

Abstract

Objective: The aim of this study was to investigate the outcome of the Matrix Model of therapy on quality of life in methamphetamine abusers. **Method:** In a quasi-experimental research design, 15 participants were selected as the experimental group and 15 participants were selected as the control group from among the 30 individuals of methamphetamine abusers who were under medical treatment. The experimental group received 24 one-hour sessions of the Matrix Model of therapy whereas the control group did not receive any intervention. The experimental and control groups completed the World Health Organization Quality of Life Scale (WHOQOL-BREF) at the pre-test, post-test, and follow-up stages. **Results:** The results showed that there was a significant difference in the mean scores of quality of life between the two groups in the post-test stage while there was no such significant difference between the two groups at the follow-up stage. **Conclusion:** Group sessions of Matrix Model of therapy have improved the short-term quality of life in methamphetamine abusers, but not their long-term quality of life.

Keyword: quality of life, methamphetamine abusers, treatment outcome, Matrix Model of therapy

The Outcome of Matrix Model of Therapy on Quality of Life in Methamphetamine Abusers

Ruhollah Haddadi, Majid Ghorbani, Reza Rostami, Ghasem Keshavarz, Elham Farahani

Ruhollah Haddadi

PhD student of clinical psychology, Azad University of Roodehen, Roodehen, Iran, Email: r_hadadi2000@yahoo.com

Majid Ghorbani

PhD student of psychology, Semnan University, Semnan, Iran

Reza Rostami

Associate Professor, Department of Psychology, Tehran University, Tehran, Iran

Ghasem Keshavarz

MA in Psychometrics, Allameh Tabataba'i University, Tehran, Iran

Elham Farahani

MA in Clinical Psychology, Allameh Tabataba'i University, Tehran, Iran



Research on Addiction Quarterly Journal of Drug Abuse

Presidency of the I. R. of Iran
Drug Control Headquarters
Department for Research and Education

Vol. 10, No. 39, Autumn 2016
<http://www.etiadjournal.ir>

Introduction

Addiction is a phenomenon that has long existed in different societies and continues and is on the rise despite the obvious scientific advances and increased consciousness. Meanwhile, the change in the consumption pattern of drug use to amphetamines has raised concerns over the past few years. According to the United Nations Office on Drugs and Crime (UNODC) (2013), Iran is ranked fifth among the countries with the highest levels of amphetamine use. The long-term consumption of amphetamines imposes not only serious damage to the nervous system and its functions (Hosak et al., 2012) but also threatens personal, family, occupational, social, and psychological health of the individual, and causes the patient's quality of life and his/her pattern of communication with the family and the surrounding environment to be negatively affected (Bizzarri et al., 2005). In a research, Khadayarifard (2010) showed that the quality of life and family functioning of the individuals with substance abuse are lower than those of the normal people. A similar study was conducted on smokers with the aim of comparing the quality of life and religious attitudes between smokers and non-smokers. The results showed that non-smokers outperform smokers in terms of social level, occupational level, energy, health, and quality (Shams Esfandabadi & Nejad Naderi, 2009).

Although the investigation of quality of life is common in medical research, its presentation in behavioral research pertaining to drug abuse is relatively new research strand. The World Health Organization (1996) defines the quality of life as a person's perception of his/her life position in the cultural context and the system of values in which s/he lives and in relation to his/her goals, expectations, standards, and concerns. Researchers believe that quality of life can be indicative of the individual's health level (Muller, 2006). On the other hand, studies have shown that the quality of life in drug addicts is highly correlated with successful treatment outcomes (Karow et al., 2010; Gonzales et al., 2011). The existence of repetitive and unsuccessful attempts to stop, avoid, and relapse leads to the persistence of a person's illness and, thus, heavily endangers the person's quality of life. Therefore, the permanent management and supervision of a person's performance in long-term treatment is fully necessary (Hser, Longshore, & Anglin, 2009). In this regard, McLellan (2005) showed that although the reduction and cessation of drug use and alcohol drinking is a primary and immediate goal of treating patients, the improvement of addicts' quality of life towards relapse prevention is the important and final goal of treatment.

Over the last three decades, rising attention has been paid to these patients' quality of life as an important factor in the evaluation of treatment outcomes and the effectiveness of treatment (Karow et al., 2010). Therefore, various therapeutic interventions have been undertaken to change the quality of life of these individuals. Experts use psychosocial interventions to increase the patient's length of stay in the treatment, prevent relapse, and return to the normal

functioning in different aspects of life. The most effective interventions in this regard is the one based on cognitive-behavioral therapy (CBT). Nowadays, the largest volume of research is carried out through this approach (Ost, 2008). In the same vein, Hides et al. (2010) conducted a study on 60 people with substance abuse disorder through a 20-week CBT intervention and they showed that this group experienced a significant improvement in depression, anxiety, substance abuse, and coping skills in comparison with the control group. Gonzales et al. (2011); Driessen, & Hollon (2011); Sugarman, Nich, & Carroll (2010); Osilla, Hepner, Muñoz, Woo, & Watkins (2009); and McHugh, Hearon, & Otto (2010) also used the cognitive-behavioral model and could hereby improve the quality of life and mental health of methamphetamine abusers. Studies in Iran also show that cognitive-behavioral therapy can well improve the methamphetamine abusers' quality of life (Khudayarifard, 2010; Ghasemi, Stebsari, Bastaminia, Jamshidi, & Dastourpour, 2014). Another therapeutic model that is commonly used in treating methamphetamine abusers is the Matrix Therapeutic Model, which is an integration of CBT, the relapse prevention program, Narcotics Anonymous program, and family approaches (Rawson, Gonzales, Greenwell, & Chalk, 2011). This therapeutic model has witnessed a large number of successful treatment experiences in the reduction of depression and drug use in substance abusers (Rawson, Gonzales, Greenwell, & Chalk, 2011; Taheri Nekhost, 2007). However, a limited number of studies has been conducted on the impact of this therapeutic model on other problems. In this study, we intend to investigate the effectiveness of Matrix Model in addicts' quality of life by considering the importance of these patients' quality of life as a predictor of treatment outcome.

Method

Population, sample, and sampling method

A quasi-experimental research design along with pretest-posttest/control group was employed for the conduct of this study. The statistical population of this research consisted of the crystal consumers who had attended the drug treatment center located in the 8th municipal district of Tehran in the first half of 2016 for the purpose of treatment and rehabilitation. The semi-structured interview Addiction Severity Index (ASI) was administered to a total of 68 patients presenting to this center and, then, the clients were checked in terms of the inclusion criteria. The criteria for the inclusion of participants were the use of crystal in accordance with the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders; the dominant use of methamphetamine relative to other substances at least for 6 months; the absence of serious psychiatric symptoms (i.e., not having observable symptoms of psychosis, such as hallucinations and delusions); and the absence of certain anxiety symptoms (such as restlessness) and deep depression. For this purpose, clinical psychologists conducted the design of this clinical interview of ASI as well as the psychiatric section of the scale. In addition, these therapists also performed

an interview with the family of patients in order to ensure the proper diagnosis of the symptoms in patients. The therapists referred the patients to the psychiatrist for treatment and excluded them from the study if they observed acute psychiatric symptoms in the patients. The exit criteria were the simultaneous consumption of methadone and alcohol. All the participants in the research were willing to participate in the research and stated this by completing the written consent.

Instruments

1. **Addiction Severity Index (ASI):** For the evaluation of the clinical status of patients, the Addiction Severity Index (fifth edition) (McLean et al., 1995) was used. The Addiction Severity Index is a semi-structured interview that is conducted by experienced researchers in face-to-face mode with patients. This questionnaire collects the patients' problems in any field over the course of the past 30 days, over the past year, and during the lifetime. For each section, a total mixed score (0-1) is obtained, and the individual's status in that section is rated in such a way that if the mentioned situations have taken more than 6 months, the full score will be assigned. On the other hand, if fewer than 6 months have been taken, the score will be zero. This index contains 116 questions as follows: 8 questions pertain to the medical status, 21 questions pertain to the occupational status, 24 questions pertain to the status of drug use and alcohol dinking, 27 questions are related to the legal status, 23 questions pertain to the family status, 10 questions belong to the area of social support, and 13 questions pertain to the patient's mental status. The reliability and validity of the Persian version used in this study have been evaluated by Atef Vahid et al. in collaboration with the research deputy of the University of Tehran and the National Center for Addictive Studies (Mokri, Ekhtiari, Edalati, & Ganjgahi, 2008).

2. **World Health Organization quality of life brief Scale (WHOQOL-BREF):** This questionnaire was designed after the integration of some of the areas and removal of some of them, with 100 questions. The questionnaire was translated in more than 15 countries simultaneously and in different languages. Therefore, the concepts of questions are the same in different cultures (Bonomi et al., 2000; cited in Nejat, Montazeri, Halakouei Naeini, Mohammad, & Majdzadeh, 2006). On the other hand, each question has been designed based on the statements mentioned by patients with different severities of illness, healthy people, and health professionals. Currently, the questionnaire has been translated into more than 40 languages in the world, and is still in progress. It contains four dimensions, namely physical health, mental health, social relations, and environmental health, and each consists of 7, 6, 3, and 8 questions, respectively. Nejat et al. (2006) examined the reliability of this questionnaire in Iranian samples and the reliability coefficients of credit in the field of physical health (0.77), mental health (0.77), social relationships (0.75), and the environmental health (0.84).

Procedure

In general, after the conduct of the interview, 30 qualified subjects were randomly selected and randomly divided into a control group and an experimental group (each containing 15 participants). The ASI and quality of life questionnaire were completed by the participants. Then, the experimental group underwent the group training of matrix modeling in twenty-four 60-minute sessions twice a weekly. After completion of training, the quality of life scale was completed by the participants of both groups immediately and once more two months after the intervention. In this study, the control group did not receive any intervention. Moreover, 4 participants of the control group and 3 participants of the experimental group were excluded from the study because of the use of methadone.

This therapeutic model is an integrative one and consists of an integration of CBT, the relapse prevention program, Narcotics Anonymous program, and family approaches. In this method, a framework has been developed for the involvement of stimulant consumers (such as crystal and cocaine) in the treatment, so that they can be prepared for effectively coping with addiction and successfully quitting it. Patients learn important information about the abstinence and relapse, receive guidance and are supported by well-trained therapists, become familiar with self-help programs, and are evaluated and controlled for drug use through the use of urine tests (Rawson, Gonzales, Greenwell, & Chalk, 2011).

In this study, the fourth edition of the Matrix protocol has been used (Mokri, 2013). The executors of this therapeutic model are the psychologists who have completed their specialty courses at the affiliates of Shahid Beheshti University of Medical Sciences. This therapy includes 24 sessions. The sessions were held two days a week and each session lasted for 60 minutes. The content of the matrix treatment sessions has been mentioned in the manual. After the training in each session, the participants in the experimental group were given some assignments and were checked in the following session. In this research, a part of the patients' treatment costs was paid by the research author in order to encourage them to participate in the research. A summary of the main content of the sessions is presented in Table 1.

Table 1: Summary of the main content of the Matrix treatment sessions

Session	Session Content	Session	Session Content
Session 1	Why do we quit drug use? (Scale of change)	Session 2	Triggers (motives, flip-flops, ...)
Session 3	The course of recovery	Session 4	External triggers
Session 5	Internal triggers	Session 6	Major recovery problems: familial mistrust
Session 7	Major recovery problems: reduced energy and power	Session 8	Major recovery problems: impertinent use of drugs and other substances as an alternative
Session 9	Craving	Session 10	What to do with craving?
Session 11	Wrong ways to deal with craving	Session 12	Thoughts, feelings and behaviors leading to drug use
Session 13	Feeling of restlessness and depression	Session 14	Relapse prevention: preventive activities
Session 15	Relapse prevention: relapsing activities	Session 16	Work and recovery
Session 17	Shame and guilt	Session 18	Staying busy
Session 19	The motive for recovery	Session 20	Truthfulness
Session 21	Full purity	Session 22	Addictive sexual relations
Session 23	Relapse prevention	Session 24	Be smart, not strong

Results

The mean age of participants in the experimental and control groups were 28.5 and 26.5 respectively and also mean of duration of abuse were 94.4 and 72.2 months and the number of attempting to leave were 4.47 and 3.40. Demographic information in separated groups is presented in Table 2.

Table 2: Demographic information in separated groups

<i>Variables</i>	<i>Status</i>	<i>Experimental</i>		<i>Control</i>		<i>Variables</i>	<i>Status</i>	<i>Experimental</i>		<i>Control</i>	
		<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>			<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
Marital status	Single	8	53.3	6	40	Socio-economic status	Low	6	40	9	60
	Married	3	20	2	13.3		Middle	9	60	6	40
	Divorced	4	26.7	7	46.7		high	0	0	0	0
Educational level	Under Diploma	3	20	6	40	Job Status	Unemployed	10	66.7	10	66.7
	Diploma	9	60	8	53.3		part time	5	43.3	2	13.3
	Associate Degree	3	20	1	6.7		Full-time	0	0	3	20

Descriptive statistics of quality of life in separated groups and types of tests are presented in Table 3.

Table 3: Descriptive statistics of quality of Life in separation of groups and types of tests

<i>groups</i>	<i>Pretest</i>		<i>Post-test</i>		<i>Follow up</i>	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Experimental	77.23	10.67	88.20	17.12	81.10	13.65
Control	74.87	13.65	71.10	13.11	72.16	16.06

Analysis of covariance was used to evaluate the effectiveness of the Matrix sessions on quality of life and survival of the changes over time as follows.

Table 4: Analysis of covariance for effects of matrix treatments on quality of life

<i>Steps</i>	<i>Sum of squares</i>	<i>df</i>	<i>F statistic</i>	<i>Sig.</i>	<i>Size effect</i>
Post-test	262.6	28	17.33	0.001	0.54
Follow up	65.01	21	2.83	0.17	-

As can be seen in the table above matrix model has been effective in improving the quality of life in experimental group ($P < 0.001$, $F = 17.33$). But this is not a lasting impact ($P > 0.05$, $F = 2.83$). To study the effect of matrix treatment on quality of life subscales of multivariate analysis of covariance was used. Before running this test assumptions of the test were examined. One of the assumptions of is analysis of covariance matrix equality. Results M Box indicated established of assumption ($P > 0.05$, $F = 1.60$, $M \text{ Box} = 20.09$). The results of multivariate analysis of covariance showed a significant difference in the linear combination of components in the test (effect size = 0.51, $P < 0.001$, $F = 12.05$, Wilks Lambda = 0.512). However, no significant difference was found in the linear combination of components in the follow-up ($P > 0.05$, $F = 1.75$, Wilks Lambda = 0.324). Univariate analysis of covariance was used to evaluate different patterns in posttest as follows.

Table 5: Results of univariate analysis of covariance to examine differences patterns in the quality of life in post-test

<i>Subscales</i>	<i>Df</i>	<i>F statistic</i>	<i>Sig.</i>	<i>Size effect</i>
Physical health	28	25.64	0.0005	0.53
mental health	28	19.26	0.001	0.68
social relations	28	11.25	0.001	0.35
Environmental conditions	28	11.41	0.001	0.24

As can be seen in Table 8 intervention is effective on all components.

Discussion and Conclusion

The aim of this study was to investigate the therapeutic outcome of the matrix treatment model on the methamphetamine users' quality of life. The results of this study showed that group matrix training could improve the methamphetamine users' quality of life in the short term; however, in the long run, this effectiveness is not significant. This finding is consistent with those of the studies carried out by Rawson, Gonzales, Greenwell, & Chalk (2011) and Taheri Nekhost (2007). Most of the studies in the area of treatment of addiction and the living conditions of substance abusers have been based on the cognitive-

behavioral therapeutic model while the matrix treatment model has been rarely used with the aim of improving the quality of life. Therefore, the current researchers were confronted with some limitations in comparing their findings with those of similar studies. However, if one considers the matrix therapy as a model arising from cognitive-behavioral approach and confirm its effectiveness in the quality of life, s/he can claim that the results of this study about the improvement of drug abusers' quality of life are attributable to the implementation of the Matrix therapeutic model, which is consistent with the research findings reported by Ost (2008); Hides et al. (2010); Gonzales et al. (2011); Khadayarifard (2010); Ghasemi, Stebsari, Bastaminia, Jamshidi, & Dastourpour (2014); Driessen, & Hollon (2011); Sugarman et al. (2010); Osilla et al. (2009); and McHugh et al. (2010). To explain the effectiveness of the matrix model in patients' quality of life in the short run, one can argue that the matrix therapy is characterized by a wide range of concepts and multiple cognitive and behavioral components that function with the aim of increasing the person's adaptation to the environment and preventing the negative consequences of stressful conditions (Rawson, Gonzales, Greenwell, & Chalk, 2011). The mentioned goals are realized in the short run and this indicates the usefulness of this therapeutic approach. However, despite the effectiveness of this matrix treatment model in the short term, this effectiveness has decreased over time in the follow-up phase. The ineffectiveness of the above intervention model in the long run can be accounted for by a number of reasons. As it was mentioned above, one of these explanations is the application of the treatment in suitable therapeutic conditions. It is true that matrix treatment increases one's adaptation to the environment through multiple cognitive and behavioral concepts; however, the availability of appropriate therapeutic goals does not necessarily represent an effective treatment. The applicability and effectiveness of various therapeutic approaches during clinical trials and the achievement of therapeutic goals are contingent upon several factors, such as the selection of appropriate target groups, the choice of treatment methods tailored to the patients' needs, the choice of the right place for implementation, the implementation of the intervention at the right time, and adherence to the treatment guidelines (Seyyed Mohammadi, 2015). In this study, the selection of matrix therapy has been an appropriate option in the short term, but not a proper long-term intervention. It does not correspond to the patient's therapeutic needs in the long term. Therefore, it is better to use the matrix therapy in the long term as a complementary therapy along with other therapies. In addition, researchers have also explored the disruptive factors of quality of life in order to account for this contradictory finding. The general definition of the quality of life refers to an individual's psychological, physical, social, and social well-being in life that can temporarily undergo some changes and get out of the ordinary direction in case of the presence of stressful conditions over life. In fact, it can be said that addiction, like other chronic diseases, holds a stressful nature, which is

characterized by the impact of the disease on the patient's lifestyle and, ultimately, on the quality of life. Durable treatment regimens, long-term maintenance and care, their relapsing nature, vulnerability to environmental stimuli, and environmental expectations are all factors that indicate the long-term management of these diseases is a necessary condition for recovery and there is a possibility of a person's relapse to the disease unless comprehensive and complete therapeutic packages of different therapies can work together to manage patient conditions over time. However, the effectiveness of the matrix model in the short term and the absence of the integration of other therapies with it in the long run, coupled with financial and time constraints in this study all made the above intervention effective only in the short term. However, the same story was not dominant in the long run with the passage of time.

Experts now believe that more comprehensive therapeutic packages that are more responsive to the patients' needs should be prioritized because of the increased medical failures in this area. In this regard, psychological and environmental variables assume particular importance since they can play a role in one's suffering from this disease and can be effective in the continuity and failure of the treatment. In this study, as in other studies, there were time and financial constraints. Therefore, it is suggested that more eclectic and comprehensive therapeutic packages be used in future research that can cover all the variable needs of patients over time.

Reference

- Bizzarri, J.; Rucci, P.; Vallotta, A.; Girelli, M.; Scandolari, A.; Zerbetto, E.; Sbrana, A.; Iagher, C.; & Dellantonio, E. (2005). Dual diagnosis and quality of life in patients in treatment for opioid dependence. *Substance Use & Misuse*, 40(12), 1765–76.
- Driessen, E.; Hollon, S.D. (2011). Motivational Interviewing From a Cognitive Behavioral Perspective. *Cognitive and Behavioral Practice*, 18(1), 70-73.
- Ghasemi, A.; Estebarsari, F.; Bastaminia, A.; Jamshidi, E.; Dastoorpoor, M. (2014). Effects of Educational Intervention on Health-Promoting Lifestyle and Health-Related Life quality of Methamphetamine Users and Their Families: a Randomized Clinical Trial. *Iranian Red Crescent Medical Journal*, 16(11), 1-8. DOI: 10.5812/ircmj.20024.
- Gonzales, R.; Ang, A.; Marinelli-Casey, P.; Glik, D.; Iguchi, M.; Rawson, R. (2011). Health-related quality of life trajectories of methamphetamine-dependent individuals as a function of treatment completion and continued care over a 1-year period. *American Journal of Addiction*, 20(4), 366–72.
- Hides, L.; Carroll, S.; Catania, L.; Cotton, S.M.; Baker, A.; Scaffidi, A.; Lubman, D.I. (2010). Outcomes of an integrated cognitive behavior therapy (CBT) treatment program for co-occurring depression and substance misuse in young people, *Journal of Affective Disorders*, 121, 169–74.
- Hosak, L.; Preiss, M.; Bazantl, J.; Tibenska, J.; Cermakova, R.; & Cermakova, E. (2012). Comparison of Wisconsin Card Sorting Test Result between Czech Subjects Dependent on Methamphetamine versus Healthy Volunteer. *Psychiatria Danubina*, 24(2), 188-93.
- Hser, Y.I.; Longshore, D.; Anglin, A. (2009). The life course perspective on drug use: A conceptual framework for understanding drug use trajectories. *Evaluation Review*, 31(6), 515–47.

- Karow, A.; Reimer, J.; Schäfer, I.; Krausz, M.; Haasen, C.; Verthein, U. (2010). Quality of life under maintenance treatment with heroin versus methadone in patients with opioid dependence. *Drug and Alcohol Dependence*, 112, 209–15.
- Khodayarifard, M. (2010). Cognitive-behavioral couple therapy of drug-abuse in Iran. *Procedia Social and Behavioral Sciences*, 5, 707 -10. DOI: 10.1016/j.sbspro.2010.07.169.
- McHugh, R.K.; Hearon, B.A.; Otto, M.W. (2010). Cognitive Behavioral Therapy for Substance Use Disorders. *Psychiatric Clinics of North America*, 33(3), 511-25.
- McLellan, A.T. (2005). Re-considering the evaluation of addiction treatment: From retrospective follow-up to concurrent recovery monitoring. *Addiction*, 100(4), 447–58.
- McLellan, A.T.; Kushner, H.; Metzger, D.; Peters, R.; Smith, L.; Grissom, G.; Pettinati, H.; & Argeriou, M. (1995). The Fifth edition of the Addiction Severity Index. *Substance Abuse Treatment*, 9(3), 199-213.
- Mokri, A.; Ekhtiari, H.; Edalati, H.; Ganjgahi, H. (2008). Communication with various aspects of the intensity of craving in addicts injecting heroin addiction. *Iranian Journal of Psychiatry and Clinical Psychology*, 14 (3), 80-269.
- Mokri, A. (2013). Manual of Stimulant substance abuse treatment based matrix modified model (Fourth edition). Available at <http://www.mums.ac.ir/shares/health/bahranis1/pdf/.../movad-moharek.pdf>.
- Muller, N.J. (2006). Assessing quality of life in clinical trials. *Journal of Epidemiology Community Health*, 60(9), 822-28.
- Nejat, S.; Montazeri, A.; Holakouee Naeeni, S.; Mohammed, K.; and Majdzadeh, R. (2006). Standardization of the World Health Organization Quality of Life questionnaire: translation and psychometric Iranian version. *Journal of School of Public Health and Institute of Health Research*. 4 (4), 12-1.
- Osilla, K.C.; Hepner, K.L.; Muñoz, R.F.; Woo, S.; Watkins, K. (2009). Developing an integrated treatment for substance use and depression using cognitive-behavioral therapy. *Journal of Substance Abuse Treatment*, 37(4), 412-20.
- Ost, L.G. (2008). Efficacy of the third wave of behavioral therapies: A systematic review and meta-analysis. *Behavior Research and Therapy*. 46:296–321.
- Halgin, R., Krauss Whitbourne, S. (2015). Psychopathology according to the DSM -5, the first volume. Translations by Yahya Seyed Mohammadi. Ravan publication.
- Rawson, R.A.; Gonzales, R.; Greenwell, L.; & Chalk, M. (2011). Process-of-care measures as predictors of client outcome among a methamphetamine-dependent sample at 12- and 36-month follow-ups. *Psychoactive Drugs*, 44(4), 342-9. DOI: 10.1080/02791072.2012.718653.
- Shams esfandabad, H.; Nezhadnaderi, S. (2009). A comparative study of the quality of life and religion attitude a mongo addicted / non-addicted individuals in Kerman city. *Psychological studies*, 5(1), 139-52.
- United Nations Office on Drugs and Crime (2013). World drug report. United Nations Publications.
- Sugarman, D.E.; Nich, C.; & Carroll, K.M. (2010). Coping strategy use following computerized cognitive-behavioral therapy for substance use disorders. *Psychology of addictive behavior*, 24(4), 689-95. DOI: 10.1037/a0021584.
- Taheri Nokhost, H/ (2007). Effectiveness of the treatment model matrix in treatment of stimulant abuse. Proceedings of substance abuse. Anti-drug campaign.
- World Health Organization (1996). QOL-BREF introduction administration scoring and generic version of the assessment field trial version. Geneva: WHO.