The Effectiveness of Matrix Treatment to Relapse prevention and Increase Self-Efficacy in People Withdrawing Methamphetamine

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ABSTRACT

Given the prevalence of narcotic substances and their effect on mental health of society people, it is important to pay attention the matter and adopt an approach for its treatment. The research objective is to examine the effectiveness of matrix treatment on prevent relapsing and increase self-efficacy in people withdrawing methamphetamine. In a quasi-experimental design, methamphetamine users who referred to addiction treatment centers on west of Gilanin 2015 and were eligible for involving criteria completed theself efficacy questionnaire. Then among those who got low scores on this questionnaire, there were randomly selected 30 patients that were divided into experimental and control groups (15 patients for each group). The experimental group was treated for 18 weeks and two sessions per week (36 sessions) using matrix therapeutic model. The control group remained on waiting list. Both groups completed self-efficacy questionnaire at baseline, end and 90 days later (follow-up stage) with urine test. The control group remained on waiting list and there were assigned only common drug treatment in the withdrawal centers. The research data was analyzed using covariance analysis and SPSS22 software. The results showed efficiency of matrix treatment method in preventing relapse and increasing self-efficacy for people withdrawal methamphetamine, which this difference was statistically significant (p<0.5). Matrix-based treatmentis effective for relapse prevention and increasing self-efficacy for people withdrawal methamphetamine.

Keywords: Matrix, relapse prevention, Self-Efficacy, Methamphetamine
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INTRODUCTION

Drug abuse is multi-dimensional problem; it means that many factors play role in emerging the matter including biological, psychological, social and spiritual factors[1]. Methamphetamine is one of highly abused substances that its frequency using is 5.2% of all drug users in our country[2]. The crystallized methamphetamine has an amphetamine structure, but its impact on central nervous system is more than other materials on the group[3].Memory loss, confusion and amnesia are some of disorders caused by the destruction of dopaminergic and serotonergic nerve endings in the brain, due to use methamphetamine[4]. The conducted studies on users of

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methamphetamine showed that consuming this substance causes defects in decision-making process. This is due to damage on the frontal and prefrontal areas, which they are areas involved in executive functions[5].Other effects of methamphetamine include emerging psychotic symptoms, depression, cognitive problems, unsafe sexual practices and increasing violence[6].

Self-efficacy is a type of trust that a person shows to do an activity with its own specific behavior[7].In a research, Ibrahimet al [8] showed a negative, strong and significant correlation between self-efficacy and relapse of drug addiction. Self-efficacy is a better treatment planning for specific situations of drug temptation (such as negative emotions, inner temptations and interpersonal situations such as interpersonal conflicts, social pressure for consuming drugs and inability to express themselves); therefore, it can be achieved more favorable results by targeting special situations[9]. According to the obtained results by researchers on self-efficacy in people with drug abuse, it can be said that as a cognitive determinant, self-efficacy should be considered to improve the effectiveness of variety programs of smoking cessation and other drugs[10].In their study, Kadden and Litt[11] showed that in treatment of drug abuse, self-efficacy plays an important role as a predictor of outcome or as a treatment intermediary. Martinez et al [12] found a potential relationship between self-efficacy and smoking cessation. Results show that those smokers who doubt in smoking cessation, they usually report lower self-efficacy when facing with internal and external stimuli. In their study, Tateet al [13] showed that low self-efficacy provides fields for drug abuse.

Most of addicts tend to change their dependent lifestyle to drug, but there are many problems in process of treatment that cause relapse and leave the treatment period [14]. For this reason, addiction has been introduced as a chronic and reversible problem [15]. Leaving treatment processes and reuse of drugs are related with more negative consequences such as possible of drug extra consumption, more severe dependence to drugs, using different drugs, increasing criminal behaviors and incurring additional costs on the health and therapy systems[16]. Recurrence or relapse toward drugs with all related behaviors doesn't happen quickly without warning signs[17]. Recurrence to heavy and uncontrolled consumption is a common problem yet. Most of drug abusers will use drugs again after detoxification and entering the period of rehabilitation within 90 days [18].

Matrix method is used to treat patients with methamphetamine abuse. In this therapy, a structured treatment experience is provided for clients of stimulant abusers. This program helps clients to get appropriate and necessary information to build a healthy lifestyle support to withdrawal drugs. The program targets in particular issues related in patients with using stimulants drugs, especially methamphetamine and cocaine as well as and patients' family [17].

Due to the positive application of matrix treatment method for preventing relapse and improving mental conditions of people with dependence to stimulant drug and as there has been conducted no research on the effectiveness of matrix method about methamphetamine, this study examines the effectiveness of matrix treatment on prevention of returning and increasing self-efficacy in people withdrawing methamphetamine.

MATERIALS AND METHODS

The used method in this study is quasi-experimental, intervention type (control group design with pretest-posttest). Its population consisted of all addicted men to methamphetamine with 20-40years old who referred to withdrawal addiction centers at Astana, Lahijan, Langerud and Roodsar from March 2014 to June 2015. The criteria for inclusion included methamphetamine abuse for at least six months, at least eight-grade education level and tendency to participate in the study. The exclusion criteria included schizophrenia and psychotic disorders, consuming opiates and other narcotic substances and alcoholism. All eligible patients for involving criteria completed the efficacy questionnaire. Then among those who got low scores on this questionnaire, there were randomly selected 30 patients that were divided into experimental and control groups (15 patients for each group). The experimental group was treated for 18 weeks and two sessions per week (36 sessions) using matrix therapeutic model. The control group remained on waiting list. Both groups completed self-efficacy questionnaire at baseline, end and 90 days later (follow-up stage) with urine test. The control group remained on waiting list and there were assigned only common drug treatment in the withdrawal centers. The research data was analyzed using covariance analysis and SPSS22 software. It should be noted that all subjects completed the written letter of satisfaction to participate in the study.

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Research Tools

Self-Efficacy Scale: In this study, the efficacy scale of Sherer[19]was used to measure self-efficacy. This scale contains 17items that are measured using Likert five-point scale from strongly disagree to strongly agree. This scale does not consider certain requirements to be implemented and also has no executive limit in different ages [20]. Scherer identified 0.86 as the calculated validity by Cronbach's alpha for general self-efficacy[21]. The conduced study by Kim and Amiz[22] identified 88% for Cronbach's alpha. In Iran, Ali Nialrooei[23]achieved 78% for Cronbach's alpha in their study. Asgharnejad et al [24] reported 83% for Cronbach's alpha of the scale. Asgharnejad et al [24]used factor analysis method (correlation of 40%) to determine validity.

Urine Test: All subjects in both groups were tested urine at baseline, end and 90 days later (follow-up stage).

Content structure of matrix treatment protocol: The content of therapy sessions is derived from matrix directives[25]. Patients participated in group two times a week for an hour in the treatment sessions. Each session was devoted to a particular issue that can be found below.

*Session 1:*there was firstly described the treatment model and purpose of its using. Then the members introduced themselves and explained the session topic. By considering the reasons to withdrawal methamphetamine (change scale), we asked patients to mention profit and loss of continuing to use and withdrawal.

Sessions 2-5: there were trained internal and external triggers and how to control and deal with them.
Sessions 6-8: there were trained temptation and methods to deal with the matter.
*Sessions 9-11:*faux pan and ways to manage it.
*Session 12:*automatic thoughts stimulating consumption and modifying them.
Session 13: coping with boredom and depression.
Sessions 14-15: preventing relapse and recurrences.
*Session 16:*managing business and activity and avoiding high-risk workplaces.
*Session 17:*managing shame of sin.
Session 18: getting busy and spending leisure time.
*Session 19:*creating motivation to improve performance
*Session 20:*strengthening truthfulness and honesty
*Session 21:*perfect self-control
Session 22: managing sexual relations and eliminating free sexual relations
Session 24: alert and avoid high risk situations
Sessions 25-30: time management, planning for enjoyable activities and stress management
*Sessions 30-32:*controlling anger and finding ways to express emotions in a healthy manner
*Session 33:*compensating the past, improving the relationships and forgiveness
*Session 34:*planning for constructive activities on holidays and occasions
Session 35: improving marital relations
*Session 36:*selecting objective for health living

Findings

Table 1 represents demographic data of the samples.

Table 1. Frequency and percentage of employment situation in the experiment group

Experiment group			Control group		
Statistics of employment situation	Frequency	%	Statistics of employment situation	Frequency	%
Employed	3	20	Employed	4	26.66
Unemployed	12	80	Unemployed	11	73.34
Total	15	100	Total	15	100

As seen, in the experiment group, 3 (20%) and 12 (80%) patients are the employed and unemployed respectively. In the control group, this figure is 4 (26.66%) and 11 (73.34%) patients for the employed and unemployed respectively. By comparing both groups, there was no significant difference between both control and experiment groups, in terms of employment situation; in other words, they are almost in an equal category. Therefore, their difference between both groups is not related with their employment situation.

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The research hypothesis: Matrix-based treatment is efficient in preventing relapse and increasing self-efficacy for people withdrawal methamphetamine.

Table 2. Comparing scores' mean after self-efficacy test by considering pretest scores in both treatment groups

Subscale	Group	Number	Score mean	SD	F-value	Statistical estimation
Problem-based coping	Normal treatment	15	36.13	10.99	7.79	0.01
	Matrix treatment	15	54.73	22.24		
Stopping negative thoughts and emotions	Normal treatment	15	24.53	5.27	5.87	0.022
	Matrix treatment	15	35.53	15.51		
Friends and family support	Normal treatment	15	18	4.12	1.31	0.261
	Matrix treatment	15	21	9.38		
Self-efficacy	Normal treatment	15	78.66	16.56	5.99	0.021
	Matrix treatment	15	111.2	46.04		

Using ANCOVA, we analyzed the obtained pretest mean scores in subscales of problem-based coping, stopping negative thoughts and emotions, friends and family support and self-efficacy by taking into account pretest scores in the treated patients by common and matrix methods. In the subscale of friends and family support, there was observed no significant difference between posttest scores among patients of both treatment groups (p= 0.261). In other subscales as well as total scale of self-efficacy, there was observed no significant difference between posttest scores among patients of both treatment groups (p= 0.05). In all cases, the mean scores obtained in matrix treatment are significantly higher than the scores of common treatment.

Table 3. Distribution of relapse frequency between both groups, three months after applying the matrix treatment protocol

Group status after three months	Relapse (faux pas)		Healthy (clean)		Total		Statistical estimation
	N	%	N	%	N	%	
Matrix treatment	3	20	12	80	15	100	0.025
Normal treatment	10	66.7	5	33.3	15	100	
Total	13	43.3	17	56.7	30	100	

Using Fisher's Exact Test, it was found that in confidence level of 95% and error level less than 1%, there is a significant relationship statistically between the rate of relapsing three months after applying treatment protocol among both treatment groups(p= 0.025). It means that the experiment group observed a significant improvement in self-efficacy score after participating in the intervention.

DISCUSSION

The obtained results showed that matrix treatment is efficient in preventing relapse and increasing self-efficacy for people withdrawal methamphetamine. The research results are consistent with the obtained findings by the following researchers: Rawson et al [26] who applied a 16-week matrix treatment model matrix and usual treatment on 978 subjects and showed that matrix-based treatment has been more efficiency on treatment retention, attendance at sessions, urine tests without methamphetamine and periods to avoid methamphetamine; Shoptaw et al [27] who evaluated the effectiveness of matrix method to treat dependence on stimulus substances and their results showed that matrix treatment reduces relapse rate; Rawson et al [28]who used the intensive out-treatment model to treat cocaine dependence and trained patients and their families individually and in group. The obtained evidence showed that their multilateral intervention method has been more effective. The research results are consistent with the obtained findings by MehrazadSaber and Zeinali[29]who conducted their research titled "the effectiveness of addiction treatment using matrix method on depression and general mood of methamphetamine addicts. Their results showed that patients who use the treatment method have special physical and mental health so that they have not shown even a faux pas over almost nine months. The research results are consistent with the obtained findings by Obert et al [30]who examined the effectiveness of treatment with CBT pattern on the brain biochemistry and its changes. It was found that treatment with matrix pattern could accelerate the process of changing and returning the brain to normal status.

Other conducted studies are somewhat consistent with the research results including results of the research of Kamarzarrin et al [31], titled examining the effectiveness of cognitive-behavioral treatment to increase self-efficacy and improve addiction symptoms among drug-dependent patients. Their results showed the effectiveness of cognitive-behavioral treatment to increase self-efficacy and improve mental and physical health of drug-dependent

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patients. The research results are also consistent with the obtained findings by Badr and Moody [32] and Narkinget al [10]who showed that cognitive-behavioral treatment to treat substance abusers cause that patient, in addition having an efficient image about himself, obtains necessary coping skills to manage risk situations and believes that he can control his drug use.

To explain the above-mentioned results, it can be said that matrix treatment method is a comprehensive one that contains all necessary skills that an addict and his family must learn to challenge life problems [33].It can also be said that studies show an inverse significant relationship between positive self-efficacy with substance abuse in adolescents[9] and matrix treatment model helps improving people self-efficacy. In this regard, Vecchio al [34]pointed out that belief in self-efficacy reduces interaction and improving person's compatibility, prompts him to challenge problems and makes the person lead less toward using substance when coping with problems.

CONCLUSION

Matrix-based treatment is efficient in preventing relapse and increasing self-efficacy for people withdrawal methamphetamine.

Limitations
Small sample size; irregular presence of some patients who arrived a few minutes late to training sessions; long-term matrix sessions, which it is suggested that this matrix treatment is summarized and localized to use a shorter form of the model; the treatment model was only carried out on methamphetamine addicts, so it is recommended to perform on other addicts.

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