

## Abstract

**Objective:** Drug addiction is a phenomenon that occurs in any country, whether developed or developing, which is categorized in the group of social ills because of its consequence. This provides the grounds for other harms. The current study was an attempt to evaluate the effectiveness of cognitive-behavioral therapy in suicidal thoughts and impulsivity in adolescents. **Method:** The population of the present study included the addicted adolescents who had attended rehab camps in Tehran. The number of 30 participants was selected using convenience non-probabilistic sampling method. Then, the participants were randomly assigned to two experimental and control groups. The questionnaires pertaining to impulsiveness and suicidal thoughts were used for data collection purposes. Cognitive-behavioral therapy was offered to the experimental group, but the control group received no intervention. The posttest was also administered to both groups. **Results:** The results showed that cognitive-behavioral therapy could significantly reduce impulsivity and suicidal thoughts in addicted adolescents. **Conclusion:** This type of treatment can be used to treat addicts.

**Keywords:** suicidal thoughts, addiction, impulsivity, cognitive-behavioral therapy

# The Effectiveness of Cognitive-Behavioral Therapy in Suicidal Thoughts and Impulsivity among Adolescents with Addiction

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## Introduction

Although some social harm has always existed throughout human history, industrialization and the change of human life have led to the emergence of some of these damages. Substance abuse, also known as "catastrophe", has now become one of the major dilemmas of human societies, and fewer countries can be found that do not engage in this kind of phenomenon (Stevens et al., 2014). Iran is one of the countries in the world that is threatened by this phenomenon due to geographical, cultural and other factors. According to the United Nations Office on Drugs and Crime in 2005, Iran has the largest number of opiate abusers in the world, with the highest prevalence rate of 2.8 percent among people in Iran. Substance abuse and its dependence are a chronic and recurrent phenomenon associated with severe physical, financial, family, and social injuries (Mohammadpour Asle Fakhari, Rostami, Gholli Vahidi, Dastgiri, 2007). Among the groups exposed to this phenomena are adolescents.

Drug addiction and drug abuse are one of the key issues receiving much attention from clinical psychologists and psychiatrists as this issue has many negative consequences for societies (Moazzami, 2009) and is associated with many negative problems and phenomena, including suicide and violence. Substance abuse tendency, especially addiction, has become one of the serious problems of human society today. It is noteworthy that the drug problem is not related to a community or a country. Rather, it is a global issue, so sociologists believe that the problem of drugs, along with natural disasters, diseases and war are the four main issues of today's world and human society, challenging different societies and human beings. In the past, only adults were inclined to addiction, and adolescents and the youth rarely were tended to it; but later, when morphine, heroin, and cocaine were emerged in the market, there were cases of youth addiction (Moazzemi, 2009). Addiction is a state by which a person is completely addicted and dependent completely to a drug or addictive substance (Miller & Moyers, 2015).

Drug tendency causes the addict doesn't respect the moral values and norms of society and thus violate the rules. Addiction is a complex disease characterized by some features such as compulsive behaviors, impenetrable temptations, drug seeking behaviors and persistent consumption, even when it has many negative consequences for the individual. Continued substance use over time and prolonged toxic effects on brain function have led to a wide range of behavioral, psychological, social and physiological dysfunctions that prevent the natural behavior and function of addicts in the family, workplace and at a wide level, in society. (Sim, & Wong, 2008).

Impulsive behaviors, sometimes referred to as risky behaviors, include a range of actions that little thought is dedicated to them, immature and with immediate occurrence, without the ability to focus on a specific task, in the absence of a proper planning, and is with high risk taking factors (Segal, Morral,

& Stevens, 2014). Impulsivity is conceptualized as a cognitive dimension. In this sense, impulsivity is associated with a lack of cognitive inhibition and a slow and incomplete decision making. Impulsivity is one of the characteristics of different types of addiction (Belin, Mar, Dalley, Robbins, & Everitt, 2008). Some people act impulsively in all situations (related to attribute), while others act like this in specific situations, such as confronting the signs of craving for drug use (situation-dependent).

The loss of family intimate relationships, livelihood and unemployment among addicts also lead to hostility, aggression, violence and spouse abuse and suicide. The coping styles of addicts in comparison with non-addicts are one of the most important factors of their impulsiveness and emotional –based behaviors. Because addicts use impulsive coping style more than non-addicts, they have no rational and effective orientation towards problems and often use ineffective and often aggressive methods to deal with problems and people (Nutt, 2012).

In recent decades, suicide as a major health problem, has been increasing among young people (Roland, 2002). Based on the evidence, one of the reasons for the increase in suicide rates is the increase in drug and psychedelic abuse (Krunly, 1990). Substance abuse is one of the risk factors associated with suicide (Liddle et al., 2002); about half of suicides are committed by individuals with substance use disorder (Segal, et al., 2014). Substance abuse has been highlighted as one of the major risk factors for suicidal behaviors over the years and the importance of screening and identifying addicts exposed to suicide has been emphasized in several studies (Murphy, 1988).

Epidemiology studies indicate the relationship between substance abuse, alcohol and especially addiction to abuse, and physical and psychological dependence on several substances, with an increase in the probability of suicidal thoughts and behaviors, and the prevalence of suicidal behaviors among addicts has been reported between 17% (Schuckit, 1986) up to 29% (Whitters, Cadoret, & Widmer, 1985). On the other hand, studies have shown that anxiety and depression are associated with suicide attempts (Bronisch & Wittchen, 1994). Those attempting suicide have a history of substance abuse and drug dependence compared to the normal individuals (Oboyil, 1998; Le, Guydish, Pagano, Tajima, & Passalacqua, 2015).

Adolescents have experience increasing addiction and various medical and non-medical treatments are designed for addiction-related problems, but it is required that counselors and psychologists resort to non-medication and psychological treatments for adolescent's addiction; one of the effective treatments on psychological disorders is cognitive-behavioral therapy. Because substance abuse as a psychological and social harm has involved many families, it is necessary to use a suitable rehabilitation model and in this study, the group cognitive-behavioral therapy method was used. Group therapy is a type of treatment that can treat more patients in limited time. Also, the benefits of group

therapy are that the members of the group, as a result of interacting with each other and through self-disclosure, levels of empathy on the side of the other members of the group, as well as the feeling of having common pain can gain deeper insights into themselves and their problems (Mohyeddin , 2012). Cognitive-behavioral therapy is a therapeutic approach that seeks to change the attitudes of behaviors that are caused by inadequate and wrong learning and seek to change the irrational beliefs and attitudes. The cognitive-behavioral therapy method is based on this theory that the important factor of human behavior is his way of thinking about himself and his role in the world (Sadouk & Sadouk, 2007). Regarding the effect of addiction on suicide thoughts and impulsivity and with increasing number of addicted adolescents, the researcher is seeking to provide scientific answer to these questions as whether cognitive-behavioral therapy is effective on reducing adolescent suicidal thoughts or not? Is cognitive-behavioral therapy effective on reducing impulsivity among adolescent addicts?

## **Methodology**

### **Population, sample and sampling method**

This research is an applied design in terms of purpose and a quantitative research in terms of data type. A quasi-experimental method of pre-test and post-test with control group is used in the present study. The population of the present study included the addicted adolescents who had attended rehab camps in Tehran in 2016. To select the sample, at first 3 rehab camps were selected and 30 participants were selected using convenience non-probabilistic sampling method.

The inclusion criteria include: the declaration of drug addiction by the person himself, the length of the addiction at least 2 and maximum 15 years, the age range of 15 to 22 years, narcotics use such as psychedelics, heroin, morphine and marijuana.

### **Procedure**

The process is as at first, for both groups (experiment and control), pretest of suicidal thoughts and impulsivity was performed. Then, cognitive-behavioral therapy sessions were conducted for the experimental group (the therapeutic package is presented in Table 1), and immediately after the intervention completion, a post-test of suicidal thoughts and impulsivity was conducted for both groups.

**Table 1:** Cognitive Behavior Therapy Package in Terms of Sessions

<i>Sessions</i>	<i>The applied techniques</i>
<b>First</b>	Individual motivational feedback: the disadvantages of continued use of substances and being unchanged - the benefits of making changes in drug use-the benefits of continued use of substances and being unchanged - the disadvantages of creating change in drug use.
<b>Second</b>	The identification of high-risk situations - interpersonal and intrapersonal – stimulating factors (emotions, individuals, places and objects) - practical plans to deal with high-risk situations
<b>Third</b>	Identifying the underlying factors for drug abuse, planning methods to deal with the eagerness and desire for substance use, such as stopping thought, practicing balancing decision-making, and delaying.
<b>Fourth</b>	Dealing with negative thinking - the relationship between thinking and affection - determining the patterns of negative thinking - fighting negative thoughts and cognitive restructuring.
<b>Fifth</b>	Seemingly unrelated decisions-alert people to high-risk situations-functional analysis of risk thinking.
<b>Sixth</b>	Emergency planning and forecasting - occurrence of unexpected triggers or risky situations.
<b>Seventh</b>	Skills for refusing and dealing with direct foundations for drug use - Role playing to exercise courageous responses - criticism and being criticized – Courageous response to criticism – stress relieving skills-role play.
<b>Eights</b>	Anger management and substance use - Identify signs and symptoms of anger – Stress relieving skills-cognitive restructuring skills in the field of stimulating thoughts.
<b>Ninth</b>	Review of the abandonment of pleasurable activities as a result of drug use - Identifying pleasure activity as a healthy solution - Planning for enjoyable activities - Creating a commitment to perform pleasurable events.
<b>Tenth</b>	Creating friendships that not concentrating on substance abuse-Cut off relationships with friends and relatives that are damaging-disconnect with drug sellers and consumers-Find a group of supporters and create self-assisting groups.

### **Instrument**

1. Suicidal thoughts scale: This scale has been developed and validated by Mohammadifar, Habibi and Besharat (2005). This scale includes 38 items that is scored in Likert scale ranging from 1 to 3 as never to always. The individual's score ranges from 38 to 114. This scale measures the five dimensions of guilt and self-destruction, frustration and sense of humility, isolation and lack of relationships, stagnation and depression. The reliability of this scale has been reported through the calculation of Cronbach's alpha for total score and 5 sub-scales of 0.93, 0.83, 0.84, 0.80, 0.73 and 0.72, respectively (Mohammadifar et al, 2005). In this study, the reliability of the total scale was obtained by Cronbach's alpha of 0.73.

2. Barratt's Impulsiveness Scale (version 11): This scale, which was designed by Ernest Barratt et al. In 2004 (quoted from Edalati, 2007), is based on Barratt's personality trait theory, which contains 30 questions and 3 factors (attentional *impulsiveness*, non-planning *impulsiveness* and motor *impulsiveness*). Questions are scored as 4 choices (rarely to almost

always), and the highest score is 120. Paton, Stanford and Barratt (1995) reported the internal consistency for the total score between 0.79 and 0.83. Naderi and Haghshenas (2009) in a research for the first time in Iran validated Barratt's impulsiveness scale by calculating its correlation with Zakarman's sensation seeking scale in the student community. Correlation coefficient was 0.28 and its reliability coefficient was 0.72 by Cronbach's alpha and 0.62 by split half method. The validity and reliability of the Persian version of it was also performed by Ekhtiari et al. (1999) and the results of the research indicate that its validity and reliability are acceptable.

## Findings

The descriptive statistics of the studied variables by groups are presented in Table 2.

**Table 2: Descriptive Statistics of Studied Variables by Groups**

Components	Groups	Pre-test		Post-test	
		Mean	SD	Mean	SD
<b>Self of guilt and self-destruction</b>	Experiment	14/18	30/2	11/12	03/2
	Control	15/17	30/2	29/17	01/2
<b>Hopelessness and sense of humility</b>	Experiment	19/15	2/4	15/10	2.14
	Control	19/16	41/3	23/16	13/3
<b>Isolation of lack of relationship</b>	Experiment	10/18	3/3	7/13	20/3
	Control	11/17	12/3	19/17	06/3
<b>Stagnation</b>	Experiment	90/20	2/96	63/13	3/41
	Control	90/21	2/20	14/21	2/20
<b>Depression</b>	Experiment	90/19	2/96	63/13	3/12
	Control	90/20	2/11	06/19	2/26
<b>Total score suicide thoughts</b>	Experiment	90/90	13/96	69/63	17/23
	Control	31/90	13/20	58/89	12/63
<b>Attentional impulsiveness</b>	Experiment	03/32	30/3	12/20	78/2
	Control	15/30	30/2	96/30	30/3
<b>Motor impulsiveness</b>	Experiment	23/29	2/4	15/18	4.25
	Control	19/31	41/3	26/31	41/3
<b>Non-planning</b>	Experiment	10/29	32/2	72/20	85/4
	Control	11/26	85/2	32/26	59/3
<b>Total impulsiveness</b>	Experiment	02/90	9/63	51/59	11/63
	Control	3/89	63/8	42/90	10/67

To test the hypothesis of the research, multivariate covariance analysis (MANCOVA) should be applied. Before using the MANCOVA test, some of the important assumptions of this test should be considered. The results of the Kolmogorov-Smirnov test showed a normal distribution in the experimental group of impulsiveness ( $P > 0.05$ ,  $Z = 0.73$ ) and suicidal thoughts ( $P > 0.05$ ,  $Z = 0.67$ ). Also, in the control group, the impulsiveness ( $P > 0.05$ ,  $Z = 0.65$ ) and suicidal thoughts ( $P > 0.05$ ,  $Z = 0.82$ ) are normal distribution. The results of the Leven's test for the homogeneity of variances are illustrated in Table 3.

**Table 3: Leven's Test Results for the Analysis of the Error Variance in Two Groups**

<i>Variables</i>	<i>statistics F</i>	<i>Degree of freedom</i>	<i>Significance</i>
<b>Suicidal thoughts</b>	1/845	28	0/219
<b>Impulsiveness</b>	1/225	28	0/285
<b>Sense of guilt and self-destruction</b>	1/145	28	0/326
<b>Hopelessness and humility</b>	1/859	28	0/111
<b>Isolation and lack of relationship</b>	1/149	28	0/235
<b>Stagnation</b>	1/635	28	0/635
<b>Depression</b>	1/745	28	0/425
<b>Attentional impulsiveness</b>	1/623	28	0/326
<b>Motor impulsiveness</b>	1/856	28	0/415
<b>Non-planning</b>	1/157	28	0/854

As shown in Table 3, equality condition of error variances is satisfied in all variables. The results of testing the equality of regression slope are shown in Table 4.

**Table 4- The Results of Evaluation of Equality of Regression Slope among the Groups and pre-test**

<i>Variables</i>	<i>Source</i>	<i>Degree of freedom</i>	<i>F statistics</i>	<i>Significance</i>
<b>Suicidal thoughts</b>	Mutual action (group and pre-test)	27	4/67	0/47
<b>Impulsiveness</b>	Mutual action (group and pre-test)	27	2/36	0/55

As shown in Table 4, the slope homogeneity assumption is satisfied for regression. The results of the box test also showed the homogeneity of the variance-covariance matrix in suicidal thoughts ( $M=9.85$ ,  $F=1.12$ ,  $P>0.05$  Box) and impulsiveness ( $M=7.52$ ,  $F=1.59$ ,  $P>0.05$  Box). Thus, multi-variate covariance analysis was performed for suicidal thoughts and the results showed significant difference (Effect size =0.623,  $F=21.62$ ,  $P<0.001$  and Lambda Willks=0.35). To evaluate the difference models, uni-variate covariance analysis was applied and the results are presented in Table 5.

**Table 5: Uni-variate Covariance Analysis Results for Evaluating the Models of Group Differences in Components of Suicidal Thoughts**

<i>Components</i>	<i>Mean of squares</i>	<i>statistics F</i>	<i>Significance</i>	<i>Eta square</i>
<b>Sense of guilt and self-destruction</b>	198/25	5/740	0/0005	0/203
<b>Hopelessness and humility</b>	200/41	5/890	0/0005	0/269
<b>Isolation and lack of relationship</b>	152/85	4/840	0/0005	0/198
<b>Stagnation</b>	133/74	4/190	0/0005	0/136
<b>Depression</b>	169/85	5/360	0/0005	0/253

As shown in Table 5, there is a significant difference in all components. According to descriptive statistics, it can be concluded that cognitive-behavioral treatment was effective on decreasing the suicide score components.

Also, multivariate covariance analysis was performed for impulsiveness components and the results showed a significant difference (effect size = 0.752,  $F=26.74$ ,  $P<0.001$ ,  $\Lambda$  Willks=0.49). To evaluate the difference models, uni-variate covariance analysis was applied and the results are indicated in Table 6.

**Table 6: Uni-variate Covariance Analysis Results to Evaluate the Models of Groups Difference in Impulsiveness Components**

<i>Components</i>	<i>Mean of squares</i>	<i>statistics F</i>	<i>Significance</i>	<i>Eta square</i>
<b>Attentional impulsiveness</b>	601/12	6/410	0/0005	0/301
<b>Motor impulsiveness</b>	512/35	5/750	0/0005	0/289
<b>Non-planning</b>	652/13	8/020	0/0005	0/352

As shown in Table 6, there is a significant difference in all components. Regarding the descriptive statistics, it can be concluded that cognitive-behavioral therapy was effective on reducing the scores of impulsiveness components.

## **Discussion and Conclusion**

Drug addiction is a phenomenon that occurs in any country, whether developed or developing, which is categorized in the group of social ills because of its consequence. This provides the grounds for other harms. In order to recognize and treat more and more addictive factors, the present study aimed to investigate the effectiveness of cognitive-behavioral therapy on suicidal thoughts and impulsiveness in adolescents referred to Tehran addiction rehab camp. The results showed that cognitive-behavioral therapy was effective on reducing the suicidal thoughts of addicted adolescent. The results of this research are consistent with the researches of Fadayi, Ashoori, Hooshyari and IZANLOU (2011), Keikhavni, Chatripur, Sidkhani nahal (2012), Niko Gofar and Anafche (2014), Khojeste Mehr, Rajabi and Sotoudeh (2010) Zeeb, Soko, Ji, & Fletcher (2016), Henges, & Marczinski 2012), Stanley, Markman, & Whitton(2009). In explaining these findings, it is possible to say that adolescence is a stressful period. Issues of maturity, independence, educational issues, emotional connections with the opposite sex, peer relationships, media and many other factors cause more confusion and stress for adolescents. These issues have been acutely effective by many addicted adolescents. Suicidal thoughts are more among addicted adolescents for many psychological, cultural and economic reasons compared to those of ordinary adolescents. Several studies have shown that suicidal thoughts are highly correlated with psychological disorders such as depression (Kaykhavani et al., 2012; Nikogofar and Anafche, 2014; Zib et al., 2016). It can be said that those with sufficient mental health are trying to resolve

their inner complexes and shape their environment as much as possible and adapt to it where necessary. In fact, healthy people are struggling with rational solutions to problems, but depressed individuals do not have the motive for life, when faced with problems, they are looking for a way to escape, which, according to studies in depressed people, is a way to escape and any action to do it is started by thinking about it and in according to researches, depression is a powerful factor in predicting suicidal thoughts and suicide attempt. A review of the literature and the present study in general shows that there are some degrees of harm and deficit in the decision making process and the thoughts of those dependent on substance use. This deficit may be due to some of the personality traits, neurological damage, substance abuse, lack of adequate training in life skills. The cognitive-behavioral view shows the adolescents that thoughts are always related to emotions and behavior. As a result, whenever a teenager goes to suicide in any form, he or she will experience suicidal thoughts. The teenager learns the connection between his thoughts and feelings and therefore he can better understand and control these thoughts. Cognitive reconstruction during the treatment helps the patient recognize his cognitive distortions, and this sort of identification helps him to predict and control the path to suicide.

Another result of this study was the effectiveness of cognitive-behavioral treatment on reducing the impulsiveness of addicted adolescents. Hazardous decision-making generally points to problems in the decision-making process, which can lead a person to make decisions with irreversible negative consequences. Risky decision making can occur for different reasons and roots. On the other hand, it can be considered as a behavioral consequence of the impulsiveness component in individuals with high innovation (Cloninger, 2000) and, on the other hand, can be due to weakness in decision making skills and inadequate knowledge and skills in this area. Some studies have shown that life skills training, including decision-making skills, can reduce the risk of impulsiveness and hazardous decisions in people using substances and alcohol (Woods, 2002). Although in the past, studies and the treatment process focused more on compulsive and craving aspects of substance use, it has now become evident that impulsiveness is also a major element in the onset and continuation of drug use disorder.

The results of this study are consistent with the studies of Haddadi, Rostami, Rahimi-Nejad and Akbari (2009), Nourafkan roohi (2009), McCary et al. (2008), Ekhtiari et al. (2008), Keikhavni, Chatripour, Seid Khani Nahal (2012), Nikogoftar and Anafche (2014), Henges, & Marczynski (2012), Fisher, Smith, & Grin (2008). The common point of all of these studies is as impulsiveness is a significant and important factor that both distinguishes between substance abusers and has high correlation with the severity of addiction. In most studies that focus on the relationship between impulsiveness and addiction in the outpatient group dependent on cocaine and recreational drug users, even after controlling the effect, antisocial personality disorder remained high (Ieland, &

poules, 2005). Investigations by Muller et al. (2002) also found that high impulsiveness put people at greater risk for recreational substance use.

Some studies indicate that high impulsiveness can play an important role in initiating drug use, and this may be one of the reasons for the high impulsivity in drug-dependent samples in this study; the relationship between impulsiveness and the formation of related disorders with the substance use in a study showed that those who were impulsive in adolescence would be more likely to use drugs and alcohol in the future (Majak, Boldt, & Tensil, 2001). Cognitive-behavioral therapy can lead to reduced impulsiveness and anxiety by targeting the signs in addicted adolescent. The treatment is effective with long-term emphasis on treatment. The use of this treatment is effective with the emphasis on the long-term treatment. Probably, the effect of these treatments is much evident on mood symptoms such as anxiety. It can be said that cognitive-behavioral therapy can increase the therapeutic effectiveness due to its latent mechanisms such as admission, increase awareness, attendance at a moment, observation without judgment and preventing empirical avoidance. Therefore, increasing the psychological flexibility in cognitive-behavioral therapy and the creation of mindedness-based thinking can increase the patient's ability to cope with the temptation and withdrawal symptoms as the main indicator of continued use in these patients (Narimani, Rajabi and Delaware, 2013). )

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