Original Article

The Effectiveness of Emotion Regulation Training and Cognitive Therapy on the Emotional and Addictional Problems of Substance Abusers

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Objectives: The purpose of this study was to investigate the effectiveness of emotional regulation training group therapy, based on Dialectical Behavioral Therapy(DBT) and Cognitive Therapy, on improving emotional regulation and distress tolerance skills and relapse prevention in addicts .
Method: In a quasiexperimental study, 39 patients with the diagnosis of opioid dependence based on DSM-IV criteria were randomly assigned in to two experimental and one control groups. The experimental groups took 10 ninety-minute sessions of group therapy. The subjects were evaluated using the Opiate Treatment Index (OPI), General Health Questionnaire-28 (GHQ-28), and Distress Tolerance and Difficulties in Emotion Regulation Scales prior to the start of treatment, and at the sixteenth session. The control group did not take group therapy and was merely treated with naltrexone. Data were analyzed using repeated measures ANOVA and $\chi 2$ test .
Results: Scheffe test showed that both emotion regulation training and cognitive therapy were more effective than naltrexone increasing distress tolerance, emotion regulation enhancement, and decreasing the amount of drug abuse, health improvement, social functioning, somatic symptoms, anxiety, social dysfunction and depression enhancement($P<0.05$). In addition, emotion regulation training was more effective than cognitive therapy, increasing distress tolerance and emotional regulation enhancement ($p<0.05$).
Conclusion: It seems that DBT skill training increase the effectiveness of pharmacotherapy and is more effective than cognitive therapy.

Keywords*: Behavior therapy, Cognitive therapy, Group psychotherapy, Recurrence,Substance related disorders*

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Substance use disorders (SUDs) represent a serious public health problem in the United States and all over the world (1). SUDs not only cause impairment and suffering on the part of the affected individual, but also create a significant burden for the family and society (2-5). The average Iranian addict is most likely male, married and employed (6). Data from various provinces and within different groups show that more than 90 % of the drug abusing population is male (6). In fact, the Rapid Situation Assessment (RSA) study claimed that, on average, 93 % of drug abusers in the nation are male (6).

Unfortunately, the results showed that, despite the persistence and effort by staff and family members, attrition and relapse rates were high. In one unpublished study by the welfare organization in Bandar-Abbas, a southern city in Iran, the-6-month relapse rates mounted to 95 %. Similar finding in Tehran and major cities showed such discouraging results (6).

According to one popular theory of addictive behavior, known as the "self-medication hypothesis" (SMH) individuals use drugs and alcohol to modulate their emotional states (7-10). It is clear that opioids are the primary drugs of abuse in Iran (6). According to SMH, substance addiction functions as a compensatory means to modulate distressful affects and self-soothe from unmanageable psychological states(7).

The view that substance abusers have difficulties regulating their emotions, and that negative emotional states precipitate substance use, is supported by a large body of empirical evidence (7-10). The SMH considers the effects of drugs (e.g., opiates, cocaine, and alcohol) that interact with the inner states of psychological suffering and personality organization (11-13). Opiates (e.g., heroin, codeine, and oxycodone), in both natural and synthetic forms, have been widely used medically for their pain-reducing properties (14). According to Khantzian, opiate abuse functions as a temporarily adaptive response that mutes the rage and aggression (15,16). Khantzian asserted opiate abusers have not successfully established familiar defensive, neurotic, characterological, or other common adaptive mechanisms as a way of dealing with their distress. Instead, they have resorted to the use of opiates as a

way of coping with a range of problems involving ordinary human pain, disappointment, anxiety, loss, anguish, sexual frustration, and other sufferings (11,12).

Kornreich et al., demonstrated that opioid users, both under methadone and detoxified, had mild problems in decoding facial emotional expressions (17). With regard to emotional experience, when subjects rate their emotional response to complex affective images, Gerra et al., showed that abstinent heroin users had reduced subjective arousal response to both pleasant and unpleasant images, whereas they had increased arousal response to neutral images. "Sedative" users (including opioid and alcohol users) had lower valence response to pleasant images and higher valence response to unpleasant images when compared to cocaine users (18). These results suggest emotional dysregulation in opioid users.

These data are consistent with DBT's biosocial theory, which maintains that emotion dysregulation is at the core of BPD-criterion behaviors. The view that substance abusers have difficulties regulating their emotions, and that negative emotional states precipitate substance use, is supported by a large body of empirical evidence (7-10). Just as in standard DBT, where many target behaviors function to regulate emotions, substance abuse behaviors of patients with BPD can be quite similar. As a result, the emotion regulation skills remain central to DBT treatment with substance-abusing patients.

It seems that emotional regulation is more important than any other factors in relapse prevention. Therefore, this research hypothesizes that DBT emotional regulation training is more effective than standard behavioral therapy and naltrexone in relapse prevention, compliance, treatment retention and opiate treatment indexes.

Materials and Methods

In a quasiexperimental study, 39 patients with the diagnosis of opioid dependence based on DSM-IV criteria were randomly assigned in to two experimental and one comparison groups. The comparison group took naltrexone. One experimental group had۱۰ ninety-minute sessions of Beck cognitive group therapy & took naltrexone , and the other experimental group had ninety-minute sessions of DBT mindfulness and emotional regulation skill training & took naltrexone. Inclusion criteria consisted of: 1) meeting the DSM-IV diagnostic criteria for SUDs as assessed by Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) (19); 2) age between 20 and 45 years; 3) no comorbidity with schizophrenia, drug-induced psychosis, organic brain syndrome, personality disorder, bipolar disorder, mental retardation, or major depressive episode in course; 4) no current psychotherapy. After giving a full description of the study, written informed consent was obtained from all participants. The subjects were evaluated using the Opiate Treatment Index (OPI), General Health Questionnaire-28 (GHQ-28), and Distress Tolerance and Difficulties in Emotion Regulation Scales, prior to the start of treatment, and at the tenth session. The comparison group did not take group therapy and was merely treated with naltrexone.

Study content

The two therapies were conducted at different times to avoid the chance of participants meeting the members of the other groups. The standard DBT procedure (Linehan, 1993a, 1993b) (20, 21) includes four modes of intervention: group therapy, individual psychotherapy, phone calls, and consultation team meetings. We used mindfulness, and emotional regulation skills according to SMH.

Mindfulness

Mindfulness is developing attentional control, nonjudgmental awareness and sense of true self. Participants learn to simply observe and then describe events, thoughts, emotions and body sensations, and fully participate in their actions and experiences in a non-evaluative manner, focusing on one thing at a time and reorienting attention when distracted (22).

Emotion regulation

learning skills to decrease labile affect. It includes learning to identify, label and describe emotions, using mindfulness on emotion experience, reducing vulnerability to negative emotions, increasing the occurrence of positive emotions, and acting in an opposite manner to motivational tendency associated with negative emotions (22).

Cognitive Therapy

An important goal of cognitive therapy of substance abuse is to identify and modify drug-related dysfunctional beliefs, replacing them with more adaptive, functional beliefs. At the very least, the therapist attempts to teach the patient to build functional beliefs that become more *salient* than the drug-related beliefs. The ideal result is that the patient will abstain from drug use (23).

Measures

All the participants were examined using the measures below:

The Opiate Treatment Index (OTI): The OTI is a structured interview ; and it typically takes 30 minutes to administer it. As with any interview in this area, the quality of the information obtained will, in part, depend on the rapport established between the interviewer and the interviewee. The OTI provides a comprehensive measure for the evaluation of opioid treatment. In its complete form, it measures 6 treatment outcomes: drug use, HIV risk-taking behavior, social functioning, criminality, health status and psychological functioning (24). The reliability of the OTI subscales was assessed on a sample of 30 Iranian participants retested 1 week after the initial referral.

The estimated intraclasses correlation between the test–retest scores were between 0.73 to 0.85. In addition, the sexual partners of the 30 subjects were interviewed independently. The participating sexual partners were questioned about the subjects' recent behavior in the outcome domains of drug use, HIV risk-taking behavior, social functioning, and criminality. Data of the collateral interviews demonstrated a good validity (25).

The General Health Questionnaire-28 (GHQ-28): This questionnaire was developed by Goldberg & Hillier (1979) for screening somatic symptoms, anxiety and insomnia, social dysfunction and severe depression (26). The reliability of the GHQ–28 was assessed on a sample of 90 Iranian participants retested 1 week after the initial referral. The estimated intraclass correlation between the test–retest scores was 0.85 (27).

Distress Tolerance Scale (DTS): This questionnaire was developed by Simons & Gaher and assessed the ability to tolerate psychological distress (28). The DTS is a-20-item self-report measure of the extent to which particular cognitive and behavioral strategies are employed to cope with a range of emotional states (anger, happiness, loneliness, anxiety and depression). Each item is rated on a 5-point Likert scale ranging from 1 ("never") to 5 ("always"), reflecting the extent to which the particular coping strategy is used in the person's everyday life. The DTS demonstrated excellent internal consistency (α = .93) and scores ranged from 17 to 74 (*M* = 8.63, *SD* = 8.14) (29).

Difficulties in Emotion Regulation Scale (DERS): The DERS is a brief, 36-item self-report questionnaire designed to assess multiple aspects of emotion dysregulation designed by Gratz & Roemer.

The measure yields a total score as well as scores on six scales derived through factor analysis: 1) Nonacceptance of emotional responses (NONACCEPTANCE); 2) Difficulties engaging in goal directed behavior (GOALS); 3) Impulse control difficulties (IMPULSE); 4) Lack of emotional awareness (AWARENESS); 5) Limited access to emotion regulation strategies (STRATEGIES); 6) Lack of emotional clarity (CLARITY) (30).

Results

Demographic and clinical differences of the three groups were not significant (Table 1- 2). The mean age of the subjects in DBT emotion regulation training, cognitive therapy and naltrexone group were 25.61, 26.69 and 27.73 years respectively. Most of the subjects were tenants, and the highest educational level among them was the level of guidance school and high school diploma. The mean dependence in group A (Emotion Regulation Training), B (Cognitive therapy) and C (naltrexone) was 5.53 (SD=2.10), 5.61 (SD= 1.70) and 6.00 (SD= 1.63) years respectively. One person in the naltrexone group was excluded from the post-test due to not being available. No significant difference was observed between this person and the subjects participating in the study on clinical and demographic characteristics.

Substance consumption, methods of consumption and family history of subjects are demonstrated in Table 2. Opium, crack and heroin were the main substances used by subjects. Most subjects in each group, 11 patients from group A, 10 patients from group B and 12 patients from group C, used inhalant substance.

Findings show significant difference in relapse rate among the three groups ($\chi 2 = 6.70$, $P<0.05$). At the end of the treatment, the relapse rate of emotion regulation training, cognitive therapy and naltrexone group was 3(23%), 4(31%) and 8(67%) people respectively. Treatment compliance was assessed with the duration of staying in treatment and Naltrexone consumption.

The Findings suggested significant differences in

Table 1. distribution of study subjects, level of significance and χ2 of two groups according to marital status, education level, occupation and residence status

	Variable	GroupA +	GroupB ŧ	Group C¥	χ2	Degrees of freedom
		Frequency (%)	Frequency (%)	Frequency (%)		
Marital status	Married	6	7	7	0.20*	2
	Single	7	6	6		
Education level	Elementary	4	5	4		
	Middle	7	5	6	0.73*	4
	Diploma and above	2	3	3		
Occupation	Employed	7	8	9	0.65*	2
	Unemployed	6	5	4		
Residence status	personal home	2	3	3		
	Leased home	6	5	6	0.51*	4
	Parent hame	5	5	4		

* NS; +Group A: Emotion Regulation Training; ŧ Group B: cognitive therapy; ¥ group C: naltrexone Substance consumption, methods of consumption and family history of subjects are demonstrated in Table 2. Opium, crack and heroin were the main substances used by subjects. Most subjects in each group, 11 patients from group A, 10 patients from group B and 12 patients from group C, used inhalant substance.

Table 2. distribution of study subjects of the three groups according to substance consumption, methods of consumption and family history

Variable		GroupA +	GroupB ŧ	Group C¥	χ2	Degrees of freedom
		Frequency (%)	Frequency (%)	Frequency (%)		
Substance consumption	opium	6(46)	4(31)	7(54)	1.65*	4
	crack and heroin	6(46)	7(54)	5(38)		
	Other opioid	1(8)	2(15)	1(8)		
Methods of consumption	Inhalation	11(84)	10(77)	12(92)	1.68*	4
	Oral	1(8)	2(15)	1(8)		
	Injection	1(8)	1(8)	0(0)		
family history	Positive	5(38)	4(31)	6(46)	0.65*	2
	Negative	8(62)	9(69)	7(54)		

* NS; +Group A: Emotion Regulation Training; ŧ Group B: cognitive therapy; ¥ group C: naltrexone

Table 3. Naltrexone consumption in the three groups studied

Variable	GroupA +	GroupB ŧ	Group C¥
	Frequency (%)	Frequency (%)	Frequency (%)
Less than a month	0(0)	0(0)	3(25)
A month to less than two months	3(23)	6(46)	8(67)
Two months or more	10(77)	7(54)	1(8)

+Group A: Emotion Regulation Training; ŧ Group B: cognitive therapy; ¥ group C: naltrexone

compliance among the three groups ($\chi 2$ =17.71, P<05). Therefore, compliance of the two psychotherapy groups was higher than the naltrexone group. The results are presented in Table 3. As demonstrated, none of the subjects of the psychological intervention groups stopped the treatment in the first month. The variance analysis showed that differences in the duration of staying in treatment among the groups is significant (f=28.34, P<0.01).

To identify the difference between the groups, scheffe test was used. The data showed that emotion regulation training was more effective than cognitive therapy (P<0.05) and naltrexone (P<0.01) in relapse prevention.

Findings show significant difference in distress tolerance(F=7.01, P<0.01); emotion regulation(F=7.45, p<0.01); drug use(F=4.33, P<0.05); social functioning(F=4.43, P<0.01); health(F=5.77, P<0.01); somatic symptoms(F=5.67, P<0.01); anxiety(F=8.24, P<0.01); social dysfunction(4.83, P<0.05); and depression(F=4.02, P<0.05) among the three groups . Scheffe test showed that both emotion regulation training and cognitive behavior therapy were more effective than naltrexone increasing distress tolerance, emotion regulation enhancement, and decreasing the amount of drug abuse, health improvement, social functioning, somatic symptoms, anxiety, social dysfunction and depression enhancement (P<0.05). Furthermore, emotion regulation training was more effective than cognitive therapy, increasing distress tolerance and emotional regulation enhancement (p<0.05).

Discussion

In this quasi-experimental study, the efficacy of an emotional regulation skill training program on male addicts was evaluated. Although the present study was performed on a population of the addicts of a single district of Tehran and the small number of the groups limited the ability to detect the quantitive differences in the outcome, some encouraging trend in the data were observed. The comparison of emotion regulation therapy to cognitive therapy and pharmacotherapy among clients showed that emotional regulation treatment and cognitive therapy are more effective than naltrexone treatment.

This study demonstrated that psychological intervention is an inevitable part of treatment of addiction. Among the opioid antagonists, naltrexone has emerged as the most extensively studied agent. Despite its relatively pure antagonist activity and minimal side effects, naltrexone has not been widely accepted by addicts. This may be a result of several factors including the risk of precipitating a withdrawal syndrome during naltrexone induction and the absence of reinforcing opioid effects such as feelings of well-being and euphoria. Many addicts stop taking naltrexone before learning about new, non-opioid methods for controlling anxiety or depression, or before they can recognize cues that can trigger withdrawal symptoms and the urge to use illicit drugs. Therefore, it is necessary to incorporate psychological intervention with pharmacotherapy (31). In this study, we trained mindfulness and emotional regulation skills.

The results showed that training of these skills was more effective than cognitive therapy and pharmacotherapy, because mindfulness skills are included as a technique for coping with urges to engage in substance use (32). Marlatt (1994) notes that mindfulness involves acceptance of the constantly changing experiences of the present moment, whereas addiction is an inability to accept the present moment and a persistent seeking of the next “high” associated

with the addiction. Mindfulness, with its emphasis on acceptance of experience, provides a supplemental skill set for dealing with triggers, especially emotional trigger. These skills allow one to desensitize to high-risk situations that one may not be able to avoid or change (32).

On the other hand, Emotional regulation skills are very important to learn, because as mentioned earlier, many addicts use substance for emotional dysregulation. Poor emotional regulation has been identified as a risk factor for adult substance abuse (33-35). Aharonovich, Nguyen, and Nunes (2001) confirmed that substance abusers experience higher levels of psychological distress, and have difficulties in emotional regulation. Therefore, training of these skills caused addiction enhancement (36).

The main findings in this study contrast with previous data regarding DBT skills training (20, 37) that do not support the utility of skill training alone. Subjects of our study did not suffer from borderline personality disorder with suicidal ideation, attempt and act. The Linehan group's findings regarding the importance of maintaining the integrity of the full DBT treatment came from studies on people with BPD, one of which involved a small number of individuals with comorbid substance abuse. I'm not surprised that the researchers concluded that DBT skills training are not efficacious in themselves, because BPD patients probably benefit from the structure provided by the full model. However, it might not need to implement the whole package with less suicidal populations or substance-abusing populations who have less severe psychiatric impairments (38).

The small sample size and having no standard comparison group may have considerable impact on the overall result of this study. It must be remembered that the studied groups were only male addicts. The female addicts' response to such program may be different. Considering the limited sample size, replication of this study with larger sample size with both sexes seems to be necessary.

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