The effectiveness of matrix interventions on changing the attitude and general health of Methamphetamine abusers

Maryam Bagheri[1]*

[1] M.A of Clinical Psychology, Allameh Tabatabai University.

*Corresponding author's E-mail: bgr.maryam@yahoo.com

ABSTRACT

The increasing prevalence of Methamphetamine use and applying the effective treatment for the abusers is one of the main concerns of specialists in this field. Therefore, the aim of this study is to examine the effectiveness of matrix intervention on changing the attitude and general health of Methamphetamine addicts. The present study is quasi-experimental with pretest-posttest design and control group. The samples were selected by selective sampling method in the two groups of case (n = 12) and control (n = 12). The experimental group was trained for 24 sessions. The control group received no treatment and just visited by the physician in once a week. The instrument used for collecting the data results was Wright's inventory of attitude toward drugs (1989) and Goldberg's General Health inventory (1979). Using the Cranach's alpha method, the reliability of questionnaires was obtained as 0/76 for the Attitude toward drugs inventory and 0/95 for the General Health inventory. Likewise, the validity of questionnaires approved by the relevant experiment for testing the content validity of questionnaires. The analysis of data obtained from the questionnaire was performed in two parts of descriptive and inferential (analysis of covariance). Data analysis showed that the mean scores of the general health of the experimental group significantly increased compared to the control groups. Also, the mean of the case group showing the attitudes toward Methamphetamine changed meaningfully. In general, the results showed that Matrix intervention is effective in changing the attitudes towards abusing Methamphetamine and increasing the general health in abusers.

Keywords: Matrix interventions, attitude change, general health, Methamphetamine.

1. Introduction

The office for Drug Control and Crime Prevention of United Nations (2005), has reported5% of the world's population among 15-64 year-old are drug users (United Nations Office, 2005). Dependence on methamphetamine is visible in various regions of the world. According to the findings of the rapid assessment of drug in 2008 in Iran, the consumption of crystal has been increasing and reached a high percentage of consumers (Tajeri, 2008).

Todays, drug abuse is one of the most important health-related issues with reduced quality of life, increased mortality, reduction in social and moral values and increased criminal behavior (Becker, 2008). Psychiatric disorders associated with addiction, causes detrimental effects on physical, psychological, social and family health and the consequences of this disease will have very high costs for governments. Depression, anxiety, borderline personality disorder and antisocial personality disorder are the most common psychiatric diagnoses are among drug users (Roberts, 2007, Astals, 2009).

2. Literature Review

Psychological symptoms of moderate consumption of stimulus drug include immediate euphoria, dizziness, increased alertness and jabber coupled with anxiety. After 60 to 90 minutes have continuous anxiety. Awareness and mental alertness increase but its sequence is feeling depressed (Julian, 2008). Crystal addition leads psychiatric disorders, including symptoms of psychosis (Arseneault, 2003), cognitive impairment and mood and anxiety disorders (Baker, 2005) in addition of physical problems. Most stimulus abusers often quit during the abusing period but after a while again turn to abuse. Addressing the mental problems associated with the dependent patients including the promotion of self-esteem, confidence, and responsibility and reducing their social and family problem have a direct relation with their drug withdrawal.

Mental health status plays an important role in the etiology and treatment of drug abuser. Existing of mental disorders cause resistance in the treatment and back again of patient to drug abusing; todays the role of mental health has been specified on the other sections of health (Riba, 2010). The approaches of treatment for drug abusers are vary depending on the type of drug, consumption patterns and availability of psychosocial support systems and specific features of patients (Kennedy, 2012). Among the various treatments that are offered for dependents patients to crystal, Matrix treatment is a modern therapeutic approach.

Treatment by matrix is the main specific interventions of depending to stimulus drugs which has been prepared by the specialists of the Matrix institute as empirical methods and effective operation on abstinence of drugs and generally is a successful intervention and treatment for dependence on amphetamine. This medical model helps people who are depend on stimulus drugs especially amphetamines and cocaine. This model helps clients to shape their lifestyle free from drugs for opioid withdrawal and continue to achieve abstinence from drugs and stay clean.

Patients learn these skills as a specific strategies and universal strategies that can be used on a range of issues. So the content of treatment greatly overshadowed the history of research which is related to the field of relapse prevention (Witkiewitz, 2010), group and family therapy,

medication education, participation in self-help and monitoring on drug abuse. More than 5000 people addicted to cocaine and more than 1,000 people addicted to methamphetamine have been treated with this method. The experience of these patients has been a source of information which has been used on the progress and to determine the comprehensive health model. This model of treatment is expanded to meet the clinical needs of crystal users (Roll, 2009). The usage of matrix model is proved in various spheres, for the treatment of cocaine dependence, drugs and alcohol, the improvement in indicators of psychological and reducing sexual risk behaviors, treat people dependent on methamphetamine and cocaine, as well as an increase in the effectiveness of naltrexone for opioid addicts (Rawson, 2008) and the efficacy of the effectiveness of treatment has provided the empirical support for this model.

 Farnam (2012) has paid in a study on the effectiveness of the model matrix in relapse prevention and coping skills in drug-dependent individuals (Farnam, 2012). The results showed that training matrix model is effective as a new therapy in the prevention of relapse and increase coping skills. Rawson et al (2004) also have used the 16-week matrix model treatment and normal treatment about 978 people who dependent on methamphetamine (Rawson, 2004). Matrix therapy was more efficient in treatment retention, attendance at meetings, crystal-free urine tests, and periods of continuous crystal abstinence.

In examining a large sample of methamphetamine users (1016 people) Zweben et al (2004) studied the psychological symptoms (Zweben, 2004), 68% of women and 50% of men feel depressed and 28% of women and 13% of men reported at least one suicide. Apparently this a two-way relationship. Some studies have found depression as a risk factors in crystal using. Tajeri (2011) shows the major factors contributing to recurrence crystal using include; 1. Personal factors: personal characteristics, attitudes and social skills and how to deal with problems and psychosocial stress 2. Interpersonal factors: the social environment, family, close friends and in the prevailing culture 3. Social factors: issues such as location, working conditions, having the necessary skills for employment, training and employment opportunities and overall perspective of the society to the addict person and 4. Factors Status: situations that patient tends to use drugs again (Tajeri, 2011).

Witkiewitz et al (2005) divided the positions of addiction behavior to crystal into eight types: 1. Negative emotional states 2. Positive emotional states 3. Test taking personal control 4. Negative physical states 5. Temptation 6. Interpersonal conflict 7. Other pressure 8. Fun with others (Witkiewitz, 2005). Researchers consider other factors important such as expectations, outcomes, motivation, coping, self-efficacy and social support. Attitude or expectations of person about drugs and assessment of the controlling of position plays an important role in this issue.

On the other hand attitude has a very important role in the future behavior of people and human behavior origins of his attitude and beliefs of people effect on his response addiction also is under the influence of the beliefs and attitudes of patients (Beck, 2002). One of the main reasons of addiction is the risk of normalization of drug use and a positive attitude to the drug and its effects. The formation of positive or negative attitude results from a combination of knowledge, information, ideas and affections on the one hand and the valuable materials that are attached to

it (Pour Shahbaz, 2005). Attitude to drugs involves cognitive, emotional and behavioral components respectively. And include normative beliefs about the prevalence of drug using and acceptance, individual and compatibility of the drug lifestyle, individual beliefs about the negative consequences of drug using, requirements and bind to non-use of drugs, negative attitude to addiction and addicts, dealing with addiction and the prevention of drug (Pour Shahbaz, 2004). Dysfunctional attitudes can be increase the risk of drug using as a vulnerability factor so it appears that the treatment by matrix model can be effective for these people. Other researchers Rolle et al. (2006) have compared 113 crystal users and randomly were divided into two state (12 sessions of cognitive behavior therapy and cognitive behavioral dependency management therapy) and didn't observe any differences in time spent in treatment or attended meetings of the two groups (Roll, 2006). In the period of 3 months and 6 months had obvious avoidance and no crystal urine. In a study has done by Huber & Shoptaw (1997) 500 crystal users and 224 cocaine users were examined and did not show a significant difference in the effectiveness of treatment matrix model (Huber, 1997). Although a lot of researches have been done on different treatment for drug abuse, but unusual increasing of drug abuse rehab centers across the country and promote various forms of treatment, make patient confused for choosing a therapy method. So that the majority of drug-dependent run all kinds of treatment strategies but after a while have been deterred from continuing treatment. Thus, according to a history of drug abuse in our country it is necessary to study comprehensively the effectiveness of treatments which perusing some different research also indicates a lack of coordination dispersion in the results. This study aimed to evaluate the effectiveness of treatment in matrix method on changing the attitude towards drugs and general health of people who are addicted on crystal.

3. Methodology

This is a quasi-experimental pretest-posttest research with control group. The population of the present study is all patients referred to a drug treatment center in Tehran. Sampling is done by availability method. 24 people of the 35 patients who referred to a drug treatment center and were just crystal users and have not used other drugs during last month and referred to a drug treatment center were selected and took place on experimental and control groups which both of them were under the program of weekly medical meeting and motivational interviewing was done for them. The experimental group received 24 sessions of matrix treatment a control group who didn't receive matrix treatment but took place on the weekly medical meeting program and motivational interviewing. Matrix headlines therapy sessions are given in Table 1. Data were collected by questionnaire on attitudes toward drugs and public health:

Questionnaire of attitude toward drugs: This is a Self-Rating Scale Questionnaire of 20 statements that have been prepared by Wright (Goudarzi, 2006), and uses Likert scoring and about the favorite drugs or negative attitude to addiction by any of the answers strongly agree, agree, having no idea, disagree strongly disagree. Respectively, the scores of 1, 2, 3, 4, and 5 is given and in the case of adverse drugs scoring is done in reverse order. Thus the range of individual scores on this questionnaire will fluctuate of 32 to 160 and earning a higher score indicates favorable attitudes toward addiction and drug abuse. This test standardized by Nazari

(2002). External and content validity and parallel reliability and internal consistency has been reported desired in this scale. In addition, the internal consistency of this test was calculated 0.89 by Cronbach's alpha that is approved according the psychometric measures (Ghahari, 2006).

General Health Questionnaire: General Health Questionnaire is a screening questionnaire based on self-reporting methods which is used in clinical situations with the aim of identifying individual's mental disorders. In this study, the 28 question questionnaire was used. The questionnaire has four subscales including physical symptoms, anxiety, social dysfunction and depression. Taghavi (Ghahari, 2006). The reliability of test was examined in three ways of retest reliability, split half and Cronbach's alpha which was obtained 0.70, 0.93 and 0.90, respectively. To study its validity is used three ways of concurrent validity, correlation with the total score and subscales factor analysis. Concurrent validity was done through the implementation of Midex hospital along with the questionnaires, resulting in a correlation coefficient of 0.55. Correlation coefficient between subscales of the questionnaire was satisfactory and varies of 0.72 to 0.87. The result of factor analysis has showed four subscales in this questionnaire and the four subscales were explained more than 50% of the total variance of the questionnaire. In this study, Cronbach's alpha for the subscales of physical symptoms, anxiety symptoms, symptoms of social dysfunction, depression and general index scale were 0.82, 0.84, 0.72, 0.92 and 0.92, respectively (Taghavi, 2001). Analysis of obtained data was performed through the performing of questionnaire by 19spss in two parts: descriptive (mean, variance, standard deviation) and inferential statistics (ANCOVA). The treatment sessions of matrix therapy were 24 sessions which the topics and goals of each session has been collected in the following table.

Table 1: headlines of meetings related to the matrix treatment

Training sessions	Topic of session
Session 1	Goals: Why did I leave drug (scale change)
Session 2	Goals:Motivator (triggers, flip, ...)
Session 3	Goals: The improvement procedure
Session 4	Goals: Outer motivator
Session 5	Goals: Inner motivator
Session 6	Goals: main problems in recovery (1): mistrust of family
Session 7	Goals: main problems in recovery (2): Reduce power
Session 8	The main problems in recovery (3): Improper use of other drugs as alternative medicine
Session 9	Goals: Temptation
Session 10	Goals: What should we do with temptation?
Session 11	Goals: wrong ways to deal with temptation
Session 12	Goals: thoughts, feelings and behaviors underlying drug abusing
Session 13	Goals: prevent the recurrence: activities preventing relapse
Session 14	Goals: prevent the recurrence: activities recurrence risk
Session 15	Goals: work and improve
Session 16	Goals: shame and guilt
Session 17	Goals: stay busy
Session 18	Goals: motivation to improve
Session 19	Goals: honesty
Session 20	Goals: full purity
Session 21	Goals: Addiction on sex
Session 22	Goals: to predict and prevent its recurrence: behaviors associated with addiction
Session 23	Goals: to predict and prevent its recurrence: thoughts associated with addiction
Session 24	Goals: Be smart, not strong

4. Finding

Table 2: Mean and standard deviation of variables to distinguish between groups in the pre-test and post-test (n=24)

Variable	Measurement	Control (12)		Experiment (12)	
		Mean	Standard Deviation	Mean	Standard Deviation
Attitude	Pretest	6.33	2.3	6.1	1.9
	Posttest	5.9	1.6	3.7	1.9
General Health	Pretest	30	10.2	28.48	9
	Posttest	28.33	7.8	21.25	6.5

According to the above table the average of both research variables of experimental group (public health and attitude) was reduced in post-test compared to pretest. While in the control group, the difference between the mean of two groups is less than the experimental group.

In this sector, due to changing the nature of variables, both hypotheses were tested by using analysis of covariance.

First hypothesis: "The matrix treatment is effective on attitude on crystal users". F test outcome indicated that significant level of interaction and Pretest, is greater than 0.05 (p= 0.4, DF=1, F=0.68). Thus, it can be accept the assumption of homogeneity of regression slopes in the two groups of control and experiment. Levine test also confirmed the assumption of equal variance of groups (p= 0.78, df=1, F=0.08).

Table 3: Summary analysis of covariance to evaluate the effect of matrix treatment on changing attitude of crystal users

Source of changes	Sum of squares	Degrees of freedom	The mean of squares	F ratio	The level of significance	Effect size
Covariate	36.3	1	36.3			
Group	30.4	1	30.4	24.4	0.01	0.537
Error	31.3	21	1.5	20.4	0.01	0.493
Total	649	24				

According to figures obtained from the table above, the effect of between group factors are significant in the level less than 0.05 by controlling the effect of Pretest (p<0.05, F(1,21) = 20.4). In other words, the difference between the post-test scores of control and experiment group is significant. So that Table 1 shows scores of experimental groups have fallen after the intervention. While such a decrease was not observed in the control group. Thus, we can conclude "matrix treatment" is effective on attitude of crystal users. The amount of affect indicates that 49.3 percent of changing attitudes of subjects is dependent on the "matrix treatment".

The second hypothesis: "The Matrix treatment improved the patient's general health of crystal user".

The second hypothesis was tested by using ANCOVA as well. F test outcome indicated that significant level of interaction and Pretest, is greater than 0.05 (p= 0.44, DF=1, 20, F=0.62). Thus, it can be accept the assumption of homogeneity of regression slopes in the two groups of control and experiment. Levine test also confirmed the assumption of equal variance of groups (p= 0.32, df=1, 22, F=1...4).

Table 4: Summary analysis of covariance to evaluate the effect of matrix treatment on general health of crystal users

Source of changes	Sum of squares	Degrees of freedom	The mean of squares	F ratio	The level of significance	Effect size
Covariate	1010.7	1	1010.7			
Group	215.4	1	215.4	173.6	0.01	0.892
Error	122.2	21	5.8	37	0.01	0.638
Total	16185	24				

According to figures obtained from the table above, the effect of between group factors are significant in the level less than 0.05 by controlling the effect of Pretest (p<0.05, F(1,21) = 37). As the comparing of groups' scores show the scores of experimental group significantly decreased after matrix treatment. While such a changing in scores was not significant in the control group. Thus, we can conclude "matrix treatment" is effective on general health of crystal users. The amount of this affect is calculated 63.8.

5. Discussion & Conclusion

This study aimed at determining the effectiveness of matrix treatment on changing attitude and general health of patient who depends on crystal. The first hypothesis testing was followed by confirming of "Matrix treatment is effective on changing attitudes of crystal users". In other words, scores of attitude toward the crystal significantly decreased after participating in treatment. The findings of this study indicate the impact of the intervention of matrix treatment. These results are in a line with the findings of (Botvin, 2004). Their results showed that human behavior stems from his attitude and the beliefs of people and even the feeling of being value effect in his reaction. So the treatment can effect on misconceptions and unrealistic beliefs of stimulus drug abusers. The second hypothesis testing was followed by confirming of "Matrix treatment is effective on the improvement of public health (and its components) of crystal users". This research confirms the results of (Rawson, 2004); it was found that people significantly improve by matrix treatment and their general health was steadily improving. The results of this research confirms the ideas of Haber et al (1997), they concluded that multiple assessments on all matrix models support usefulness and effectiveness about methamphetamine users. Additional findings confirms the results of Aubert et al. (2002), where combined matrix pattern with some basic explanations of recent research about brain function in order to create a multi-component and comprehensive pattern to stimulus treatment. They concluded that if mental training information which origin of research technology is combined with matrix approach, Can reduce confusion among patients about their behavior and improve their participation and health care. Of course, the results can be theoretically and clinically employ all mental health practitioners, especially the Ministry of Health and Organization Psychology and Counseling system. From the theoretical aspects of medical support matrix can provide necessary field to expand counseling and psychotherapy activities in different levels of society. It is highly recommended that researchers mention the results of their assumptions analysis fully with significance level used for the tests in a research and do not suffice just to mention overall results. In case of finding the relationship between variable, calculate and report the amount of their effect on their findings. They should study the different statistical methods exactly in order to be able to use the most appropriate statistical method in the analysis of the collected data.

References:

1. Ahghar,G. H.Efficacy of cognitive behavioral group counseling on changing students attitudes to drug dependence،Journal of social research, 2011. 9(4):139-15]Persian[.

2. Arseneault, L. Cannon, M. Poulton, R. Murray, R. Caspi, A. &Moffit, T. E. Amphetamin use in adolescence and risk for adult psychosis. Longitudinal prospective study.British medical journal, 2003. 325, 1212-23.

3. Astals, M., DíazL, Domingo, A., Santos, A., Bulbena, A., Torrens, M. Impact of Co-Occurring Psychiatric Disorders on Retention in a Methadone Maintenance Program. Journal Enviro Public Health, 2009.16, 2822-2832

4. Baker, A., Lee, N. K., Claire, M., Lewin, T. J., Grant, T., Pohlman, S., Saunders, J. B., Kay-Lambkin, F., Constable, P., Jenner, L. & Carr, V. J. Drug use patterns and mental health of regular amphetamine users during a reported 'heroin drought'. Addiction, 2005. 99, 875–884.

5. Beck R.T, Fred; F. N. Brouce and Vas, L. 2001. Cognitive Treatment of Drug Addiction; Cognitive and Practical Skill Trainings of Addiction Withdrawal. Translator: Mohammad Ali Goudarzi. Tehran: Rahgosha Publication. 2002.

6. Becker, W., Sullivan, L., Tetrault, J., Desai, RA., Fiellin, D. Nonmedical use, abuse and dependence on prescription opioids among U.S. adults. Journal Drug & Alcohol Dependence, 2008. 94, 38-47.

7. Botvin, G. J. Griffin, K .W. LIFE SKILL TRAINING: empirical finding and future direction. Journal of primary prevention, 2004. vol25, NO .2 , 211-218.

8. Farnam, Ali. Matrix Model Effectiveness in Prevention of Returning and Increasing the Coping Skills in Drug Users.Drug Abusing Quarterly Journal, Seventh year, 2012.No. 25.Pp 15-38.

9. Ghahari, Shahrbanou (2006). Function of Cognitive Behavioral Approach in Hash Abuse Treatment.Doctorial Dissertation of Clinical Psychology of Iran Medical University.

10. Goudarzi, Naser. Evaluation of Effectiveness of Behavioral Activation Treatment Method and Group Agreement on Drug Utilization Treatment.Doctorial Dissertation of Health Psychology.Tehran University, Psychology and Behavioral Science University. 2006.

11. Huber A, Ling W, Shoptaw S, et al. Integrating treatments for methamphetamine abuse: a psychosocial perspective. J Addict Dis. 1997. 16:41–50.

12. Julian M. Robert. A primer of drug action: a comprehensive guide to the actions, uses, and side effects of psychoactive drugs. 2008. 11th

13. Kennedy AP, Gross RE, Whitfield N, Drexler KPG, Kiltsa CD. A controlled trial of, the adjunct use of Dcycloserine to facilitate cognitive behavioral therapy outcomes in a cocaine-dependent population. Addict Behav.; 2012. (37): 900-907.

14. Molazade, Javad and Ashouri, Ahmad. Evaluation of Behavioral Cognitive Group Treatment Effectiveness on Prevention of Recurrence and Treatment of Mental Health in

Drug Addicted People. Science and Behavior Scientific-Researching Bimonthly, 2009. 16:34.

15. Pour Shahbaz, Abbas Et. Al. Structural Relations of Risky Psychological Factors and Drug Using Protector in Teenagers.RefahEjtemaei Scientific-Researching Quarterly Journal. 2005. Fifth Year, No. 19, Pp 73-86.

16. Pour Shahbaz, Abbas. Structural Relations of Risky Psychological Factors and Drug Using Protector in Teenagers; a Model for Psychological Primary Prevention and Intervention.Doctorial Dissertation of Clinical Psychology, University ofWelfare and Rehabilitation Sciences. 2004.

17. Rawson, R., Marinelli-Casey, P., Anglin, D., Dickow, A., Frazier, Y., Gallagher, C. et al. A multi-site comparison of psychosocial approaches for the treatment of methamphetamine dependence.Addiction, 2004. 99(6), 708-717.

18. Rawson, R., McCann, M.J., Shoptaw, S., Miotto, K. Frosch, D., Obert, J.L. and Ling, W. Naltrexone fore opiate addiction: Evaluation of a manualized psychosocial protocol to enhance treatment response. 2008.

19. Rawson, R.A., Obert, J. L., McCann, M.J. The matrix Intensive Outpatient Program Therapist Manuel. Los Angeles. the Matrix Center incorporation. 1994.

20. Riba M. Chronic physical illnesses and mental illness: The need for integrated care. Retrieved Oct 16, 2010. Available from: http://www.wfmh.org/2010DOCS/ WMHDAY2010.pdf.

21. Roberts, RE., Roberts, CR., xine Y. co morbidity of substance abuse disorder and other psychiatric disorder among adolescents evidence from an epidemiologic survey drug and alcohol. Journal Dependence Alcohol, 2007.88 ,4- 13.

22. Roll J, Stitzer M, Petry N, et al. Contingency management for the treatment of methamphetamine use disorders. Am J Psychiatry.2006. 163:1993–1999.

23. Roll, J.M., Rawson, R.A., Ling, W., &Shoptaw, S. (Eds.). Methamphetamine Addiction: From Basic Science to Treatment. New York: Guilford Press. 2009.

24. Taghavi, Mohammad Reza. Validity and Reliability Evaluation of General Health Questionnaire (G.H.Q).Psychology Journal 20.Fifth Year, 2001.No. 4.Winter.

25. Tajeri, Biouk. Addiction: Etiology and Treatment. First Edition. Tehran: Andishe No Publication. Dealing With Temptation Chapter. 2011.

26. Tajeri, Biouk; Ahadi, Hassan and Jomhari, Farhad. Evaluation of the Impact of Cognitive Behavioral Treatment on Abstinence, Temptation, Recurrence and Changing Attitude of Addicted People to Meta Amphetamine.Clinical Psychology Study Quarterly Journal, 2008.No. 7.Second year, Pp 1-29.

27. United Nations Office for Drug Control and Crime Prevention. Global illicit drug trends, New York: United Nations. Users in Treatment. Drug Alcohol Depend; 2005. 62:91–95.

28. Witkiewitz, K., & Bowen, S. Depression, Craving, and Substance Use Following a Randomized Trial of Mindfulness-Based Relapse Prevention. Journal of Consulting and Clinical Psychology, 2010.78(3), 362–374

29. Witkiewitz, K., Marlatt, A., & Walker, D. Mind-fulness-based relapse prevention for alcohol and substance use disorders: The meditation tortoise wins the race. Journal of Cognitive Psychotherapy. 2005. 19,.229-221.

30. Zweben, J., Cohen, J., Christian, D., Galloway, G., Salinardi, M., Parent, D., et al. Psychiatric symptoms in methamphetamine users. American Journal on Addictions, 2004.13(2), 181–190.