On the Effectiveness of Behavioral Counselling in the Reduction of High-Risk Behaviors and the Improvement of Quality of Life and Control of Craving Beliefs among Individuals with Substance Abuse Disorders

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Abstract

Objective: The goal of this research was to study the effectiveness of behavioral counseling in decreasing high-risk behaviors in the promotion of quality of life and control of craving beliefs in substance abusers. **Method:** A quasi-experimental method along with pretest/posttest design and control group was used to conduct this research. The research sample consisted of 40 men in the 20 to 45 age range with substance abuse disorder who were selected through criterion-based sampling method and were randomly assigned in two groups, i.e. experimental group (n = 20) and control group (n = 20). Then, the behavioral counseling program for reducing high-risk behaviors was administered to the experimental group for 12 sessions. The control group did not receive any intervention during this period. For data collection purposes, Craving Beliefs Questionnaire and Quality of Life Questionnaire were used. **Results:** The results showed that behavioral counseling on the decrease of high-risk behaviors has had a significant effect on the promotion of life quality and the improvement of craving beliefs in the experimental group. Moreover, the effectiveness of this method in the one-and-a-half-month follow-up showed a relative stability. **Conclusion:** Behavioral counseling on the reduction of high-risk behaviors is an effective method in the control and treatment of drug dependent people and can be used as a psychological intervention program in addiction treatment centers.

Keywords: behavioral counseling, addiction, high-risk behaviors, quality of life, craving beliefs, drug dependence

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Introduction

High risk behaviors include a wide range of traumatic behaviors, one of which is addiction (Barikani, 2008). The terms of phraseology, high risk behavior refers to the behaviors that increase the possibility of the occurrence of negative and destructive physical, psychological, and social consequences in the person (Carr-Gregg, Enderby & Grover, 2003). These behaviors usually entail such symptoms as violations of law, destruction of properties, theft, violence, smoking, alcohol drinking, drug use, truancy, fire-mongering, rape or threat, which are often clustered under the node of juvenile delinquency (Garmezy & Masten, 1991). High risk behaviors are among the most important health and social issues that affect individuals, families, and communities (Johnston, O'Malley & Bachmon, 2001). Research findings have indicated that a large number of high risk behaviors, such as smoking, alcohol drinking, drug use, and sexual relations occur under the age of 18 years (Bergman & Scott,2001) and the causes of many deaths emanate from adolescence and early adulthood (Lindberg, Boggess & Williams, 2000).

Among these traumas, drug abuse has more destructive and detrimental effects on various cultural, social, economic, and political aspects of a society. Clinical findings show that some factors, such as personality traits, lifestyle, interpersonal relationships, beliefs, feelings and emotions, attachment styles, and the behaviors already shaped during the individual's development, play an essential role in the formation of drug dependence (Habibi, Bahrami, & Rostami, 2012; Arteaga, Chen & Reynolds, 2010; Stone, Becker, Huber & Catalano, 2012); furthermore, these behaviors have a strong connection with some types of psychological disorders (Sadock, Sadock & Kaplan, 2007; Dawson, Goldstein, Moss & Grant, 2010; Cohen et al., 2011; Alegria et al., 2011). It seems that personality traits, lifestyle, family relationships, beliefs and dysfunction in the regulation of behaviors and emotions in these individuals are significantly different from those in healthy people. For example, Soleimanienia's findings (2007) showed that adolescents use drugs as a strategy to cope with problems, negative emotions, and stressful situations. Psychological stress, such as peer pressure and aggression, is in itself an important predictor of drug use in adolescents (Hawkins, Gatalano & Miller, 1992).

Drug dependence has a detrimental effect on individuals' healthy lifestyle pattern, degree of their adaptation to stressful life events, quality of life. In this regard, studies have shown that factors, such as coping methods, degree of adaptation to the environment, endured stresses, achieving goals, self-cognition, productivity, usefulness, approach towards future, individuals' awareness, and coping behaviors have a major impact on the quality of life (Azimi & Bajlan, 2009). In addition, craving thoughts and uncontrollable tendencies during and after treatment are effective and important factors in drug use (Rahmanian et al., 2006). Marlatt & Gordon (1980) showed that when individuals are face high-

risk circumstances, in the case of the absence of appropriate and effective coping strategies and responses, their self-efficacy decreases. Accordingly, positive expectations emerge in terms of craving, relapse, drug use, or return to drugs (Franken, Kroon, Wiers & Jansen, 2000).

Although based on the traditional assumption of behavioral approach and the therapies derived from this approach, it is assumed that behavioral therapies are mainly used to change individuals' behaviors, with the introduction of new changes and transformations into behavioral approaches, the topics related to intellectual and cognitive issues have also entered these therapies. Therefore, today, an integration of these methods is applied. In other words, today, the discussion of behavioral therapies whose primary and radical versions had once been merely a behavioral function, is no longer in play, and the interaction between behavior and thought is more highly considered (Sharf, 2008). Accordingly, behavioral approaches are recognized as a part of essential and effective therapies in the field of addiction prevention and treatment. Behavioral counselling on reduction of high-risk behaviors is a complex and integrated therapeutic approach that includes several sections, such as psychological interventions, health care, methadone treatment, and social follow-up. Social follow-ups and especially psychological intervention programs are among the essential components of this multi-faceted approach and may increase the positive effects of other aspects, such as methadone treatment, which can lead to positive changes in patients' life. Psychological interventions help people identify the symptoms and conditions that are related to drug use in some way through behavioral modification and functional analysis. In addition, as a functional and effective component, psychological interventions provide people with skills training and help them make use of these coping skills and abilities (problem-solving skills, decision-making skills, emotional management, assertiveness, etc.) to effectively deal with problems in difficult and critical conditions. On the other hand, participation in therapeutic sessions, especially in group form, leads to positive changes in the individual; reduces the negative effects of substance use and the specific conditions of the patient's life, such as depression, anxiety, and stress; and increases self-esteem and personal satisfaction. As a result, participation in behavioral counseling sessions leads to positive behavioral changes, modified attitudes towards life, the correction of negative beliefs, the improvement of social environment, and the enhancement of interpersonal and intrapersonal relationships in subjects. The series of these factors can have positive effects on individuals' quality of life and negative opinions and will help them get purge drug dependence and drug use craving. Thus, in the behavioral therapy, it is attempted to modify the behavioral defects that create the negative and craving beliefs of the substance and to reduce maladaptive coping behaviors.

Research findings have shown that behavioral therapy is one of the effective methods and interventions among other therapeutic methods used in treatment

of many behavioral disorders, especially in the treatment of addiction and drug dependence. Jessor, Donovan & Gosta (1991) argue that individuals who are prone to a problematic behavior (e.g., delinquency) will also be prone to other problematic behaviors (such as substance abuse). In their behavioral model of the causes of problematic behaviors, such as drug use, alcoholism, and delinquency, it was shown that people's behavioral system, as one of the most effective areas which might lead to psychological vulnerability for behavior problems. Thus, drug use and tobacco smoking are considered a learned, purposeful, and social behavior that can be reduced or modified through appropriate training. Research has shown that behavioral counseling-based therapy is effective in reducing high risk behaviors, such as AIDS-induced reductions and treatment and prevention of drug use addiction, and AIDS control (Backmund, Meyer, Eichenlaub, & Schutz, 2007; Chawaraski, Mazlan, & Schottenfeld, 2008; Chawarski, Zhou & Schottenfeld, 2011; Ko, Wang, Wu, Yen & Hsu, 2012; Marek, Chawaraski, Barry, Mazlan, & Schottenfeld, 2013). In the same manner, Hamedi, Shahidi, & Khademi (2013) compared the effectiveness of various methods in relapse prevention of substance use and the results showed that behavioral counseling method reduced the degree of harms in relapse prevention.

Method

Population, sample, and sampling method

A quasi-experimental method along with pretest/posttest design and a control group was used to conduct this research. The statistical population of the present study included the drug-dependent individuals who had been presented to drug addiction treatment centers in Mahabad in 2015. The research sample consisted of 40 men in the age ranges of 20 to 45 with substance abuse disorder who were selected through criterion-based sampling method and were randomly assigned in two groups, i.e. experimental group (n = 20) and control group (n = 20). The entry criteria for inclusion of participants in the research were the diagnosis of drug dependence (based on the diagnosis of the dysfunctional center and the diagnostic and statistical guide to mental disorders, fifth edition), the declaration of readiness to receive psychological services, holding high school education, consent to do the assignments presented in the sessions, continuous presence in the sessions, non-diagnosis of other psychiatric disorders based on the clinical specialist's diagnosis, and placement in the age ranges of 20 to 45 years. On the other hand, the exit criteria were the discontinuation of the treatment program, reluctance to the persistence or attendance in the sessions, more than three sessions being absent, and the non-observance of class rules or sessions.

Instruments

1. Quality of Life Questionnaire: This questionnaire has been proven useful for application in clinical settings, health policy assessment, and general population research. This questionnaire enjoys an appropriate reliability and validity. The

36-item version of this scale was designed by Varousherbon in 1992 in the United States and its reliability and validity has been evaluated in different groups of patients. The concepts measured by this questionnaire do not belong to specific age ranges, groups, or illnesses. The aim of this questionnaire is to assess the physical and psychological health state, which is obtained by combining the scores of eight domains of the scale. This questionnaire evaluates 36 items in eight different domains of health as follows: 1. General health, 2. Physical function, 3. Role limitation because of physical health problems, 4. Role limitations in usual role activities because of emotional problems, 5. Bodily pain, 6. Social functioning, 7. Energy or fatigue, and 8. Mental health. In Iran, its validity and credibility was assessed for the first time on a 4163-particiapnat sample aged 15 years and over (Montazeri et al., 2007). The reliability coefficient of this scale was reported to range from 0.77 to 0.95 in all dimensions (except for the energy and fatigue dimension, which was 0.65). In sum, the findings show that the Iranian version of this questionnaire is an appropriate tool for studying the general population. The lowest score of this scale is zero and the highest score is 100.

2. Craving Beliefs Questionnaire: This questionnaire is a self-assessment instrument, designed by Wright and Beck (1993). This questionnaire measures individuals' beliefs about craving for drug use and contains 20 items, each of which is scored on a 7-point scale (from strongly disagree to strongly agree). The validity and reliability of this questionnaire has been reported to be acceptable. Cronbach's alpha value of this scale has been obtained equal to 0.84 and its split-half reliability coefficient has been reported to equal 0.81 (Rahmanian, Mirjafari, & Hasani, 2006). In addition, Mohammadkhani, Sadeghi, & Farzad (2011) have reported its Cronbach's alpha reliability to be equal to 0.77.

Procedure

After conducting the necessary coordination with four addiction treatment centers, sample selection and their random division into two groups, i.e., experiment and control groups, behavioral counseling program of high-risk behavior reduction was administered to the experimental group in twelve 60-minute sessions in three months (Table 1).

Table 1: Behavioral intervention program of high-risk behavior reduction

Sessions	Content
First	Introduction and acquaintance of the members with each other and with the therapist, an introduction to the behavioral counseling program, assessment of individuals, review of the methadone treatment process and testing, presentation and review of the rules of the training sessions and its time and place, and the initial contract on how to adhere to treatment
Second	Review of the issues pertaining to the previous session and provision of feedback, review of the current issues, presentation of information about the problem of addiction as an illness and the need for its treatment, and the contract for change
Third	Review of the issues pertaining to the previous session and provision of the required feedback on the contract, an introduction to different types of addiction and substance dependency, review of the patient's current problems and the next session contract
Fourth	Review of the issues pertaining to the previous session and provision of the required feedback on the contract, training on high-risk sexual behaviors and injecting diseases, examination of the current problems and changes in the patient's life, and the next session contract
Fifth	Review of the issues pertaining to the previous session and provision of the required feedback on the contract, training on the abuse of psychoactive drugs, review of the patients' current issues, and the next session contract
Sixth	Review of the issues pertaining to the previous session and provision of the required feedback on the contract, evaluation of the treatment sessions and positive changes made during the previous six sessions, a wrap-up of the points of the previous sessions, description of the therapeutic goals of the next session, and the next session contract
Seventh	From the seventh session on, the sessions might vary depending on the members' needs, and would focus on the provision of more educational lessons based on the positive changes that were made during the previous sessions. The major topics and points presented at the sessions, along with the review of the contracts and provision of the necessary feedback, including: training HIV and assessment of the awareness of what happened at the seventh session.
Eighth	Smoking and its negative effects
Ninth	Addiction relapse prevention, understanding the patient's experience of the desire for drug use, and examination of the triangle of thought-craving-consumption behavior
Tenth & Eleventh	Provision of required training on basic skills, such as self-assertion skills, problem-solving, and control of desires and emotions (desire to control substance consumption)
Twelfth	Review of the contract implementation and provision of positive feedback, a wrap-up on the positive changes and points during the sessions, presentation of the participants' comments on the sessions, wrap-up, commenting on the counselling, and the end of sessions

It is noteworthy that the design of the treatment points emphasized more on the promotion of quality of life and drug craving beliefs with a focus on the positive changes and the resolution of the current problems of the members. After one and a half months of treatment sessions, all subjects were re-evaluated using the two research instruments used in the study in order to measure the sustainability of positive therapeutic effects.

Results

The participants in the study were in the age range of 20 to 45 years old. In terms of gender, all participants were male and held a minimum degree of primary school education and the maximum bachelor's degree. All subjects had a history of drug use over one year. In terms of other indexes, there was no significant difference between the two groups, especially in terms of methadone consumption. The descriptive statistics of the research variables are presented in Table 2 for each test type and group.

Table 2: Descriptive statistics of the research variables for each group

Variable	*Group*	*Test type*	*N*	*Mean*	*SD*
Quality of life	Experimental	Pretest	20	55.37	3.15
		Posttest	20	73.91	2.35
		Follow-up	20	70.53	2.57
	Control	Pretest	20	52.92	2.95
		Posttest	20	51.26	2.55
		Follow-up	20	47.88	1.91
Craving beliefs	Experimental	Pretest	20	80.66	13.75
		Posttest	20	61.67	2.25
		Follow-up	20	59.57	1.90
	Control	Pretest	20	89.41	7.34
		Posttest	20	86.09	1.89
		Follow-up	20	87.25	1.96
Physical functioning	Experimental	Pretest	20	64.21	17.38
		Posttest	20	78.48	17.05
		Follow-up	20	73.11	17.21
	Control	Pretest	20	53.81	25.68
		Posttest	20	54.36	25.85
		Follow-up	20	51.76	24.46
Role limitation because of physical health problems	Experimental	Pretest	20	43.93	41.60
		Posttest	20	71.83	31.15
		Follow-up	20	68.90	33.69
	Control	Pretest	20	45.72	36.85
		Posttest	20	36.34	31.38
		Follow-up	20	35.40	31.04
Role limitations because of emotional problems	Experimental	Pretest	20	44.66	41.15
		Posttest	20	75.37	31.65
		Follow-up	20	71.67	33.53
	Control	Pretest	20	41.15	34.28
		Posttest	20	44.36	36.45
		Follow-up	20	38.18	35.41
Energy or fatigue	Experimental	Pretest	20	49.27	17.83
		Posttest	20	67.62	16.71
		Follow-up	20	65.71	16.62
	Control	Pretest	20	48.33	21.94
		Posttest	20	45.55	20.19
		Follow-up	20	41.14	18.94
Emotional health	Experimental	Pretest	20	58.24	18.58
		Posttest	20	72.38	15.65
		Follow-up	20	69.95	16.73

Table 2: Descriptive statistics of the research variables for each group

Variable	*Group*	*Test type*	*N*	*Mean*	*SD*
		Pretest	20	55.62	15.02
	Control	Posttest	20	56.10	14.87
		Follow-up	20	52.38	15.23
		Pretest	20	64.11	21.61
	Experimental	Posttest	20	77.90	21.61
Social functioning		Follow-up	20	72.86	21.33
		Pretest	20	64.19	23.39
	Control	Posttest	20	61.74	20.04
		Follow-up	20	62.81	21.95
		Pretest	20	52.27	24.21
	Experimental	Posttest	20	68.38	19.11
		Follow-up	20	66.24	18.58
Bodily pain		Pretest	20	53.40	24.84
	Control	Posttest	20	55.58	26.98
		Follow-up	20	48.11	۲۲/۱۱
		Pretest	20	62.27	18.34
	Experimental	Posttest	20	79.34	19.54
General health		Follow-up	20	75.86	19.15
		Pretest	20	61.15	23.90
	Control	Posttest	20	55.76	23.11
		Follow-up	20	53.19	22.90

To investigate the effectiveness of the intervention in craving beliefs, covariance analysis should be used. One of the assumptions of using this analysis is the equivalence of error variances. The results of Levene's test showed that this assumption has been satisfied (P> 0.05). Another assumption for using this test is the normality of data distribution where the results of Kolmogorov-Smirnov test indicated that this hypothesis has been met (P> 0.05). Therefore, covariance analysis was conducted as presented in Table 3.

Table 3: Univariate covariance analysis results on the effectiveness of intervention in the reduction of craving

Source of variation	*Sum of squares*	*Df*	*Mean squares*	*F*	*Sig.*	*Effect size*
Group	1632.82	1	1632.82	30.450	0.0005	0.60
Error	361.69	17	21.33			

As it has been shown in Table 3, the intervention has been effective in reducing the scores of craving beliefs (P <0.001). To investigate the effectiveness of the intervention in the reduction of craving thoughts and beliefs, univariate covariance analysis with follow-up scores was run and the related results are presented in Table 4.

Table 4: Univariate covariance analysis results on the effectiveness of intervention in the reduction of craving beliefs

Source of variation	*Sum of squares*	*Df*	*Mean squares*	*F*	*Sig.*	*Effect size*
Group	1724.30	1	1724.30	31.340	0.005	0.61
Error	733.31	17	43.11			

As it has been shown in Table 4, the effectiveness of intervention in reducing the scores of craving beliefs has continued (P <0.001).

In addition, to investigate the effectiveness of the intervention in quality of life, covariance analysis should be also used. One of the assumptions of using this analysis is the equivalence of error variances. The results of Levene's test showed that this assumption has been satisfied (P> 0.05). Another theory for using this test is the normality of data distribution where the results of Kolmogorov-Smirnov test indicated that this assumption has been met (P> 0.05). Therefore, covariance analysis was conducted as presented in Table 3. Therefore, multivariate covariance analysis was performed and the results were indicative of the effectiveness of the intervention (effect size = 0.636, 0.001, P <0.001, F = 35.831, Wilks' lambda = 0.354). To examine the patterns of difference, univariate covariance analysis was used and the results have been presented in Table 5.

Table 5: Univariate covariance analysis results on the effectiveness of intervention in quality of life components

Variable	*Mean Square*	*F*	*Sig.*	*Effect size*
Physical function	5521.95	30.860	0.0005	0.19
Role limitation because of physical health problems	3114.59	35.360	0.0005	0.12
Role limitation because of emotional problems	103.95	11.130	0.0005	0.22
Energy or fatigue	2119.90	20.86	0.0005	0.22
Affective health	830.21	37.680	0.0005	0.20
Social functioning	390.37	21.69	0.0005	0.15
Bodily pain	604.56	37.190	0.0005	0.22
General health	1219.90	25.11	0.0005	0.17

As it has been shown in the table above, the intervention was effective in all components (P <0.001).

In addition, to investigate the survival of the effectiveness of intervention in quality of life, covariance analysis should also be used. One of the assumptions of using this analysis is the equivalence of error variances. The results of Levene's test showed that this assumption has been satisfied (P> 0.05). Another assumption for using this test is the normality of data distribution where the results of Kolmogorov-Smirnov test indicated that this assumption has been met (P> 0.05). Therefore, covariance analysis was conducted as presented in Table 3. Therefore, multivariate covariance analysis was performed and the results were indicative of the continued effectiveness of the intervention (effect size = 0.636, 0.001, P <0.001, F = 35.831, Wilks' lambda = 0.354). To examine the patterns of difference, univariate covariance analysis was used and the results have been presented in Table 6.

Table 6: Univariate covariate analysis results on the survival of the effectiveness of intervention in quality of life components

Variable	*Mean Square*	*F*	*Sig.*	*Effect size*
Physical function	5563.66	31.16	0.0005	0.21
Role limitation because of physical health problems	3231.15	36.21	0.0005	0.16
Role limitation because of emotional problems	142.67	12.630	0.0005	0.16
Energy or fatigue	2511.15	21.450	0.0005	0.17
Affective health	1250.22	37.91	0.0005	0.21
Social functioning	414.16	22.32	0.0005	0.17
Bodily pain	242.52	37.86	0.0005	0.24
General health	1362.67	26.15	0.0005	0.19

As it can be observed in the table above, the effectiveness of survival intervention has been confirmed in all components (P <0.001).

Discussion and Conclusion

The current study was an attempt to examine the effectiveness of behavioral counseling on reduction of high-risk behaviors in the improvement of quality of life and control of the craving beliefs in people with substance abuse disorders. This study was conducted on 40 male participants. The results of this study showed that behavioral counseling on reduction of high-risk behaviors has had a positive impact on the improvement of addicts' quality of life and its different dimensions, as well as control of craving beliefs. These findings of the study are consistent with those of other studies in this area (Backmund et al., 2007; Chawarski, Mazlan, & Schottenfeld, 2008; Chawarski, Zhou, & Schottenfeld, 2011; Ko, Wang, Yen & Hsu, 2012; Marek, Chawaraski, Barry, Mazlan, Schottenfeld, 2013; Hamedi, Shahidi, & Khademi, 2013). Quality of life is one of the basic components of health and well-being that correlateswith physical and mental health, healthy relationships with others, active participation in social activities, enjoying a healthy lifestyle, and self-actualization. Moreover, positive relationships with others, being goal-oriented in life, the development of balanced personality and flourishing, loving others, and living are the important elements of quality of life in individuals (Bannrbrok et al., 2012). Similarly, craving beliefs act as an active ingredient at any time in substance dependent people and may have many destructive effects on their lives. In substance-dependent individuals, craving beliefs are stronger than the will power and the person is more likely to say that s/he will be tempted and take drugs in this condition. In fact, craving beliefs are the disturbing thoughts that a person tries to suppress. As a result, one is focused on getting rid of its behavioral consequences. In the behavioral counseling on the reduction of high-risk behaviors, logical problem-solving and life with commitment, which are included in behavioral contracts, are emphasized. The harmful and detrimental personal, social, and cultural effects of drug abuse, dependence, and addiction have led communities and therapists to take action towards prevention,

withdrawal, and treatment of this illness. In this regard, several therapeutic interventions have been proposed to treat drug dependence in recent years. Despite the relative effectiveness and efficiency of these therapies and treatment methods in reducing the harms arising from drug dependence and contributing to the relative improvement of its negative effects, there are still some deficiencies. This factor has prompted the introduction of new interventional methods and their application in research to determine their effectiveness. However, it is too early to assess the effectiveness and efficiency of these various treatments associated with drug dependence treatment. Considering the background of research and the numerous cases of application of this behavioral therapy and the reports of its positive influence on behavioral deficits in comparison with other therapeutic and interventional methods, it seems that the application of behavioral therapy is more suited to the treatment and reduction of drug dependence in these circumstances.

From among the limitations of this research, one may refer to the conduct of this research with a group of only male participants, inattention to marital status of persons (as a source of emotional-social support), the severity of dependence and the type of substance consumed, and the short duration of follow-up (one and a half months). Therefore, it is suggested that in future researches, the above limitations be removed and the generalization of the findings be cautiously carried out. The follow-up stage of the interventions is also recommended to be performed in a longer duration and in several steps. In order to obtain better and more accurate results through more effective and intensive training, it is suggested that behavioral counseling should be implemented individually. On the other hand, in order to determine the effectiveness and efficiency of behavioral counseling, other comparative studies are to be carried out on other variables. Therefore, considering the above-mentioned conditions, the effectiveness of behavioral counseling on reduction of high-risk behaviors has been satisfactory. The obtained results represent the continued effect of treatment during the one-and-a-half-month follow-up. Therefore, it can be argued that behavioral counseling is an effective and practical method and can lead to promising results.

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