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Cognitive Restructuring Based on Metaphor Therapy to Challenge the Irrational Beliefs of Drug Addicts Undergoing Buprenorphine Treatment

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Abstract

Background: The use of metaphors rather than direct suggestions of treatment can help to weaken defense mechanisms against any functional changes and so cause an increase in the effectiveness of therapeutic interventions.
Objectives: This research was conducted with the aim of determining the effectiveness of individual metaphor therapy (IMT) in reducing the irrational beliefs and cognitive restructuring of drug addicts undergoing buprenorphine treatment.
Patients and Methods: Using a randomized controlled trial (RCT), 100 drug addicts who were referred to MMT/BMT centers in the city of Kermanshah, Iran, from July to September 2014 were selected through single-stage cluster sampling. After excluding 56 patients from the study due to their failure to meet the inclusion criteria, 44 people (37 at the end) were randomly enrolled into the experimental (n = 19) or control groups (n = 18). The SCID-I and the Jones' Irrational Beliefs tests were used as a means of measurement. Ten sessions of IMT (one session per week) were used as the intervention for the experimental group. The controls received routine cognitive restructuring. Data analysis was conducted using a multivariate analysis of covariance (MANCOVA).
Results: After adjusting for age and gender, the findings of the study revealed that IMT was significantly effective in reducing the irrational beliefs of approval seeking (P = 0.02), high self-expectation (P = 0.01), frustration reactivity (P = 0.03), anxious over concern (P = 0.02), and perfectionism (P = 0.006).
Conclusions: Since IMT can repeatedly neutralize patients' defenses without aggravating their anxiety, and as the therapy can help patients via the development of a new awareness or reformatting the patients' condition, it is recommended that this kind of therapy be used more widely in cognitive restructuring among drug addicts.

Keywords: Metaphor, Cognitive Therapy, Attitude, Drug Users, Buprenorphine

1. Background

Drug abuse is a significant public and clinical health concern (1) that dates back several hundred years in Iran (2). Drug addiction is a chronic, progressive, and devastating disease that not only causes the death of drug addicts themselves, but also hurts the families of the drug addicts as well as society in general (3). The lifetime prevalence of drug abuse and drug addiction in the USA has been reported as 7.7% and 2.6%, respectively (4). Drug addiction is very common in Iran. Indeed, about 1.5 million Iranian people suffered from drug abuse issues between 2004 and 2007 (5).

In the field of psychology, various theories have suggested different causes of addiction. For example, psychodynamic theory suggests conflicts, while cognitive theory focuses on dysfunctional thoughts and irrational beliefs. According to cognitive theory, the irrational beliefs often have an automatic, unconscious, and permanent nature (6), and they play an important role in the development and continuation of substance abuse (7). The cognitions and beliefs of patients have a significant impact on the course and progression of all phases of this disorder experience, including understanding the signs, looking for causes, and changes in individual behavior (8). In this regard, the results of one study (9) showed that compared with healthy people, Iranian addicts have more irrational beliefs, especially in terms of perfectionism, high self-expectation, problem avoiding, and frustration reactivity (10). Another study (11) reported that even the irrational beliefs of drug addicts' parents are more significant than those of the parents of healthy people.

Due to the prevalence of drug addiction, as well as its causes and consequences such as irrational beliefs, the development of different interventions has been inevitable

(12). According to Compton et al. (4), nearly 40% of all drug addicts seeking treatment. In this regard, pharmacologic (13) and psychological treatments (14) are regarded as the most common treatment interventions for drug addiction. Pharmacologic treatments such as Maintenance Methadone Treatment (MMT) or detoxification with buprenorphine are two types of treatment commonly available for drug addicts. Both of these treatments involve the gradual reduction of opium or the relevant drug (13). These treatments have several benefits, including stabilizing the patient's life, reducing high-risk behaviors related to needle sharing, decreasing mortality and morbidity rates related to substance abuse, and providing normal social situations for patients (15). However, since these people have become addicted due to weakness in specific skills and capabilities, and as pharmacologic treatments and detoxification fulfill only a part of their need (16), it is necessary for them to change their lifestyle at the same time as undergoing treatment. Thus, psychological interventions are regarded as a significant factor in the treatment of drug addiction complications (17).

Within the field of psychological treatments, there are different viewpoints on drug addiction, one of which concerns cognitive-behavioral interventions (18). Behavioral theories concentrate on the environment, while cognitive theories point out the incompatible and irrational beliefs of drug addicts. According to the cognitive approach, people's emotional and psychological problems stem from cognitive distortions, and irrational beliefs. Based on this viewpoint, in terms of their social interaction and the events that have taken place for them, most people face intellectual errors such as exaggeration, disaster supposition, distortion, hurried conclusion, exaggerated generalization, and others founded on the perception and interpretation of events. Thus, people typically consider such events to be the main cause of their agitation and problems. However, the events do not generate psychological complications by themselves. Instead, a person's "way of thinking" and "processing style" concerning information and their giving meaning to events or interpreting of events, give rise to such negative feelings and emotions (19). Considering ABC theory, when an event occurs (A:activating event), the thoughts and beliefs of a person (B) are activated and then consequences are developed (C). Consequently, in order to change those behaviors and emotions, especially with respect to consuming drugs and alcohol, a person's way of thinking should be changed (20).

Although extensive cognitive interventions are used worldwide to change the attitudes of patients, individual metaphor therapy (IMT) is one of the methods less commonly studied (21). Stories, myths, and allegories are all regarded as factors involved in the correction, restructuring, and treatment of attitudes, and they play a prominent role in solving the internal conflicts of humans (22). Common and dominant proverbs and metaphors used in conversational literature are included in the beliefs of any nation, and they are used as reasoning principles in daily life. Moreover, they are also used as the original and constant source in sociability and exchange of thoughts (23). Metaphors are defined as perception and experience in the form of other words through objective visualization (24), and they subtly teach readers that everything requires a structure and that change is always possible inside any structure (25). According to prior studies, metaphors may be effective in the diagnosis of both severe and stable mental diseases such as schizophrenia, bipolar disorder, major depression, dysthymia (26), personal development, self-acceptance, sense of appreciating life, reduction of anxiety (27), cognitive development (28), self-concept development (29), and sense of responsibility (30).

Additionally, the use of metaphors rather than direct treatment weakens the defenses of clients against changes of function and so increases the effectiveness of treatment interventions (31, 32). Further, adults establish a suitable relationship with metaphors so that they can easily accept through metaphors what they do not accept directly and are resistant against (22). Compared to other therapies, metaphor therapy can provide new understandings for the patient. Metaphors not only emphasize the similarity between two things, but may also enable something new to be discovered from the comparison. In fact, metaphor creates an emergent feature from two previously unrelated things, rather than simply emphasizing their similarities (33). Thus, this therapy method is benefit to special treatment strategies.

2. Objectives

Due to the cultural relationship between metaphors and the Iranian community, as well as the usability of individual metaphor therapy (IMT) (21), this research was conducted with the aim of determining the effectiveness of IMT in reducing the irrational beliefs and cognitive restructuring of drug addicts undergoing buprenorphine treatment.

3. Patients and Methods

3.1. Study Design

This study used a randomized controlled trial (RCT; registration number 93243) design. The double-blind study participants were the drug addicts who underwent pharmacologic therapy during July to September 2014 at

methadone and buprenorphine maintenance treatment (MMT/BMT) centers in the city of Kermanshah, Iran. The treatment of drug-dependent patients with buprenorphine has considered as an effect of treatment in developed countries, leading to greater acceptance on the part of phy-sicians to administer these life-saving medicines to their patients (15). The participants were randomly enrolled into the experimental and control groups.

3.2. Inclusion and Exclusion Criteria

The inclusion criteria were: 1) aged 18-70 years, 2) ability to read and write, 3) no psychotic disorders, 4) negative opium addiction test, and 5) taking buprenorphine. Moreover, the exclusion criteria were: 1) receiving any synchronous psychological intervention at any point in the treatment plan, 2) receiving psychological drugs, and 3) disinclination to continue treatment.

3.3. Participants and Procedure

The study's statistical population consisted of all drug addicts attending MMT/BMT centers in the city of Kermanshah who were being treated with buprenorphine during July to September 2014. The study sample consisted of 44 persons who were selected through single-stage cluster sampling and then randomly enrolled into the experimental or control groups. In single-stage cluster sampling, a simple random sample of clusters is selected, and data are collected from every unit in the sampled clusters. The Jones' Irrational Beliefs questionnaire was used as the pre- and post-test measurement instrument. IMT was used as the main intervention procedure in this study, and it was presented to the experimental group in the form of individualized consultation sessions. The procedure was performed in such a way that after the random selection of 100 testable patients from 20 MMT/BMT centers, a structural clinical interview for DSM-IV (SCID-I) was conducted with 81 patients who agreed to participate in this research. This interview was conducted in order to screen the patients with psychotic disorders. Through said interview process, eight persons were excluded due to psychotic diagnostic evidence. Additionally, 29 others were excluded from this study due to failing to meet the inclusion criteria. Monitoring for negative drug addiction tests during the intervention period was done using a Rapid Drug Abuse Test Kit at the beginning of the period, at the end of the fifth session, and before carrying out the post-test. Finally, 44 persons (36 males and 8 females) were randomly enrolled into the experimental and control groups.

At this stage of the study, pre-intervention testing was conducted by a clinical psychologist who was blind to the subject and process of this research. The Jones' Irrational Beliefs questionnaire was distributed to the patients. Since the intervention was conducted individually, the patients completed the questionnaire at the same clinic where they were undergoing pharmacologic therapy. After a rapport had been established and once the completion process for the questionnaire had been explained by a clinical psychologist, the patients completed the questionnaire in 30 minutes. After the questionnaires were collected from the patients, telephone contact was made with all of the patients and they were informed of the exact time of their individual meetings. They were also requested to report to the same clinic where they underwent pharmacologic therapy at the appropriate time.

IMT was performed by an experienced clinical psychologist (who was blind to the subject and process of this research) over ten individual sessions (one per week) of one hour in length for the patients in the experimental group. Thus, for each of the ten irrational beliefs, two metaphoric stories were presented to the patient. During the treatment session, the patient was requested to identify and explain the relationship between the metaphor presented and his daily life. At the end of the session, homework forms were given to the patient.

Simultaneous to the IMT sessions, the members of the control group attended ten sessions with the same therapist and received routine cognitive restructuring. During this intervention, the patients were told about the emergence of problem drug abuse and current pharmacologic therapy, as well as the disadvantages of addictive drugs. Additionally, during these sessions, the therapist responded to the questions and concerns of patients. At the end of each session, routine homework forms were given to each patient in order to record any cognitive conflicts.

During the sessions, three members of the experimental group (two males and one female) and four members of the control group (three males and one female) were excluded from treatment.

A week after the final session of the intervention period, a post-test was conducted by the same psychologist who administered the pre-test and corresponding data was collected (Figure 1). It should be noted that due to ethical considerations, after data collection and the termination of the research project, the experimental treatment was presented to the control group so that they could also benefit from the probable advantages of this kind of treatment.

3.4. Instruments

3.4.1. Structured Clinical Interview for Axis I Disorders (SCID-I):

This instrument evaluates axis I psychological disorders. It is comprised of six parts for the assessment of the

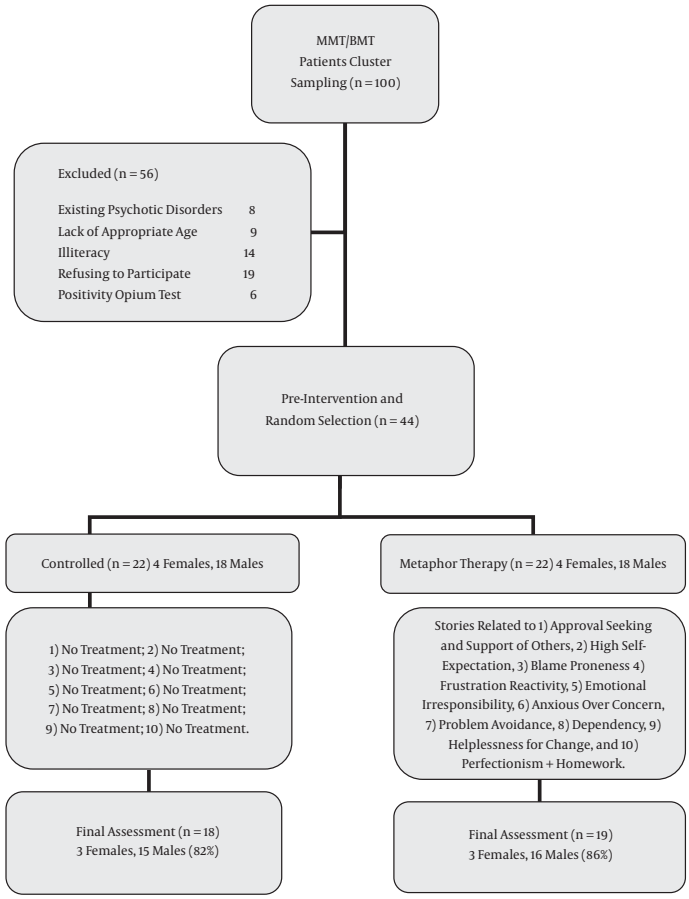

Figure 1. Diagram of Patient Selection Procedure and Content of Treatment Sessions

diagnostic criteria of the 38 disorders in axis I, including mood disorders, anxiety, and psychosis (34).

3.4.2. The Jones' Irrational Beliefs Questionnaire

This questionnaire consists of 100 questions and it was used as the pre- and post-intervention measurement instrument. The questionnaire was developed according to Shafiabadi's theory (1962) in 1969 by Jones, and it consists of ten subscales. Each subscale includes ten items. The grading of the questions was done based on a Likert five-point scale, and the respondent designated his agreement or disagreement based on the said grades. In each subscale, a high grade identifies the severity of the irrational belief. Jones (1969) reported the reliability of the test to be 0.92 according to the retest method, and the reliability of all ten subscales was between 0.66 and 0.80, with an average reliability of 0.74. Moreover, the correlation coefficient of this test was reported to be 0.82 according to Beck's depression test (35). The researchers (21) reported a Cronbach's alpha of 0.75, and a credibility value of 0.76 via the splitting method for the Persian version.

3.5. Treatment Protocol

In line with the recommendation of Bahremand et al. (21) and Sahebi (22, 25), IMT was conducted in ten sessions of one hour duration in such a manner that in each session, two metaphoric stories corresponding to one of the irrational beliefs were presented to the patient and he was requested to establish a relationship between the metaphor and his thoughts, emotions, and behaviors, especially those related to drug addiction. At the end of each session, the patient was provided with behavioral assignment forms and he was requested to review the metaphors in his mind every day. At the beginning of each session, the assignment from the previous session was studied. IMT was performed by an experienced clinical psychologist individually for the patients in the experimental group. The

sessions were conducted at the clinic where the patients received their regular medication.

3.6. Statistical Analysis

Data concerning 37 persons were analyzed using a multivariate analysis of covariance (MANCOVA) with SPSS (ver. 21.0) software. With regard to the presence of ten dependent variables that may each affect one another, a MANCOVA was used. All of the pre-intervention dependent variables and the age factor were covariates, and the impact of the variables was controlled using a MANCOVA. First, all pre-assumptions for the MANCOVA including normality, outliers, linearity, multicollinearity and singularity, and homogeneity of variance-covariance were examined. Multivariate normality was assessed to calculate the Mahalanobis distances. The Mahalanobis distance is the distance of a particular case from the centroid of the remaining cases, where the centroid is the point created by the means of all the variables. The maximum value obtained for the Mahalanobis distance (20.02) was less than the critical value for ten variables (29.59). So, we could safely assume that there were no substantial multivariate outliers and hence there is an assumption of data normality (36). In addition, a linear relationship between the combined dependent variables before and after the intervention was found. After checking other assumptions, a MANCOVA was used to compare the groups in terms of dependent variables after adjustment for the gender variable. In fact, the effect of this nominal variable was controlled as a fixed factor. Age and the pre-intervention scores of the irrational beliefs (continuous variables) were controlled as covariates. Additionally, demographic variables were compared using the chi-square test for non-continuous variables, and the treatment characteristics and age of the groups were compared using the t-test for continuous variables. The mean and standard deviation of the continuous variables are also reported. A P value of less than 0.05 was considered statistically significant.

3.7. Ethical Considerations

This randomized controlled trial was registered at Kermanshah University of Medical Sciences, Kermanshah, Iran (IRCT: 93243) and the required ethical license was obtained from the university's ethical committee.

4. Results

Data concerning 37 persons (31 males) with a mean age of 40.5 years were analyzed. The mean age of the experimental and control groups was 38.9 and 42 years, respectively. There were 28 married and nine single subjects. The educational level of the sample ranged from junior school up to the level of Master of Science. Table 2 depicts the patients' demographic information. Table 3 presents the results of t-test related to the age and some other variables related to the using substance and treatment of the participants.

As can be seen in Tables 2 and 3, no significant difference existed between the two groups regarding the demographic variables, age, drug addiction duration, and treatment period. However, regarding the decrease in required buprenorphine dosage during the intervention period, the experimental group demonstrated a better outcome. In Table 4, the mean pre-intervention and post-intervention scores of the irrational beliefs of the two groups are shown. Also in this table, the results of the MANCOVA analysis to determine the effectiveness of the intervention are shown.

A MANCOVA was applied to compare the pre- and post-intervention scores of the irrational beliefs. After adjustment for age and gender, it was revealed that a significant difference existed between the groups in terms of the dependent variables [F (10, 14) = 2.44; P = 0.03; Eta = 0.48]. Regarding the F value, it could be stated that in one of the scores at least, a significant difference existed between the two groups. According to Table 4, the results of the comparison of changes in the irrational beliefs show that a significant difference existed between the pre-intervention and post-intervention scores with regard to approval seeking (P = 0.017), high self-expectation (P = 0.011), frustration reactivity (P = 0.030), anxiety over concern (P = 0.021), and perfectionism (P = 0.006). This demonstrates that IMT was effective in decreasing these irrational beliefs. No significant finding was observed regarding the other irrational beliefs (P > 0.05). So, IMT was not effective in decreasing the irrational beliefs of blame proneness, emotional irresponsibility, problems avoiding, dependency, and hopelessness regarding change.

5. Discussion

This research was conducted with the aim of determining the effectiveness of IMT in reducing the irrational beliefs and cognitive restructuring of drug addicts undergoing buprenorphine treatment. The results revealed that this mode of intervention was effective in decreasing five irrational beliefs, namely approval seeking, high self-expectation, frustration reactivity, anxious over concern, and perfectionism. This finding is consistent with the results of previous studies confirming the effect of metaphor therapy on decreasing mental problems and promoting mental health elements (26-30, 32, 37, 38).

Table 1. The Content of the Therapy Sessions[a]

Sessions	Intervention Content
1	In this session, two metaphoric stories corresponding to approval seeking were presented to the patient and he/she was requested to establish a relationship between the story and his/her thoughts, emotions, and behaviors, especially those related to drug addiction. At the end of the session, the patient was provided with behavioral assignment forms and he/she was requested to review the metaphors in his/her mind every day. He/she was also asked to note what changes the metaphors had led to in his/her beliefs and behaviors.
2	At the beginning of the session, the assignment from the previous session was studied. Then, two metaphoric stories corresponding to high self-expectation were presented to the patient. Finally, the patient was provided with behavioral assignment forms.
3	After checking the patient's behavioral assignments, the patient was asked to talk about self-blame. After recalling the irrational beliefs of the patient, metaphoric stories of blame proneness were presented to him/her.
4	In this session, the patient was asked to talk about how drug abuse started and the reasons for relapse during withdrawal. Then, metaphoric stories of frustration reactivity were presented to the patient and his/her irrational beliefs were challenged by the therapist.
5	Initially, the patient's homework was evaluated. The patient was asked to talk about his/her thoughts and emotions, especially those related to drug addiction. Then, two metaphoric stories corresponding to emotional irresponsibility were presented to the patient.
6	Treatment during the sixth session was based on the irrational belief of anxious over concern. Thus, related metaphoric stories was presented to the patient. Finally, the patient was provided with homework forms.
7	In the seventh session, the irrational belief of problem avoidance was discussed. Then, two metaphoric stories corresponding to problem avoidance were presented to the patient and he/she was requested to establish a relationship between the metaphors and his/her thoughts, emotions, and behaviors, especially those related to drug addiction.
8	After checking the patient's behavioral assignments, the patient was asked to talk about dependency. After recalling the dysfunctional beliefs of the patient, related metaphoric stories was presented to him/her. Finally, the patient was provided with behavioral assignment forms.
9	Treatment during the ninth session was based on the irrational belief in hopelessness regarding change. Thus, related metaphoric stories was presented to the patient. Then, the homework for the next meeting was assigned to the patient.
10	During the final session, the metaphors presented in previous sessions were reviewed. Then, metaphoric stories of perfectionism were presented to the patient and his/her irrational beliefs were challenged by the therapist. At the end of the treatment period, the patients were requested to memorize the metaphors presented to them and to benefit from their results accordingly.

[a] Adapted from Sahebi (2008, 2014) and Bahremand et al. (2015).

Our results are consistent with those of previous studies based on the effectiveness of cognitive therapy in decreasing approval seeking (39, 40). In order to explain this finding suggesting that IMT has a significant effect on decreasing approval seeking, it may be said that due to long-term drug abuse and its mental consequences, as well as the undesirable behaviors related to such abuse including aggression, depression, weakness of self-concept, and low self-esteem (41), drug addicts are usually abandoned by their families and society and so have a high sense of shame. One of the best means of reducing the burden of that sense of shame is to assist addicts in identifying a reason for their abnormal behaviors and so helping them to calm down. The longer the drug abuse lasts for, the more this irrational belief is strengthened and turned into a part of the individual's beliefs. Meanwhile, IMT assists with the improvement of individual development, sense of appreciating life, and acceptance of oneself among these persons (27), and it causes their self-concept to be promoted as well (28).

The next finding of this study revealed that IMT had a significant effect on the adjustment of high self-expectation. Despite their dependency on drugs, addicts deny their problems and are essentially of the opinion that there is no problem at all (42). Generally, these people are late in accepting the conclusion that they have become addicted. Sometimes, they even refuse to accept this reality for many years. They are still of the opinion that they enjoy perfect physical health and have enough power to do any task. However, their actual present physical condition does not allow them to do many tasks. When they do attempt to undertake some of these tasks, they discover their inability and are seriously disappointed (43). Under such conditions, IMT can assist addicts with accepting reality due to weakening their defenses against these functional changes (31).

In explaining the finding that IMT affects frustration reactivity in drug addicts, it should be noted that these individuals usually feel excessive frustration but only limited responsibility (41). Immediately they face even the most trivial obstacle, they feel serious distress. Under these conditions, IMT can help due to the promotion of a sense of responsibility in the field of health management (30). Moreover, it was also found that IMT can significantly affect the reduction of anxious over concern among drug addicts. This is consistent with the findings of previous studies (27, 44). Due to the family, social, and economic conditions of most addicts, high levels of anxiety can be predicted

Table 2. Comparison of Demographic Information Between the Studied Groups

Variable	Experimental Group	Control Group	Chi-Square	P Value
Sex			0.005	0.94
Male	16 (84.2)	15 (83.3)		
Female	3 (15.8)	3 (16.7)		
Marital status			1.974	0.58
Married	13 (68.4)	13 (72.2)		
Single or divorced	6 (31.6)	5 (27.8)		
Education level			2.235	0.09
Junior school	6 (31.6)	8 (44.4)		
Under diploma	6 (31.6)	4 (22.2)		
Diploma	4 (21.0)	5 (27.8)		
Academic	3 (15.8)	1 (5.6)		

among such patients. This condition generally arises from their indecision and weakness (14) in decision making regarding life issues such as quitting drug. Since they are always operating in a state of indecision, they experience a high level of anxiety. IMT can help these individuals to terminate their indecision and decide more firmly due to their relating with the characters in the stories. Eventually, this increased power of decision making leads to a reduction in their anxiety.

Similar to the results of two prior studies (7, 40), this study revealed the effect of IMT on perfectionism in patients. Perfectionism, as one of the consequences of anxiety disorder, may appear in the form of obsessive thoughts and behavior in connection with perfection. As described above, IMT may serve to reduce the anxiety of patients. Thus, an adjustment in perfectionism may be a result of that reduction in anxiety on the part of patients. Moreover, IMT may assist patients with their perfectionism due to the associated promotion of cognitive development (28).

On the other hand, consistent with the finding of Powell et al. (45) that IMT does not affect the promotion of self-concept, the findings of this research revealed that IMT has no significant effect on the reduction of beliefs such as blame proneness, emotional irresponsibility, problem avoidance, dependency, and hopelessness regarding change. Additionally, the results of a previous study (21) showed that IMT is not effective in reducing irrational beliefs. One reason for this could be the content of stories and metaphors being presented in such a way that they could not transfer their message well. Another explanation for the lack of effectiveness of IMT may lie in the patients themselves, since the extension of metaphors is largely due to the willingness and ability of the patients to use their own powers of imagination and visualization (37). Therefore, a question arises concerning how patients can visualize the messages in the metaphors despite their relapse periods and any challenges to their physical, cognitive, and behavioral factors caused by dysfunctional beliefs and their catastrophic interpretation of their symptoms. Thus, it is likely that such patients do not enjoy the full ability to use their imagination, and it seems that they failed to establish a deep perception of some of these metaphors.

The main strengths of this study include the use of a cognitive approach in accordance with Iranian culture. We found that patients consider the content of the IMT sessions to be pleasant and remarkable. Hence, they attended the meetings on a regular basis. Conversely, this study faced certain limitations. The first such limitation is that the patients participating in the study enjoy different conditions in terms of the frequency of their treatment periods and recurrences. Thus, it is recommended that future studies try to consider the condition of the patients in terms of the frequency of their treatment periods and recurrences. Moreover, since the patients in this study received the metaphor therapy individually, the intervention was not performed at a specific place, but rather each patient attended the clinic where he was undergoing pharmacologic therapy. It is therefore recommended that in future studies, in the interests of the equalization of conditions, the sessions be held at a specific place. It is also recommended that patients who are undergoing treatment with other medicines than buprenorphine be studied as well. Finally, our study did not include a follow-up stage, although the inclusion of such a stage would be beneficial for future studies.

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Footnotes

Authors' Contribution: Saeid Komasi participated in the design of the study, subject recruitment, data collection,

Table 3. Comparison of Age and Variables Related to Treatment Between the Experimental and Control Groups

Variable	Experimental Group			Control Group			t-test	P Value
	Min	Max	Mean	Min	Max	Mean		
Age, y	21	62	38.9	24	70	41	2.25	0.12
Drug addiction duration, m	13	370	120	13	490	131	1.24	0.22
Treatment duration, m	2	47	13.5	2	46	12.5	1.10	0.28
Declining rates of drug, cc	0	18	2.4	0	18	1.3	2.38	0.02[a]

[a]Significant difference between the groups for each characteristic P < 0.05.

Table 4. Results of the MANCOVA Analysis to Determine the Effectiveness of the Intervention

Irrational Beliefs	Experimental Group		Control Group		SS & MS	F (1, 25)	P Value	Eta
	Pre-Intervention	Post-Intervention	Pre-Intervention	Post-Intervention	(df = 1)			
Approval seeking	34.05 ± 5.44	30.57 ± 4.54	35.22 ± 4.25	31.17 ± 4.23	38.19	6.55	0.017[a]	0.21
High self-expectation	34.15 ± 4.42	29.15 ± 6.65	34.27 ± 3.42	33.72 ± 3.87	100.90	7.54	0.011[a]	0.23
Blame proneness	36.47±4.74	36.84 ± 3.76	34.67 ± 4.10	35.443.85	7.37	0.57	0.46	0.02
Frustration reactivity	34.78 ± 4.34	31.31 ± 3.66	33.11 ± 4.90	31.95 ± 5.01	56.13	5.26	0.030[a]	0.17
Emotional irresponsibility	38.47 ± 6.57	37.31 ± 5.20	38.28 ± 5.23	37.95 ± 4.30	0.59	0.03	0.85	.001
Anxious over concern	33.10 ± 6.30	28.94 ± 5.51	34.17 ± 3.55	33.44 ± 3.85	88.78	6.07	0.021[a]	.20
Problems avoiding	32.00 ± 2.72	31.57 ± 5.52	32.50 ± 3.10	33.50 ± 3.60	3.52	0.20	0.66	.008
Dependency	38.52 ± 3.70	37.31 ± 4.41	36.78 ± 4.88	36.22 ± 4.89	7.18	1.03	0.32	0.04
Hopelessness regarding change	32.89 ± 5.53	29.89 ± 5.67	31.66 ± 2.91	32.27 ± 2.42	6.67	0.53	0.47	0.02
Perfectionism	30.31 ± 5.30	27.21 ± 5.15	31.72 ± 5.06	31.50 ± 4.95	102.77	9.01	0.006[a]	0.27

[a]Significant difference between the groups for each irrational beliefs P < 0.05.

intervention, data analysis, and drafting the manuscript. Mozhgan Saeidi participated in the design of the study, data analysis, and critically revising the manuscript for important intellectual content. Ali Zakiei participated in the design of the study and critically revising the manuscript for important intellectual content. Mohammad Mehdi Amiri and Bahareh Soltani critically revised the manuscript for important intellectual content. All authors read and approved the final manuscript.

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