

The Effect of Matrix Method on Anxiety and Attitude Toward Methamphetamine and Crack Abuse in Males Referring to Addiction Treatment Centers in Tonkabon, Iran

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Abstract

Background: Drug abuse is a major problem in the communities and has many harmful effects on human body.

Objectives: The current study aimed to compare the efficacy of matrix method on anxiety and attitude of male crack abusers referred to addiction treatment centers in Tonkabon, Iran, in 2014.

Patients and Methods: The current semi-experimental study included 1,000 males referred to addiction treatment centers in Tonkabon with crack abuse history in 2014. Based on Morgan sample volume formula, 278 males with anxiety and higher attitude to drug abuse were randomly selected from 1,000 males referred to addiction treatment centers in Tonkabon. Then, 30 subjects were reselected out of them and equally assigned into two groups of experimental and control, 15 subjects in each group. The experimental group received 24 sessions of 30 - 60 minutes matrix treatment method in group, but the control group received no training. At the end of training period the post-test was carried out. The research findings confirmed the efficacy of matrix method on anxiety and attitude to crack abuse among those referring to the addition treatment center.

Results: The single covariance analysis of ANCOVA indicated that the value of Eta about 72% of variance of anxiety variable and about 76% of variance of drug abuse variable are taken in to account for variable of group. The intervention was effective in reducing anxiety and attitude to crack in males. Evaluating the adjusted mean showed the effectiveness of matrix method on anxiety and attitude to crack abuse in males.

Conclusions: The research result showed that matrix method affected the reduction of methamphetamine and attitude to crack abuse in males referred to the addition treatment center.

Keywords: Matrix Method, Anxiety, Attitude Toward Crack Abuse, Methamphetamine

1. Background

The world has surprisingly witnessed the spread of drug abuse in the recent decades (1). In all societies, the young generation is considered to be a great asset and in practice the cycle of different activities in the society is dependent on these forces who are involved with addiction (2). Drug addiction has a great effect on human life (3). Addiction is considered a major crisis in the modern world and is considered a major problem of the world's public health (4). Drug addiction has a great effect on the overall health of the individual including the physical and emotional well-being for both the user and their relatives (5, 6). Methamphetamine is the crystalized form of crack and is widely used in Iran. The frequency of its consumption in Iran is 5.2 times higher than that of all other drugs (7). This

matter has several addicting effects on the dopaminergic system of the brain. Immediately after consumption, the user becomes flushed (8). There are several different approaches to help treat the addiction. The most important intervention for crack abuse is drug psychological and social intervention. In the United States of America, this approach is known as the matrix model. The matrix model is a non-drug method using simultaneous interventions (9). The matrix model was introduced as there was a great demand for treatment services of motivator abuse (10). Using this method, the prevention of relapse and addiction cases was formed by creating treatment groups, therapy, self-help training, promoting positive reinforcement and individual value feeling. The application of the matrix model in different areas showed improvement with the decreased use of drugs, such as cocaine and alcohol. Fur-

thermore, there was a decrease in psychological indexes and the reduction of high risk sexual behaviors related to HIV transmission (11-13), treatment of individual consuming meta amphetamine and cocaine (14) and increasing the efficiency of naltrexone in the treatment of opium-dependent individuals (15).

Numerous researchers show that addiction has the greatest correlation with anxiety and depression (16, 17). Anxiety disorders are the most common mental disorders in the population. About 30 million individuals in the USA have mental disorder (18). Anxiety is an important factor leading to drug dependency, an increase of drug abuse and relapse (19).

The findings indicate that social issues such as stress and anxiety are related to a higher addiction rate. Bukstein (20, 21) studied self-esteem, anxiety and inhibition state of 60 people hospitalized for drug addiction. The result showed that 80% of those hospitalized for addiction had low self-respect, high anxiety and external inhibition status (22). The result of Marsiglia et al. (23) research suggested that the majority of drug abusers relapsed resulting from depression, anxiety, high depression, anxiety self-esteem and poor will-power. Additionally, a research study conducted in Iran aimed to investigate the incidence of mood disorders in those hospitalized for drug addiction compared to non-abusers. The research study concluded that 72.3% of those hospitalized for drug addiction met the criteria for mood disorders and anxiety (24). Furthermore, another study indicated the correlation between everyday stress and the increased tendency to abuse opium (25). Investigating the effect of matrix methods on the addiction to crack, it is concluded that cognitive behavioral skills such as identifying problematic situations, prevented addiction and had remarkable progress (26).

2. Objectives

The current study aimed to determine whether matrix method on anxiety and attitude toward crack abuse in males referred to addiction treatment centers is effective or not. This research can help mental health professionals to treat addicted patients by focusing on recognition and specifying the path and not scattered mental disorders such as anxiety, and also help them to predict the future behavior of patients in the treatment process and apply effective treatments to help the ones with mental problems.

3. Patients and Methods

In this semi-experimental research, two groups (experimental and control groups) were studied using pre-test

and post-test. The statistical sample consisted of 1,000 males referring to addiction treatment centers of Tonkabon in 2014 with crack abuse history. Based on Morgan sample volume formula, 278 males with anxiety and higher attitude toward drug abuse were randomly selected. Then, 30 subjects were reselected out of them and equally assigned into two groups of experimental and control, 15 subjects in each. The experimental group received 24 sessions of 30 - 60 minutes matrix treatment method in the group, but the control group received no training. At the end of training period, the post-test was implemented. The research findings confirmed the efficacy of matrix method on anxiety and attitude toward crack abuse among the ones referred to the addiction treatment centers.

3.1. Beck Anxiety Questionnaire

This is a 21 item self-reporting questionnaire, introduced by Beck, Epstein, Brown and Steer in 1988. It measures the severity of anxiety; the greater scores show the higher anxiety (27). In this questionnaire, the subjects are asked to rate the anxiety experienced within the last week on a 4 score scale from zero to three; the maximum score in this test is 63 from 21 items. The studies show that this test is of high reliability and validity and its internal consistency is also high ($r = 0.92$) and the correlation between data is from 0.30 to 0.76. Its reliability was observed through two test executions after one week (0.75). The correlation between Beck depression questionnaire and Beck anxiety questionnaire is 0.48. Attitude toward drug questionnaire: This is a self-reporting questionnaire introduced by Wright (1989) with five scores from zero to four that are given to positive terms or positive attitudes toward addiction. For completely agree no opinion, disagree, completely disagree, for unfavorable items with negative attitude toward addiction the scoring is reversed. Therefore, the score range of individual in this questionnaire is from 22 to 160 and scoring higher shows the positive attitude toward addiction and drug consumption. This test was normalized by Cooper et al. (26) and facial and intent validity and reliability of the parallel from and internal consistency were reported favorable. Additionally, its internal consistency was reported 0.98 using Cronbach's alpha confirmed by poll criteria.

4. Results

The result showed a significant correlation among the items of dependent variable at an acceptable level; therefore, it is possible to deploy MANCOVA (Table 1).

The tables indicate a difference between the mean of control group and that of the experimental group in de-

Table 1. The Result of Lorenz Test for Variance Equality

Variable	F	df1	df2	P Value
Post-test anxiety	1.776	1	28	0.193
Attitude to drug	0.356	1	28	0.555

pendent variables. These differences are in favor of experimental group in both variables in [Tables 2](#) and [3](#).

Table 2. Correlation Coefficient Between Dependent Variables

Items	Post-Test Social Skill	Post-Test Self-Esteem
Post-test social skills	-	0.718

Table 3. Statistical Characteristics of Dependent Variable in the Experimental and Control Groups^a

Items	Test Group	Control Group
Post-test anxiety	24.60 (4.517)	35.87 (4.673)
Attitude toward drug abuse	78 (6.579)	106.67 (11.920)

^aValues are expressed as mean (SD) (n = 15).

As the value of Eta for new hybrid variable (group) is 0.837, a high effect is indicated. The result of Wilks' lambda about hybrid variable showed that participants were different in both groups and the mean of groups was significant under independent variable, [Tables 4](#) and [5](#).

Based on the modified mean of dependent variable items, the effect of supplementary random variables was deleted statistically. This showed that the mean of experimental group was at higher level than that of the control group.

The single covariance analysis table of ANCOVA indicated that regarding two dependent variables, the Bonferroni correction was done by dividing 0.05 to 2. The significance level was less than 0.25, which holds for both variables. The value of Eta showed that about 72% of anxiety variable and about 76% of drug abuse variable were taken into account for. The intervention was effective in reducing anxiety and attitude to crack in males. Evaluating the adjusted mean showed the effectiveness of matrix method on anxiety and attitude toward crack abuse in males ([Table 6](#)).

5. Discussion

The result showed that matrix method affects the anxiety and attitude toward crack abuse in males referred to

addiction treatment centers in Tonkabon which was consistent with the results of (10-26) previous researches (28-31).

Authors did not find any articles published in the literature regarding evaluation of matrix method on anxiety and attitude to crack abuse in males referred to addiction treatment centers. But in other studies the impact of matrix method on anxiety and attitude toward substance abuse in males had been assessed separately on anxiety and attitude to substance abuse in males, which were all aligned and parallel with the results of the current study. The results of Goeders study (27) showed that the addicts who commit self-treatment in stressful situations to reduce the signs of anxiety and depression resulted from harmful events report more addictive behaviors. In lab conditions, it was reported that the signs of drugs caused anxiety and release of cortisol in drug takers. The aim of matrix method is to achieve drugless life, help to increase the individuals' performance in different aspects of life, reduce the anxiety and prevent the recurrence of addiction. The treatment method can help the practitioner to manage the patients' emotional situations and promote the treatment lasting. A large number of vulnerable adolescents think they can just use tobacco as fun or gain experience, but they soon realize that smoking becomes their psychologic support that cannot be set aside (32). Ahmadpanah et al. (33), in a study on females with substance abuse showed that significant differences were expected regarding the various patterns of onset, continuation and cessation of drug abuse between the females and males. There are also different incentives for participation of females in the treatment processes which is dependent on the social and cultural features. Taking everything into consideration, it can be said that treatment by matrix method is a cognitive treatment with intricate intervention consisting of numerous sessions of consultation for family and patients which help them to pave the treatment path. Matrix includes a treatment commitment for patient and family in which they are committed to attend the sessions and carry out the weekly tests considered by psychologists and psychiatrists. During the treatment, numerous sessions and intricate interventions are used to make gradual avoidance, reinforcement of mental, social and professional performance, and reduction of anxiety and depres-

Table 4. Multivariate Covariance Analysis of F for Hybrid Variable of Wilks' Lambda

Source	Value	F	P Value	Eta
Hybrid variable (group)	0.163	64.156	0.000	0.837

Table 5. Modified Mean of Dependent Variables of Table 4^a

Items	Test Group	Control Group
Post-test anxiety	24.730 (0.950)	35.737 (0.950)
Attitude toward drug post-test	77.530 (2.270)	107.137 (2.270)

^aValues are expressed as mean (SD) (n = 15).

Table 6. Result of Covariance Analysis of Dependent Variables

Variable	F	P Value	Eta
Post-test anxiety	66.631	0.000	0.719
Attitude to drug post test	84.371	0.000	0.764

sion; therefore, the referral knows the benefits of the protocol. The strategies presented by psychologists to referrals are developed in a leaflet suitably and the referrals are asked to do them and the referrals are supervised during their trend for specific tests of drug abuse. A great number of conducted researches show the efficacy of matrix method to improve the behavioral symptoms of the addicted people up to 70%, which can confirm the method as a treatment to treat crack, there is a tendency to use multiple approaches. The applications of matrix are in the field of treatment dependent on amphetamine (14). The limitations of this study were the inability to control confounding variables. These variables are personality, physical and mental (memory, talent) and affective (mood) variables as well as economic conditions, social and cultural subjects. Regarding the results, the matrix method has different effects on reducing the anxiety and attitude toward drug abuse. Therefore, it is suggested that matrix method is considered as an effective strategy to counteract addiction by therapeutic and social institutions.

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Footnote

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