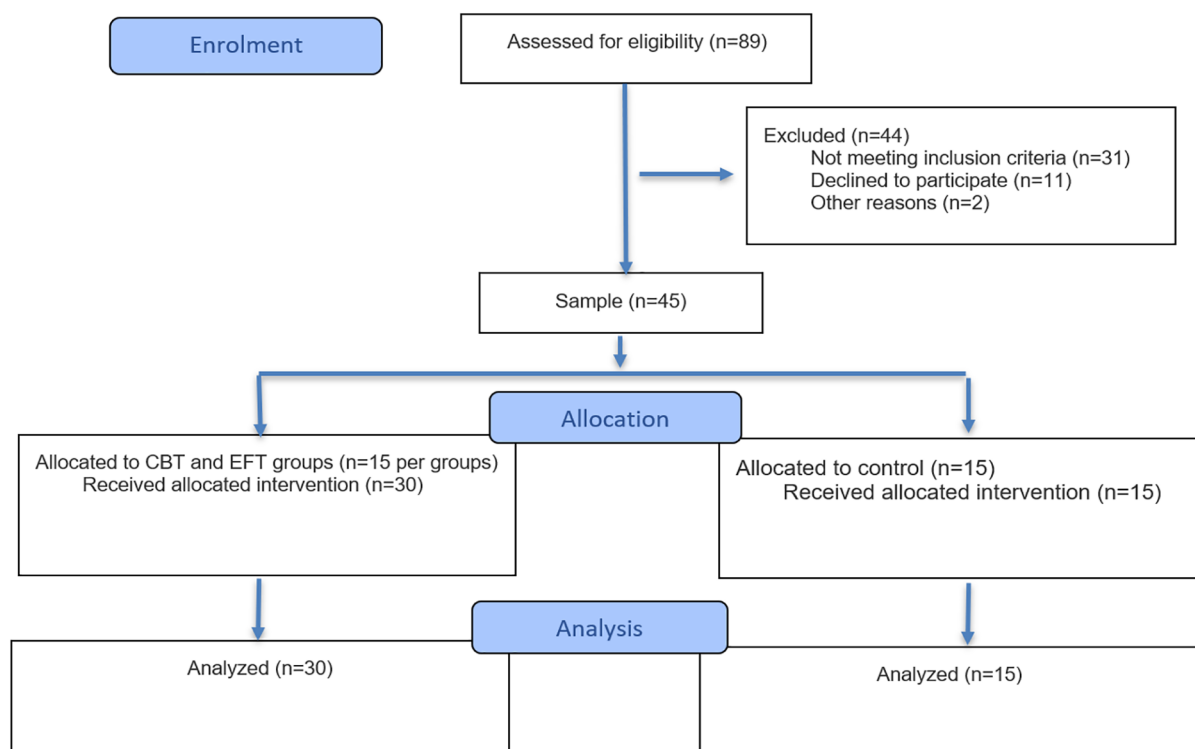
The target population comprised women with a confirmed diagnosis of substance use disorder (SUD), specifically opioid dependence, who were referred to addiction treatment centers in Ahvaz, Iran, during 2023. Convenience sampling technique was used to recruit 45 eligible female participants, who were then randomly assigned to one of the three groups: compassion-based therapy (CBT), emotion-focused therapy (EFT), or waitlist control group, with 15 participants per group. Randomization was achieved using computer-generated random sequences to ensure balanced allocation. The inclusion criteria were a documented SUD diagnosis, age 18–50 years, voluntary participation, and absence of severe comorbid psychiatric conditions (e.g., psychotic disorders or acute suicidality). The exclusion criteria encompassed significant cognitive impairment or concurrent involvement in other psychotherapies. All participants provided written informed consent. Participant flow through enrollment, allocation, follow-up, and attrition is illustrated in Figure 1.

## 2.3. Sample Size Determination

Sample size was determined a priori using G\*Power software (version 3.1) for a mixed-design repeated-measures ANOVA (within-between interaction). Calculations were based on prior data (7) showing mean self-control scores of 39.26 (SD=5.22) in the intervention group and 33.73 (SD=3.56) in the control group. Assumptions included 80% power,  $\alpha=0.05$ , three groups, three measurement time points, a repeated-measures correlation of 0.5, and non-sphericity correction  $\epsilon=0.5$ , yielding a minimum of 12 participants per group. To account for potential attrition, 15 participants were enrolled per group (total N=45).

## 2.4. Data Collection and Measurements

The Brief Self-Control Scale (BSCS-13) is a 13-item self-report instrument designed to assess individuals' perceived capacity for self-control. Items are rated on a 5-point Likert scale (1=Not at all like me to 5=Very much like me), with total scores ranging from 13 to 65; higher scores reflect greater self-control (17). The Persian version demonstrated strong content validity (CVI=0.89, CVR=0.93) and acceptable internal consistency (Cronbach's  $\alpha=0.81$ ) in prior validation (18). In the present study, internal consistency was excellent (Cronbach's  $\alpha=0.85$ ).



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

The Distress Tolerance Scale (DTS) is a 15-item self-report measure that assesses perceived ability to withstand negative emotional and physical distress. Items are rated on a 5-point Likert scale (1=Strongly disagree to 5=Strongly agree), yielding total scores from 15 to 75; higher scores indicate greater distress tolerance (19). The Persian adaptation, validated in an Iranian sample (20), showed strong content validity (CVI=0.96, CVR=0.93) and adequate reliability (subscale Cronbach's  $\alpha \geq 0.70$ ). In this study, DTS demonstrated excellent internal consistency (Cronbach's  $\alpha=0.89$ ).

## 2.5. Procedures

Procedures were conducted at the Fanous Rah Counseling Center in Ahvaz, Iran, from March to September 2023. This period allowed for recruitment in early spring, intervention delivery mid-year, and follow-up in late summer, helping to minimize potential seasonal effects on attendance and emotional well-being. The study included 45 women aged 18–50 years ( $M=32.5$  years), all with a formal DSM-5 diagnosis of opioid dependence (within SUD) and currently receiving outpatient treatment. After screening and eligibility confirmation, all participants completed baseline (pre-test) self-report measures of self-control and distress tolerance. The two intervention groups then participated in an 8-week program, with sessions lasting 90 minutes and held weekly on weekday evenings to accommodate participants' caregiving and work commitments. Control group continued receiving standard care at the facility, which primarily involved pharmacotherapy plus general supportive counseling routinely provided

by the addiction treatment center. Immediately following the 8-week period, all participants (intervention and control) completed the same self-report battery for post-intervention assessment. A three-month follow-up assessment evaluated the maintenance of effects. Sessions were delivered by two experienced clinical psychologists, each trained and proficient in the respective modality (CBT or EFT).

## 2.6. Intervention Programs

The psychotherapeutic interventions consisted of two separate approaches: compassion-based therapy (CBT; 10) and emotion-focused therapy (EFT; 13). Both programs were structured into 8 weekly, 90-minute group sessions delivered by trained therapists. An overview of the principal elements and objectives of each therapeutic approach is presented in Tables 1 and 2.

## 2.7. Data Analysis

All statistical analyses were performed using SPSS version 27. Descriptive statistics (mean and standard deviation values) were calculated for all study variables. Data normality was assessed with the Shapiro–Wilk test, homogeneity of variances with Levene's test, and sphericity with Mauchly's test. When the sphericity assumption was violated, degrees of freedom were corrected using the Greenhouse–Geisser or Huynh–Feldt epsilon. A mixed-design repeated-measures analysis of variance (ANOVA) was conducted to examine main effects of time, group differences, and time  $\times$  group interactions for self-control and distress tolerance.

**Table 1:** Summary of compassion-based therapy (CBT) sessions

Session	Core Themes & Activities	Aims
1	Introduction to Compassion & Threat/Drive/Soothing Systems	To understand the evolutionary basis of emotions and introduce the concept of compassion
2	Cultivating Compassionate Mind	To develop a compassionate self-identity and engage in compassionate imagery
3	Understanding Self-Criticism & Shame	To explore the origins and impact of self-criticism and differentiate helpful versus unhelpful criticism
4	Practicing Self-Compassion Techniques	To practice mindful compassionate breathing and compassionate body scan
5	Compassionate Engagement with Difficult Emotions	To use compassion to approach and soothe difficult feelings rather than avoid them
6	Working with the Inner Critic	To engage in dialogue with the inner critic from a compassionate perspective
7	Cultivating Compassion for Others & Receiving Compassion	To expand compassionate awareness beyond the self and develop openness to receive care
8	Integrating Compassion into Daily Life & Relapse Prevention	To consolidate skills, plan for ongoing practice, and apply compassion to future challenges

**Table 2:** Summary of emotion-focused therapy (EFT) sessions

Session	Core Themes & Activities	Aims
1	Introduction to Emotions & Emotional Awareness	To understand the function of emotions and identify primary versus secondary emotions
2	Deepening Emotional Experience: Focusing	To learn to “focus” on bodily sensations in order to access core emotions
3	Working with Shame & Self-Criticism	To utilize two-chair work to process self-critical introjects
4	Processing Sadness & Loss	To explore underlying sadness related to addiction or past experiences
5	Managing Anger & Resentment	To facilitate healthy expression and transformation of anger and set boundaries
6	Addressing Fear & Vulnerability	To identify and process fears related to recovery or life changes
7	Transforming Maladaptive Emotional Schemes	To reorganize problematic emotional responses and build new emotional experiences
8	Consolidating Gains & Relapse Prevention	To integrate new emotional skills and plan for ongoing emotional regulation in recovery

**Table 3:** Means and standard deviations of self-control and distress tolerance

Variable	Stage	CBT Group	EFT Group	Control Group	P (between-group)
		Mean±SD	Mean±SD	Mean±SD	
Self-control	Pre-test	32.13±4.27	33.13±3.58	33.13±4.30	0.528
	Post-test	39.26±5.22	42.13±4.24	33.73±3.56	0.001
	Follow-up	38.93±5.45	41.73±4.06	33.93±3.80	0.001
	P (within-group)	0.001	0.001	0.593	-
Distress Tolerance	Pre-test	34.06±4.71	33.60±4.68	33.00±4.17	0.519
	Post-test	41.38±4.40	41.26±4.77	33.26±4.36	0.001
	Follow-up	41.13±4.22	40.93±4.46	33.40±4.37	0.001
	P (within-group)	0.001	0.001	0.799	-

CBT: Compassion-Based Therapy; EFT: Emotion-Focused Therapy; SD: Standard Deviation

Significant effects were followed by Bonferroni-corrected pairwise comparisons to identify specific differences. Baseline demographic equivalence across groups was evaluated using one-way ANOVA for continuous variables (e.g., age) and chi-square tests for categorical variables.

### 3. Results

A total of 45 women with a confirmed diagnosis of substance use disorder (SUD; opioid dependence) were enrolled and randomly assigned to three groups (n=15 each): CBT, EFT, and waitlist control. Mean ages were comparable across groups: 32.4 years (SD=6.8) for CBT, 33.1 years (SD=7.2) for EFT, and 31.9 years (SD=6.5) for control (P=0.636). No significant between-group differences emerged in age or other baseline demographics, confirming group equivalence.

Descriptive statistics for self-control and distress tolerance at pre-test, post-test, and three-month follow-up, along with within- and between-group P values, are presented in Table 3. For self-control, the CBT group increased from a pre-test mean of 32.13

(SD=4.27) to 39.26 (SD=5.22) at post-test and 38.93 (SD=5.45) at follow-up. The EFT group increased from 33.13 (SD=3.58) to 42.13 (SD=4.24) at post-test and 41.73 (SD=4.06) at follow-up. The control group showed minimal change, with mean values of 33.13 (SD=4.30) at pre-test, 33.73 (SD=3.56) at post-test, and 33.93 (SD=3.80) at follow-up. For distress tolerance, the CBT group increased from 34.06 (SD=4.71) at pre-test to 41.38 (SD=4.40) at post-test and 41.13 (SD=4.22) at follow-up. The EFT group increased from 33.60 (SD=4.68) to 41.26 (SD=4.77) at post-test and 40.93 (SD=4.46) at follow-up. The control group remained stable, with mean values of 33.00 (SD=4.17), 33.26 (SD=4.36), and 33.40 (SD=4.37), respectively.

A repeated-measures analysis of variance (ANOVA) was performed to examine the influence of time, group membership, and their interaction on levels of self-control and distress tolerance. Regarding self-control, a statistically significant main effect of time emerged (P=0.001), reflecting overall gains across measurement occasions. The time × group interaction was also significant (P=0.001), indicating that the pattern of change

significantly differed between groups over time. A significant main effect of group was detected as well ( $P=0.005$ ), demonstrating overall differences among the conditions. For distress tolerance, results revealed a significant main effect of time ( $P=0.001$ ), together with a highly significant group  $\times$  time interaction ( $P=0.001$ ) and a significant main effect of group ( $P=0.001$ ). Collectively, these findings demonstrated that both active treatment conditions produced markedly greater improvements in self-control and distress tolerance relative to the control condition.

Pairwise comparisons using Bonferroni-corrected post-hoc tests were conducted to identify specific within- and between-group differences. For self-control, both the CBT group (mean difference=7.13,  $P=0.001$ ) and the EFT group (mean difference=9.00,  $P=0.001$ ) exhibited statistically significant gains from pre-test to post-test, whereas the control group showed no significant change (mean difference=0.61,  $P=0.462$ ). These improvements remained stable at the three-month follow-up for the CBT (mean difference=6.80,  $P=0.001$ ) and EFT (mean difference=8.60,  $P=0.001$ ) conditions, with no significant shift in the control condition (mean difference=0.83,  $P=0.281$ ). No group demonstrated notable change between post-test and follow-up (all  $P > 0.05$ ). A comparable pattern was observed for distress tolerance. Significant

pre- to post-test increases occurred in the CBT (mean difference=7.20,  $P=0.001$ ) and EFT (mean difference=7.66,  $P=0.001$ ) groups, but not in the control group (mean difference=0.26,  $P=0.999$ ). These gains were sustained at follow-up for both CBT (mean difference=7.06,  $P=0.001$ ) and EFT (mean difference=7.33,  $P=0.001$ ), while the control group remained essentially unchanged (mean difference=0.40,  $P=0.883$ ) (Table 4).

Pairwise between-group comparisons indicated no statistically significant differences between the CBT and EFT conditions at any assessment point (all  $P > 0.05$ ). In contrast, both active intervention groups demonstrated markedly superior outcomes compared with the control group at both post-intervention and three-month follow-up assessments. For self-control, significant advantages were observed for CBT versus control ( $P=0.005$  at post-test;  $P=0.011$  at follow-up) and for EFT versus control ( $P=0.001$  at both time points). Similarly, for distress tolerance, both CBT and EFT groups significantly exceeded the control group at post-test and follow-up (all comparisons:  $P=0.001$ ). These findings confirmed the efficacy of both interventions in enhancing self-control and distress tolerance, with sustained effects over time (Table 5). Figure 2 illustrates the trend changes in self-control and distress tolerance scores over time across the three groups.

**Table 4:** Bonferroni post-hoc analysis of within-group differences over time

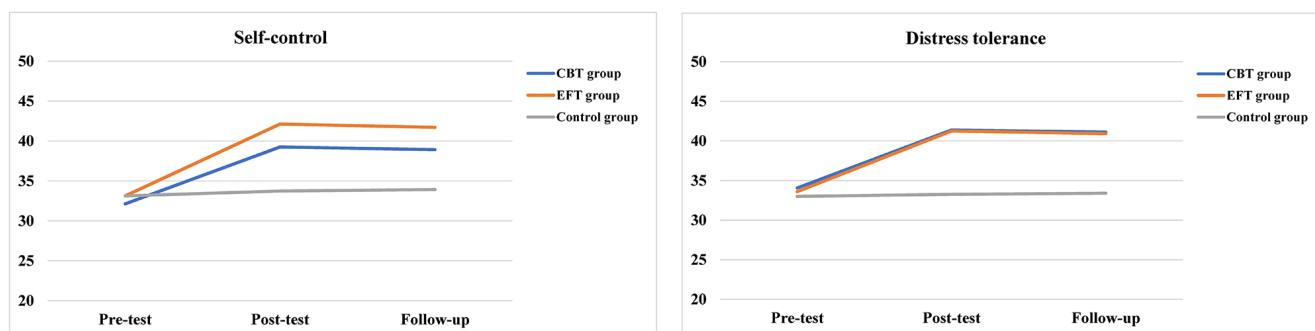
Variable	Time	CBT Group		EFT Group		Control Group	
		Mean Difference	P	Mean Difference	P	Mean Difference	P
Self-control	Post-test - Pre-test	7.13	0.001	9.00	0.001	0.61	0.462
	Follow-up - Pre-test	6.80	0.001	8.60	0.001	0.83	0.281
	Follow-up - Post-test	0.33	0.803	0.41	0.66	0.24	0.999
Distress Tolerance	Post-test - Pre-test	7.20	0.001	7.66	0.001	0.26	0.999
	Follow-up - Pre-test	7.06	0.001	7.33	0.001	0.40	0.883
	Follow-up - Post-test	0.14	0.999	0.33	0.824	0.13	0.999

CBT: Compassion-Based Therapy; EFT: Emotion-Focused Therapy

**Table 5:** Bonferroni post-hoc analysis of between-group differences across time points

Variable	Groups	Pre-test		Post-test		Follow-up	
		Mean Difference	P	Mean Difference	P	Mean Difference	P
Self-control	CBT - EFT	1.00	0.999	2.86	0.263	2.80	0.284
	CBT - Control	1.00	0.999	5.53	0.005	5.00	0.011
	EFT - Control	0.46	0.999	8.40	0.001	7.80	0.001
Distress Tolerance	CBT - EFT	0.46	0.999	0.12	0.999	0.21	0.999
	CBT - Control	1.06	0.999	7.88	0.001	7.73	0.001
	EFT - Control	0.6	0.999	8.00	0.001	7.53	0.001

CBT: Compassion-Based Therapy; EFT: Emotion-Focused Therapy



**Figure 2:** The figure shows the trend changes in self-control and distress tolerance scores over time. CBT: Compassion-Based Therapy; EFT: Emotion-Focused Therapy

#### 4. Discussion

The present study aimed to investigate the effectiveness of CBT and EFT in enhancing self-control and distress tolerance among women with SUD. The results indicated that both interventions produced significant improvements in these domains compared with the waitlist control group receiving standard care. These gains were maintained at the three-month follow-up, suggesting durability of the effects. No significant differences in outcomes emerged between CBT and EFT, indicating that both approaches offer comparable benefits for this population.

These findings are consistent with prior literature highlighting the central role of self-control and distress tolerance in the development, maintenance, and recovery from SUD (21, 22). Impaired self-control, a core feature of addiction, involves challenges in inhibiting impulses and prioritizing long-term goals (21). Low distress tolerance, in turn, increases reliance on maladaptive coping, such as substance use, to alleviate aversive states (23).

The benefits of CBT for self-control and distress tolerance can be attributed to its focus on reducing shame, self-criticism, and guilt—emotions highly prevalent in addiction that erode self-regulation (24, 25). By cultivating self-compassion, the approach fosters a kinder internal relationship with suffering, downregulates threat-system activation, and frees cognitive-emotional resources for adaptive self-control and greater tolerance of distress without substance use (26). Supporting evidence showed that compassion-oriented interventions improve emotion regulation and reduce cravings in addiction-related populations (24).

Likewise, the positive effects of EFT align with its

humanistic emphasis on accessing, experiencing, and transforming maladaptive emotional patterns (11). In SUD, substance use often serves to avoid or suppress primary emotions; EFT facilitates safe engagement with these emotions, enhancing awareness, differentiation, and regulation (27). This process strengthens distress tolerance directly and supports self-control indirectly by diminishing impulsive substance-seeking as an emotional escape (28). Research on EFT in conditions involving emotional dysregulation further confirms its role in promoting adaptive emotional processing and functioning (15).

Despite differing theoretical bases and techniques, both therapies emphasize emotional awareness, acceptance of internal experiences, and adaptive coping (25, 27). This similarity supports the common factors model in psychotherapy, often referred to as the “Dodo bird verdict,” which posits that bona fide therapies frequently yield comparable results due to shared nonspecific elements such as the therapeutic alliance and expectation of benefit (29). For women with SUD, this equivalence provides treatment flexibility, enabling selection based on individual preferences or clinical presentation. The persistence of gains at follow-up is especially promising, as it suggests that acquired skills contribute to sustained recovery and lower relapse vulnerability—a key priority in addiction treatment.

##### 4.1. Limitations

There were some limitations in the study that should be noted. The 8-week group format, while practical in a community setting, may have constrained individualized processing, particularly for participants with diverse trauma histories or varying engagement levels, potentially affecting outcome uniformity. Single-site recruitment at

the Fanous Rah Counseling Center in Ahvaz, Iran limits the generalizability of the results to women with different geography, socioeconomic status, and cultural background. Practical challenges, including scheduling conflicts for women with caregiving or employment responsibilities and occasional disruptions from concurrent treatment, were encountered.

## 5. Conclusions

The present study conclusively demonstrated that both CBT and EFT are efficacious interventions for significantly enhancing self-control and distress tolerance in women grappling with SUD. The sustained improvements observed at follow-up underscore the enduring benefits of these psychotherapeutic approaches. Given the critical role of self-control and distress tolerance in long-term recovery, these findings advocate for the integration of CBT and EFT into comprehensive treatment protocols for this vulnerable population. Future clinical efforts should consider these therapies as valuable tools to improve psychological well-being and foster sustained sobriety.

## Acknowledgement

This article was extracted from the PhD thesis of Ms. Maedeh Yazdanipour at the Department of Counseling, Ahvaz Branch, Islamic Azad University, Iran. Also, the authors express their gratitude to all participants for their valuable contributions to this study.

## Authors' Contribution

Maedeh Yazdanipour: Substantial contributions to the conception and design of the work; the acquisition, analysis, and interpretation of data for the work; drafting the work. Kobra Kazemian Moghaddam: Substantial contributions to the conception and design of the work; the acquisition, analysis, and interpretation of data for the work; drafting the work and reviewing it critically for important intellectual content. Masoud Shahbazi: Substantial contributions to the design of the work; drafting the work and reviewing it critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such that the questions related to the accuracy or integrity of any part of the work.

**Conflict of interest:** None declared.

**Funding:** None.

## Ethical Approval

The Ethics Committee of the Islamic Azad University, Ahvaz Branch approved the present study with the code of IR.IAU.AHVAZ.REC.1404.052. Also, written informed consent was obtained from the participants.

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