

The Comparison of Attentional Bias and Difficulty of Emotional States Regulation and Their Correlation with Craving Severity in Drug Abuser Methamphetamines and Crack

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Article information	Abstract
<p>Article history: Received: 8 Feb 2013 Accepted: 9 Apr 2013 Available online: 19 May 2013. ZJRMS 2014 Oct; 16(Suppl 1): 29-34</p> <p>Keywords: Attentional bias Craving Methamphetamines Crack</p> <p>*Corresponding author at: Department of Psychology, Faculty of Education and Psychology, University of Isfahan, Isfahan, Iran. E-mail: nezamghasemi@yahoo.com</p>	<p>Background: Today, within creased substance, type of substance used has changed. Therefore, drug abuse in population of crack to the stimulant drugs (amphetamine) particularly crystal is expanding and increasing. Therefore, the purpose of the present study was the comparison of attentional bias and difficulty of emotional states regulation and their correlation with craving severity in drug abuser methamphetamines and crack.</p> <p>Materials and Methods: Type of research was descriptive analytical correlation. Population was total of users with methamphetamines and crack in summer and fall 2011 at the city of Isfahan, and 34 users with crystal with daily at least one year were selected on the basis of the snow ball sampling and 31 users with crack with daily at least one year were selected on the basis of the sample sampling. The difficulties emotion regulation scale (DERS), Stroop test and OCDUS were used as the outcome measures. For findings used of descriptive statistics and multivariate analysis of covariance (MANCOVA) and regression analysis were used.</p> <p>Results: The results of analysis of variance showed that between drug abuser crystal and crack significantly differed of attentional bias and difficulty of emotional states regulation. The greatest differences to components of a lack of transparency, lack of emotional awareness, limit emotional states regulation strategies and of emotional responses. But, only the variable non-acceptance negative emotional of subscale of the difficulty of emotional states regulation was able to craving (as an important indicator of durable use substance) in of both crack and crystal predicted. This variable is only 13% of the variance craving in drug abuser crack and crystal can be explained. Other findings showed that although there is no difference between the two groups in the intensity of craving, but attentional bias among drug abuser crack and crystal was a significant difference.</p> <p>Conclusion: Overall, can be said the difference in difficulty of emotional states regulation, attentional bias and craving among abusers of amphetamines (crystal) substance opiate (crack), two groups of abusers requires different approaches to interventions.</p> <p>Copyright © 2014 Zahedan University of Medical Sciences. All rights reserved.</p>

Introduction

Diagnostic and statistical manual of mental disorders (DSM-IV-TR) defines addiction as excessive desire to consume any materials or drug, is associated with withdrawal symptoms and tolerance and believes amphetamines are drugs with high degree of addictive [1]. Addiction is spreading in the Iran [2] and world [3]. According to UN estimates, around 200 million people in worldwide are substance abuse of stimulant drug [4, 5]. Statistics finding of Iranian National Center for Addiction shown that a broad wave of substance abuse of stimulant drug is expanding in Iranian population. One of the main issues in the field of addiction treatment, is craving that will makes continuity of addiction [5]. Drug craving as conscious motivation or unconscious motivation for to continue using drugs and with positive reinforcement effect, is known as main core

of continuity of addiction after first use [6]. Drug craving may be evolved since a few hours after starting treatment until some days after finishing treatment course, and the frequency and intensity of drug craving is slowly declining, but rarely disappear [7]. Research suggests that despite the multiple treatments, patients can not release of drug craving [6]. In fact, there is a growing evidence to suggest that long-term use of the drugs that cause cognitive function damage [8-11] such as memory, attention, learning and inhibitory control can be effective in shaping craving [12, 13]. According to the cognitive approach, people can make to environmental screening with use of attention [14] and any automatic activity is will transfer through the gate of attention [14]. This transfer of information can cause of the deviation attention to salient environmental stimuli in the

environment, like watching a pack of cigarettes by smokers. This process named attention bias, that is, the impact on information processing environment that are associated with drug use.

During the process of attention bias, despite the efforts of individuals for disregard of stimulus, will move whole attention toward stimulus [15]. Several research have been shown, that the attention bias has important role to the inability to control drug cravings and behaviors associated with substance abuse [16, 17]. In other hands, in the link between cognition and emotion, we can see the cognitive control on emotion or emotion control on cognitive at physiological reactions [18]. Therefore, emotional regulation, as the process began, maintenance, adjustment or change in the incidence, severity or continuity of emotions can be infrastructure is focused on cognitive information processing systems and be involved in the formation of addiction [19]. As the recent studies have shown that dysfunctional emotional regulation, can important role in substance abuse [20]. According to the stress-vulnerability model, persons have not strategy to regulate their emotions, maybe use of drugs to relief their negative emotion [21]. In support of this model, studies have shown that emotional avoidance strategies are associated with substances abuse [21] and people who have poor emotional regulation are more likely to use of drug [22]. With regard to the items mentioned above, the purpose of the present study is the comparison of attentional bias and difficulty of emotional states regulation and their correlation with craving severity in drug abuser methamphetamines and crack.

Materials and Methods

This study is descriptive-analytical and specifically it is considered a causal-comparative method. The population of research were all consumers amphetamine and crack in the winter and spring of 2013 in Baharestan city of Isfahan, Iran. Thirty four users with amphetamine with daily at least one year were selected on the basis of the snow ball sampling and 31 users with crack with daily at least one year were selected on the basis of the sample sampling. The age range of participants was 20-50 years, and was educated in grade 8 up to bachelor. They were assessed at the beginning of treatment. High power estimate and effect size and low signification this indicated that the sample size was sufficient. Addition, comorbidity by clinical psychologist, clinical interview and the Beck depression inventory (BDI) was controlled to the extent possible, and all those who qualify for depression or other severe psychiatric disorders in interview and BDI were excluded from the study. Finally, all participants in this study receive information about this research and to participate in the study, informed consent was obtained from them. The study was conducted at addiction clinic center on Baharestan city of Isfahan. The following tools were used to collect data.

Difficulties in Emotion Regulation Scale (DERS): Emotion regulation is defined as; a) knowledge and understanding of emotions; b) acceptance of emotions; c)

the ability to control impulsive behaviors and behave in accordance with desired goals in order to achieve personal goals and situational demands [23]. DERS is a self-report scale for assess of emotional difficult regulation with 36 items and 6 subscales Likert-style response. Higher scores on each subscale, indicate a higher level of each trait. subscales are: 1) no acceptance of emotional responses, 2) difficulties engaging in goal-directed behavior, 3) impulsive control difficulties, 4) lack of emotional awareness, 5) limited access to emotional regulation, 5) lack of emotional clarity. This scale has been used in several studies in the Iran and other country. Internal consistency was 0.93 for total scale and 0.84 to 0.89 for the six subscales. Test-retest show optimal value 0.88 for total scale. Also, builders scale achieved construct and predict validity for total scale [23].

Stroop test: Stroop test is widely used to assessment of attention bias to emotional stimuli and evaluate the mechanism of selective attention [24-26]. This scale is considered as popular neuropsychological assessment of executive functions (attention selective focus). This scale is considered a popular neuropsychological assessment for executive functions (selective and focus attention) [27]. In this test, the participants should be identifying the color of words that written in different colors, without regardless of the means of word. Stroop test (Victoria version) includes 24 words with four colors in six columns. The Stroop test evaluated in the first statue, automatic attention (the name of word color is match) and in second statue, uncoordinated (interference effect due to executive attention). In each statue participants have 12 seconds to read the color of the words that are written. The number of word is correctly read the score awarded. Scores range is between 0 up to 24, that more fouls indicates higher impairment in attention and focus. The reliability of the test has been reported 0.72 to 0.85 [28]. Test-retest reliability is 0.89 reported [29]. Several version of these tests have been used in variety studies and its relation with other assessment tools such as MRI and EEG were obtained [23].

Visual Cue-induced Craving Tasks for Crack and Desires for Drug Questionnaire: For measure craving in crack of visual cue-induced craving tasks for crack that was designed by Mokri et al. [29] and for measure craving amphetamine of Desires for drug questionnaire was designed by Ekhteyari et al. was used. In visual cue-induced craving tasks, can be assessed in a person's craving with using visual cues induced craving. In this scale, the images of substance abuse shown on addicts then they asked the images can be somewhat of craving. Subjects is determine rate their craving from anything until very much. This scale has a total score of zero to 100. The mean total score of 16 images is considered to amount of craving in persons. Higher score, shows that the higher the level of cravings. Visual cue-induced craving tasks for crack and Desires for drug questionnaire have good reliability and validity. We used of OCDUS (Persian version) that translation and assessed psychometric property in Iranian National Center for Addiction. For assessing carving of amphetamine we used

Persian version of OCDUS that had been translated and validated in Iranian national center of addiction by Ekhtari et al. Information obtained from the questionnaire were analyzed by software using descriptive and statistics in SPSS-19.

Results

The findings of this research showed that frequency of crack and amphetamine user was 0.55, 0.45 in sequence and mean of age for using of crack was 8 years and 3 years old for amphetamine. Also maximum and minimum age in crack and amphetamine users was (48, 22) and (47, 19) in sequence. The mean and standard deviation of age in crack users was (29.5, 5.1), and in amphetamine users was (29.9, 7.17). Minimum and maximum of literacy in crack users was grade 8-14 and in amphetamine 8-16.

Correlation matrix of difficulties in emotion regulation and its relation with craving in crack and amphetamine users have come in table 1.

For investigation of sextet indexes of difficulties in emotion regulation and attention bias in anticipation of carving rate in two group of crack and amphetamine users, used the stepwise regression analysis that its result have come in table 2.

Regression results in table 2 indicate that just non-acceptance of sextet indexes of difficulties in emotion regulation could anticipate the carving in amphetamine group (0.13) and non-acceptance and impulse control difficulties in crack group (0.16). Analysis of regression

coefficients show that when the subscales of difficulties in emotion regulation were entered to model just non acceptance of emotional responses variable is negative that demonstrate 0.13 of variance in dependent to amphetamine people and 0.16 in crack user group. Other subscales cannot anticipate carving in the user group.

For investigation of difference group in crack and amphetamine users in deal with difficulties in emotion regulation with sextet, used the variance analysis in two groups for difference of attention bias and carving rate. Its results have come in table 3.

Table 3 show that there is significant correlation between of crack and amphetamine user group. These differences are in all of sextet indexes including: non acceptance of emotional responses, difficulties engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, lack of emotional clarity. Crack and amphetamine group have had significant difference in attention and centralization bias but not in carving intensity. Although on basis of the results, adjusted mean of amphetamine group in all of variables are further than crack group except in carving rate variable ($p < 0.01$). It is mean that mean of carving rate in crack users is further than amphetamine users group. Also with regard of effect size in difficulties in emotion regulation, results indicate that the most difference is in sequence for clarity, awareness, strategies and non acceptance of negative emotions.

Table 1. Correlation matrix of difficulties in emotion regulation and its relation with craving in substances abuser of crack and amphetamine

Variable	1	2	3	4	5	6
1-Nonacceptance of emotional responses	1					
2- Difficulties engaging in goal-directed behavior	0.44**	1				
3- Impulse control difficulties	0.04	0.4	1			
4- Lack of emotional awareness	0.39**	0.23	0.34**	1		
5- Limited access to emotion regulation strategies	0.31**	0.25**	0.27**	0.38**	1	
6- Lack of emotional clarity	0.31**	0.18	0.35**	0.50**	0.35**	1
7-Carving	-0.26**	-0.23	0.12	-0.21	-0.20	0.05

** $p < 0.01$

Table 2. Regression coefficient of subscales of difficulties in emotion regulation and attention bias for anticipation of carving in crack and amphetamine abuser

Variable	B	β	F	R	R ²	Adjusted R
Regression of amphetamine, Non-acceptance	0.29	0.56**	9.1	0.26	0.13	0.13**
Regression of crack, Non-acceptance, Impulse	0.33	0.57**	10.1	0.39	0.16	0.15**

Table 3. Results of Man ova analysis for comparison of emotion regulation, carving rate and attention and centralization bias in two groups

	Groups	Mean±SD	F	Effect size	Power test	p-Value
1-Nonacceptance of emotional responses	Crack group	13.94±7.91	29.959	0.33	0.99	0.0001
	Glass group	24.25±6.67				
	Total	10.92±7.02				
2- Difficulties engaging in goal-directed behavior	Crack group	9.7±7.39	12.53	0.33	0.93	0.001
	Glass group	16.3±2.60				
	Total	26±4.05				
3- Impulse control difficulties	Crack group	13.9±7.52	13.63	0.17	0.95	0.0001
	Glass group	20.50±5.02				
	Total	17.02±6.01				
4- Lack of emotional awareness	Crack group	11.7±5.8	60.53	0.18	0.99	0.0001
	Glass group	23.1±6.25				
	Total	17.4±5.5				
5- Limited access to emotion regulation strategies	Crack group	11.05±5.7	34.17	0.5	0.99	0.0001

	Glass group	24.25±11.49				
	Total	17.65±8.51				
	Crack group	8.85±4.8				
6- Lack of emotional clarity	Glass group	19.5±4.07	84.52	0.26	0.99	0.0001
	Total	13.95±4.02				
	Crack group	45.38±19				
7-Carving	Glass group	38.96±10.63	2.46	0.58	0.339	0.12
	Total	42.17±16.08				
	Crack group	0.78±0.23				
8-Attention and centralization bias	Glass group	2.58±9.27	2.29	0.04	0.7	0.02
	Total	1.68±7.50				

Discussion

Because carving have known as the main nucleus of substance abuse continuing after the first using this study was done with aim of the comparison of attentional bias and difficulty of emotional states regulation and their correlation with craving severity in drug abuser methamphetamines and crack. Results showed that difficulties in emotion regulation (non acceptance) have significant correlation with carving in all two substances type, and it anticipates 0.13 of the carving intensity of substance using.

This finding is consistent with neuropsychological findings of Evern et al., Fox et al., and Nut [30-33]. On basis of the finding, psychotropic drugs have a late effect on dopaminergic pathways in substances abusers (mediator of pleasure feel) that regulate the emotional responses [34-37]. On the other, researches have showed the dopaminergic pathways are damaged in substances abusers. As have showed in this research, emotion regulation has had difference in crack and amphetamine user group. On the other hand, findings of this research is not consistent with Ekhteiari et al., [38], they showed that visual cue-induced craving of heroin could create the carving in this people.

On basis of the next hypothesis, there is significant difference between of crack and amphetamine user groups in sextet indexes of difficulties in emotion regulation. Although other findings showed, there is no difference in two group of carving intensity but there is significant difference in between of crack and amphetamine users in attention and centralization bias. Ekhteiari et al. [38] showed that visual cue-induced craving index of heroin carving can activate the areas that have known as emotion process centers (limbic), or a center with a superior role in deterrent of the limbic system and thus like the substances of stimulus users of cocaine effect on process of affect, cognitive, decision making and attention. Other studies have showed the cognitive function is difference in people

with avoiding long-term drug [39-41]. Looks that the type of drug, duration, consumables size, people age and the duration of drug withdrawal are items that can explain individual differences in cognitive and emotional function. For example, differences in studies of Pope et al., [40] and Verdejo-Garcia [41] showed that their differences emerge from the dose and type of drug. There is this discussion in studies of Di Sclafani et al., Selby and Azrin, Toomey et al. [42-44] that showed in this context requires further clarifications. The findings of the study can be designed based on the type of material used to plan the interventional.

The population of men and women lack participants, selection of people among participants that referred to withdrawal clinic of addiction, lack of patients to rehabilitation centers and narcotics anonymous are the limitations of this research that limited the results universalization. It is suggested that in larger population and with less error variance and also with other neuropsychological indexes of substances users of stimulus (glass) and opiate substances (crack) be investigated.

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Authors' Contributions

All authors had equal role in design, work, statistical analysis and manuscript writing.

Conflict of Interest

The authors declare no conflict of interest.

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