



# Comparison of the effect of two interventions of group dialectical behavior therapy and structured matrix treatment on pathological narcissism and craving for drugs among drug abusers

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## Abstract

**Background and aims:** Pathological narcissism is one of the personality disorders in drug abusers, and its main characteristic is self-conceit and lack of empathy and solidarity with others. The present study aimed to compare the effects of group dialectical behavior therapy (DBT) and structured matrix treatment on pathological narcissism and craving for drugs among drug abusers in Ahvaz.

**Methods:** This was a quasi-experimental study based on a pretest-posttest design with control and test groups. The study population consisted of all drug abusers visiting the addiction rehabilitation centers affiliated with the Department of Social Welfare, Ahvaz, Iran, in 2021. Of them, 75 individuals were selected as the sample through the cluster random sampling method and were randomly assigned to two experimental groups and a control group. Participants in all three groups completed the Pathological Narcissism Inventory (PNI) and the Desires for Drug Questionnaire (DDQ) as the pre-test. The first experimental group participated in eight 90-minute sessions of group DBT. Moreover, the second experimental group underwent fourteen 90-minute sessions of structured matrix treatment. Finally, all participants took a post-test, and data were statistically analyzed by multivariate analysis of covariance (MANCOVA).

**Results:** The results showed that both group DBT and structured matrix treatment reduced pathological narcissism and craving for drugs in experimental groups ( $P < 0.001$ ). However, there was no significant difference between the two experimental groups in the mean scores of pathological narcissism and craving for drugs.

**Conclusion:** As our findings demonstrated the effectiveness of group DBT and structured matrix treatment in reducing pathological narcissism and craving for drug among drug abusers, these two interventions, along with other therapies, are recommended to improve the mental state and reduce craving for drugs among drug abusers.

**Keywords:** Dialectical behavior therapy, Narcissism, Craving, Drug abusers

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## Introduction

Addiction is among the major social problems that most societies constantly face (1). As a psychiatric disorder with various dimensions, drug addiction is one of the serious issues of the present age (2,3). Addicts gradually become highly dependent on drugs, both physically and mentally, and increase their consumption (4-6). There are different and contradictory evidence on drug abuse. The data reveal that about 15.5% of young people aged 15 to 25 years in Tehran, Iran, are addicted to ecstasy (7). Amphetamines and their derivatives are among the most known psychotropic drugs abused by young people around the world. Such compounds are so addictive that their long-term use can produce destructive effects and lead to a wide variety of behavioral, psychological, social, and physiological disorders (8). The rapid spread of drug abuse and its subsequent problems for young people as well as the abundance of illegal drugs produced

in laboratories, such as methamphetamine, and their harmful consequences such as academic apathy and failure, physical and mental illness, suicide attempts, aggressive behaviors, identity disturbance, and high-risk sexual behaviors demonstrate the need to plan and develop preventive strategies and interventions (9,10).

The concept of pathological narcissism has attracted great scientific attention in recent years, resulting in the expansion of theoretical, experimental, and clinical areas in this field (11). Narcissistic personality disorder is a mental condition in which people have an inflated sense of their own importance, a deep need for excessive attention and admiration, troubled relationships, and a lack of empathy for others (12). Among the factor effective on drug abuse, "craving for drugs" is the most important one that can lead to addiction relapse. "Craving for drugs" is defined as the mental experience of a strong desire to use a certain substance one's intensity

of desire to try to change (13). Methamphetamine impairs cerebral and cognitive functions and causes intense craving. The majority of addicts state that they had no choice but to use drugs to deal with emotions such as anxiety, boredom, depression, fear of failure, and aimlessness in life (14).

Dialectical behavior therapy (DBT) is one of the most effective third-generation therapies used for rehabilitating addicts. DBT firstly tries to increase one's psychological acceptance of mental experiences (thoughts and emotions) and then reduce ineffective control practices (15,16). Dimeff and Linehan (17) reported that DBT was effective in improving the self-restraint of addicts held in addiction rehabilitation centers. Cavicchioli et al (18) showed that DBT was effective in reducing alcohol and drugs abuse. Moreover, Fitzpatrick et al (19) observed that DBT could reduce depression, stress, fear, shame, and sense of guilt in patients.

Matrix treatment is an important training and cognitive intervention that can reduce craving for drugs in addicts. This treatment provides the clients with appropriate information on how to lead a healthy life and follow the course of addiction rehabilitation (20). Ehteshami Pouya et al (21) showed that matrix treatment reduced the severity of addiction and prevented relapse in drug abusers. Eghbali et al (22) also reported that matrix treatment managed to significantly improve craving for drugs, stubbornness, and psychological well-being among drug abusers.

Since a few studies have dealt with the effects of psychological treatments on reducing drug abuse in Iranian populations, this study aims to investigate the effects of group DBT and structured matrix treatment on pathological narcissism and craving for drugs among drug abusers. In addition, considering the investigation of the mentioned interventions alone on the psychological characteristics of drug abusers, comparing these two interventions to find out their effectiveness was one of the innovations of the present study. The changing pattern of drug abuse due to the introduction of new laboratory and industrial substances, which are warmly welcomed by young people, reveals the significance of this study. Accordingly, this study aimed to compare the effectiveness of group DBT and structured matrix treatment on pathological narcissism and craving for drugs among drug abusers.

## Methods

This was a quasi-experimental study based on a pretest-posttest design with control and test groups. The study population consisted of all drug abusers visiting the addiction rehabilitation centers affiliated with the Department of Social Welfare, Ahvaz, Iran, in 2021. To select the participants from the addiction rehabilitation centers affiliated with the Department of Social Welfare of Ahvaz, two districts of the four districts of Ahvaz were randomly selected and then six centers from each district

were randomly selected. Finally, 75 drug abusers who visited these centers were selected as the sample through the cluster random sampling method. The participants were randomly assigned to two experimental groups and a control group. The participants in first and second experimental groups attended eight 90-minute sessions of group DBT and fourteen 90-minute sessions of structured matrix treatment, respectively, whereas the control group received no intervention. In such studies, it is not possible to select a pure control group to consist of individuals receiving no treatment, or it is unethical to assign those dependent on methamphetamine or other stimulants to the control group without receiving any treatment. As a result, the participants in the control group were selected from among the patients under treatment with buprenorphine. Before the beginning of the study, an informed consent form was obtained from all participants, and they were assured that they could leave the study at any stage they desired.

## Research instruments

*Pathological Narcissism Inventory (PNI)*: This is a 52-item developed by Pincus et al (23). The items are scored based on a 7-point Likert scale (from 1: strongly disagree to 7: strongly agree), and higher scores indicate higher levels of pathological narcissism. PNI measure pathological narcissism in 9 subscales as follows: Contingent Self-Esteem (CSE), Exploitativeness (EXP), Self-Sacrificing Self-Enhancement (SSSE), Hiding the Self (HS), Grandiose Fantasy (GF), Devaluing (DEV), Entitlement Rage (ER), narcissistic grandiosity (NG), and narcissistic vulnerability (NV). Soleimani et al (24) reported the reliability of this questionnaire equal to 0.93 based on Cronbach's alpha coefficient. In the present study, Cronbach's alpha coefficient was 0.82 for the questionnaire.

*Desires for Drug Questionnaire (DDQ)*: Developed by Franken et al (25), DDQ is a 13-item questionnaire that measures craving for drugs in three subscales: desire and intention, negative reinforcement, and control. The items are scored based on a 7-point Likert scale (from 1: strongly disagree to 7: strongly agree). Amiri et al (26) reported a Cronbach's alpha of 0.85 for the questionnaire. In the present study, Cronbach's alpha coefficient was 0.81 for the questionnaire.

## Intervention program

The intervention programs performed in this study included eight 90-minute sessions of group DBT, based on the practical guide of behavioral therapy techniques, and fourteen 90-minute sessions of structured matrix treatment, based on the guidelines provided by Matrix Institute. In the current study, therapeutic intervention sessions were conducted for two groups on different days at the Social Welfare Counseling Center in Ahvaz city. Tables 1 and 2 provide a summary of these two interventions.

### Data analyses

The data were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (MANCOVA and the Bonferroni test) at the 0.05 level of significance.

### Results

The participants included 75 drug abusers. The mean age of the participants in the DBT, structured matrix treatment, and control groups were  $34.27 \pm 5.53$ ,  $35.19 \pm 6.80$ , and  $34.41 \pm 6.32$  years old, respectively. Table 3 presents the mean and standard deviation of studied variables in the experimental and control groups in the pre-test and post-test.

The data contained in Table 4 indicated the homogeneity of variances. Considering the insignificance of Levene's

test, it was possible to use MANCOVA for data analysis. The results of MANCOVA showed that there was a significant difference between the group DBT group, the structured matrix treatment group, and the control group in at least one of the dependent variables (Table 5). As shown in Table 5, the F-value of MANCOVA was 78.45 ( $P=0.001$ ) for pathological narcissism and 109.6 ( $P=0.001$ ) for craving for drugs. These figures revealed the significant difference of the group DBT group and the structured matrix treatment group with the control group in terms of dependent variables.

The data presented in Table 6 demonstrated the significant difference of the group DBT group and the structured matrix treatment group with the control group in pathological narcissism and craving for drugs, whereas such a significant difference was not observed between the

**Table 1.** A summary of group dialectical behavior therapy sessions

Sessions	Description
First	Familiarity with goals and rules, familiarity with the three states of mind: logical, emotional, and rational
Second and third	Taking non-judgmental position, self-mindfulness, and acting effectively Practicing the skills related to "what" and "how"
Fourth and fifth	Familiarity with some of the emotion regulation skills: definition of emotion and its components
Sixth and seventh	Familiarity with skills needed to accept emotions, distress tolerance techniques, and strategies of survival in critical situations (e.g., self-relaxation through the five senses)
Eighth	Familiarity with skills of improvement in the face of failure or anger

**Table 2.** A summary of structured matrix treatment

Sessions	Description
First	Initial evaluation, history of drug abuse, initial recovery skills, cessation of the vicious cycle of drug abuse
Second	Behavioral analysis tasks based on recognizing external tempters and drug abuse initiators
Third	Identification of internal temptations and emotional factors related to drug abuse
Fourth	Familiarity with the chemical structure of the body during the rehabilitation period and common treatment problems for accurate assessment of internal changes and segregation of emotional factors to control the habit
Fifth	Familiarity with psychological components including thought, feeling, and behavior and how they cause the onset of drug abuse in the past and future
Sixth	Familiarity with some factors such as boredom, fatigue, and nostalgia that may stimulate craving for drugs now or in the future
Seventh	Discussing the importance of employment, recovery, and entertainment that can be achieved through a healthy lifestyle
Eighth	Discussing the importance of honesty during relapse and awareness of temptations in preventing a relapse
Ninth	Relapse prevention, emphasis on complete or permanent abstinence
Tenth	Familiarity with skills of eliminating irrational and inefficient thoughts and beliefs about drug abuse
Eleventh	Familiarity with how to ask for help from other, especially family members, in the face of a relapse
Twelfth	Familiarity with how to find and join self-help groups
Thirteenth	Concluding the solutions, providing a multi-purpose coping program (including predicting risky situations), developing appropriate self-centered and community-centered solutions
Fourteenth	Review of previous sessions, termination of the intervention, post-test

**Table 3.** Mean and standard deviation (SD) of the variables in experimental and control groups

Variables	Phases	DBT	Structured matrix treatment	Control
		Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD
Pathological narcissism	Pre-test	182.25 $\pm$ 18.22	178.20 $\pm$ 16.00	180.40 $\pm$ 16.83
	Post-test	168.55 $\pm$ 17.62	166.65 $\pm$ 15.73	180.10 $\pm$ 17.27
Craving	Pre-test	46.35 $\pm$ 6.59	47.10 $\pm$ 7.36	50.55 $\pm$ 7.01
	Post-test	36.75 $\pm$ 7.88	38.65 $\pm$ 7.05	50.25 $\pm$ 7.31

DBT, Dialectical behavior therapy; SD, standard deviation.

group DBT group and the structured matrix treatment group.

## Discussion

The present study aimed to compare the effects of group DBT and structured matrix treatment on pathological narcissism and craving for drugs among drug abusers in Ahvaz. The results indicated that both group DBT and structured matrix treatment managed to significantly reduce pathological narcissism and craving for drugs among drug abusers. However, there was no significant difference between these two interventions in their effectiveness in pathological narcissism and craving for drugs. This finding is consistent with the results of previous studies (21,26). Ehtashami Pouya et al (21) reported that structured matrix therapy is effective in reducing the severity of addiction and preventing relapse in substance abusers. Amiri et al (26) reported that matrix program could be used to reduce the difficulty in cognitive emotion regulation and craving in methamphetamine-dependent patients.

To justify this finding, it can be stated that DBT, which is a combination of learning-based supportive, cognitive, and behavioral therapies, improves skills such as core mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness to provide ground for making changes in individuals with pathological narcissism. In other words, relying on the foundations of behavior learning and emphasizing the need to apply previous teachings and generalize specific skills, DBT prevents the defective behavioral cycles of such patients and reduces their emotional and disturbing experiences (27). Davazdah-Emami et al (28) showed that dialectical behavior therapy reduced craving in substance abusers.

**Table 4.** Results of homogeneity of variances in the research variables

Variables	Statistics	df1	df2	P
Pathological narcissism	0.22	2	57	0.72
Craving	0.46	2	57	0.63

**Table 5.** Results of one-way analysis of covariance (ANCOVA) on post-test scores

Variables	SS	df	MS	F	P	$\eta^2$
Pathological narcissism	1967.37	2	983.68	78.47	0.001	0.74
Craving	938.46	2	469.23	109.60	0.001	0.79

SS, Sum-of-squares; MS, Mean squares.

**Table 6.** Bonferroni post-hoc test for paired comparison of the variables in the post-test phase

Variables	Groups	Mean difference	SE	P
Pathological narcissism	DBT – Control	13.49	1.15	0.001
	Structured matrix treatment – Control	11.42	1.14	0.001
	DBT – Structured matrix treatment	20.06	1.12	0.212
Craving	DBT – Control	9.18	0.67	0.001
	Structured matrix treatment – Control	8.09	0.66	0.001
	DBT – Structured matrix treatment	1.09	0.65	0.309

DBT: Dialectical behavior therapy; SE: Standard error.

Malekzadeh et al (29) reported that dialectical behavioral therapy can increase the effectiveness of coping with the problems of patients with substance abuse in addiction treatment centers. Dimeff and Linehan (17) showed that DBT was effective in reducing drug abuse in addicts. As a result, DBT changes the behaviors of such individuals, regardless of the degree of their maladaptation, and helps them choose new behavioral skills, learn about their emotional experiences, increase their tolerance for failures, and use these skills in their real lives. It can be hence concluded that DBT can be effective in reducing pathological narcissism of drug abusers by increasing self-confidence, self-esteem, and respect for others and reducing jealousy (30).

DBT takes advantage of self-monitoring techniques and vulnerability reduction skills to help patients develop a substance-free lifestyle to resist temptations and craving for drugs. By combining mindfulness and emotion regulation exercises with the principles of behavior therapy, DBT teaches drug abusers to observe the physiological, mental, and behavioral consequences of drug abuse without any prejudice, and also to accept these behaviors and changes unconditionally to experience positive emotions. On the other hand, these exercises help drug abusers learn coping and problem-solving skills, as a combination of behavioral and supportive therapy with cognitive problem solving, and apply them in everyday life and in dealing with emotionally challenging situations (31). These skills ultimately help drug abusers to reduce high-risk behaviors disrupting their quality of life, improve their ability to resolve interpersonal conflicts and manage interpersonal relationships, increase their self-confidence, reduce their unpleasant daily experiences and emotional instability, and increase their ability to regulate negative emotions, tension, and anger, resulting in lower levels of craving for drugs (17).

Matrix treatment can be an appropriate solution for patients with pathological narcissism that helps such individuals to be less engaged in an inflated sense of their own importance, to avoid fantasies that they are special and have unique power and beauty, and to feel empathy for others and avoid jealousy of those around them. In fact, matrix treatment has provided a new path for the treatment of pathological narcissism of drug abusers through teaching them special techniques (20). As an outpatient, intensive, multifaceted, and structured



treatment for individuals and families, matrix treatment teaches clients the skills that improve their inner ability to deal with unpleasant emotions and internal and external factors that motivate drug abuse (21). It is generally considered a suitable method for the treatment of addiction to various stimulants, including methamphetamine. Moreover, matrix treatment increases one's control over painful emotions and emphasizes the techniques that identify and counteract the desires for drugs. In fact, many addiction therapists combine the important features of the matrix model therapy to develop an effective way to change the behavior of addicts (22). Therapists try to help clients differentiate serious problems from imaginary or exaggerated ones, change their perceptions of past events, current issues, and future possibilities, and take greater control over their cognitions, emotions, and behaviors.

To explain the effectiveness of structured matrix treatment, it can be argued that emotions are actually a set of physical sensations accompanied by thoughts and images; learning the skill of staying in the physical senses and paying attention to the pleasant and unpleasant sensations in meditation helps one learn to explore emotions in the same way that they are created in the body. This makes them much easier to tolerate and increases one's capacity to tolerate them. With regards to the cognitive nature of craving for drugs, structured matrix treatment can be certainly effective in this regard.

Similar to any other research, this study faced some limitations. For example, since this study was conducted on stimulant abusers in addiction rehabilitation centers of Ahvaz, the results should be cautiously generalized to other drug abusers in other regions. Considering the importance of DBT and matrix treatment, the study findings can provide a basis for future studies on other groups with mood disorders and addiction problems as well as the development of psychological interventions.

### Conclusion

Since our findings demonstrated the effectiveness of group DBT and structured matrix treatment in reducing pathological narcissism and craving for drug among drug abusers, these two interventions, along with other therapies, are recommended to improve the mental state and reduce craving for drugs among drug abusers, especially in addiction rehabilitation centers.

### Author contributions

**Conceptualization:** Sakineh Basereh.

**Methodology:** Sakineh Basereh, Sahar Safarzadeh.

**Validation:** Sahar Safarzadeh.

**Formal Analysis:** Farzaneh Hooman.

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**Funding Acquisition:** Sakineh Basereh.

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### Conflict of Interest

The authors declare that they have no conflict of interests.

### Ethical Approval

The study protocol was approved by the Ethical Committee of Islamic Azad University-Ahvaz Branch (code: IR.IAU.AHVAZ.REC.1400.118).

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