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The effect of cognitive-behavioral training on quality of life and aggression among drug addicted prisoners

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Abstract

The life quality improvement of the addicted individuals and restoring them to a desirable psychological level are among the most effective methods for strengthening and empowering the addicted. The study was conducted with the aim of the effect of cognitive-behavioral training on quality of life and aggression among drug addicted prisoners. The participants were 30 addicted prisoners whom are assigned to experimental and control groups, consisting of 15 participants who were selected by the random sampling. Afterwards, the experimental group were trained during a intervention period lasting for 12 sessions and finally both groups were retested. Levine test and multivariate covariance test were used for the analysis. The result of covariance analysis indicated that there is a significant difference between experimental group and control group in the total score of quality of life and aggression and their subscales, suggesting that cognitive-behavioral trainings resulted in a reduction in the aggression score and an increase in the quality of life score in the intervention group compared to the control group. Furthermore, there was a change in the mean scores of aggression and quality of life subscales in the experimental group compared to the control group. The study supported the importance of cognitive-behavioral trainings on improving the quality of life and aggression reduction in the prisoners suffering from addiction.

Keywords: Addiction, Aggression, Cognitive behavioral, Drug, Quality of life

Introduction

Substance abuse is one of the major issues concerning the area of health care and, our country in comparison to the average world statistics is one of the countries, which requires more work to be done for the control and prevention of this social damage [1]. The world is now facing a crisis because of the increasing number of addiction worldwide. According to researchers, one of the ways to achieve this objective, namely, the prevention and treatment is to consider the originating, accelerating, and perpetuating factors related to this problem. Usually the outcome of the

treatment of addiction, especially the sustainable treatment is under the influence of the conditions of the treatment and individual and environmental characteristics and these factors can predict the degree of the sustainability of the treatment [2]. Today the preventive measures against addiction are employed in a much wider scale than ever before. Preventive measures can be implemented before, during and after the occurrence of the addiction and in technical terms these are defined as first, second and third levels of prevention [3]. To help the addicted individual and to improve his quality of life with the aim of preventing the addiction damages such as separation from personal, familial, and social life including personal, familial and social life considered as preventive measures in the third level. Various research results indicate that the physical and psychological consequences of addiction will lead to a decline in the quality of life and satisfaction and a serious drop in the actions of the substance abusers [4].

In recent years, more attentions have been devoted to the quality of life as a measure for evaluating health policies and medical interventions. There are many definitions and standards for evaluating the quality of life in different societies and the reason for this is the cultural diversity in the societies under assessment [5]. Quality of life is the perception of the individual about wellbeing, which seems to be a result from satisfaction or dissatisfaction with the major areas of life [6]. In a research, it was demonstrated that most of the substance abusers are suffering from certain psychological problems such as: stress, anxiety, major depression, Generalized Anxiety Disorder, and Antisocial Personality Disorder [7]. Therefore, it is imperative that measures be taken for improving the quality of life and the treatment of the psychological problems of the addicted individuals. The cognitive-behavioral trainings tend to emphasize on the psychological training and the required social and adjustment skills. It is notable that the effectiveness of these treatments on groups of individuals suffering from substance abuse has been demonstrated through various researches [8-10]. The cognitive-behavioral approach as its name indicates focuses on the problematic beliefs and behaviors and demonstrates how these beliefs play an important role in creating psychological problems, and how they perpetuated these problems over time and the changes that the treatment produces in these problematic beliefs and behaviors [10]. It is evident that since the early 1980s, progressively the behavioral-cognitive methods have come into use for the treatment of substance abuse disorders [11]. Frank Dattilio believes that the cognitive-behavioral training integrates the behavioral-cognitive principles and methods with a short-term approach. All cognitive-behavioral approaches are based on a systematic psychological-educational model, and all of them emphasize on the role of the task assigning responsibility to the client for accepting active role in the treatment sessions and outside it, and the use of different kinds of cognitive-behavioral strategies to initiate the change [12].

The main objective of the Cognitive Behavioural Therapy (CBT) in the treatment of substance abuse is learning coping skills to resist drug use and to reduce problems associated with substance abuse. Regardless of the specific therapeutic techniques, the principles of CBT treatment have a considerable importance in substance abuse control. These principles include: individual understanding and cooperation, regular mental skills training, individual attempts to quit and care-taking of the user [13]. Some studies has been shown that the drug addicts suffer from a high level of aggression and other psychiatric disorders [7]. Aggression is defined as any behavior that is intended to harm living organisms [14]. The results of a research by Ghahhari indicated that cognitive-behavioral approach has proved to be effective in reducing cravings and relapse, increasing self-control, reducing anxiety and depression, altering attitude toward drugs and enhancing individual abilities in

the components of emotional intelligence (intrapersonal, interpersonal abilities, stress tolerance, adaptability and overall mood). Therefore it seems that cognitive-behavioral approach offers a high efficiency in the treatment of cannabis abuse and prevention of its relapse [15]. The result of another research showed that cognitive-behavioral therapy is effective in enhancing the problems associated with alcoholism [16]. The result of another research showed that cognitive-behavioral therapy is effective in enhancing self-adequacy and in improving mental and physical health of the patients dependent on narcotic drugs [17].

Substance abuse is one of the major problems of today's world as a result of which the world community incurs an enormous cost and the troubling consequences of which is universal. It seems that addiction is rising markedly worldwide and has been turned into a chronic and social disease, which has put public safety at stake. In fact addiction leads to a decline and deterioration in personality and physical energy of the individual and a withdrawal from the active domains of life. Research has shown that physical and psychological consequences of addiction lead to the reduction in the quality of life, physical problems and disorders and even social adjustment [18]. Moreover, the current age to some extent can be called an age of aggression, since every day we see acts of violence, assault, murder and massacre of human beings. The number of prisoners in Iran, in the course of recent decades has risen dramatically and a high percentage of it includes individuals being imprisoned for assault, physical violence and even murder. In addition to this, there are many aggressive behaviors occurring daily which have become part of ordinary and routine behavior of many citizens. Unfortunately, aggressive behavior can easily be seen every day and in everybody and also it can be seen in different forms in the schools, sport fields, in the family and so on. In this research, it was intended to use cognitive-behavioral training for the treatment of aggression and enhancement of the quality of life of the prisoners. It is hopeful that with the help of the use of this method of therapy, the intensity of aggressiveness is reduced and the quality of life be enhanced. Based on this, the hypotheses of the research are as follows:

The first hypothesis: the cognitive-behavioral training is effective in reducing the aggression of the drug addicts prisoners.

The second hypothesis: the cognitive-behavioral training is effective in improving the quality of life of the drug addicts prisoners.

Method

This research was a semi-experimental pretest- posttest study conducted with a control group. The randomization was done according to sample size formula, and 150 people out of 350 prisoners were selected as random samples and the questionnaire of aggression and quality of life was presented to them and 30 of the inmates, whose received scores on the aggression test was above the cutoff (73) and they whose the quality of life test was lower than normal (63) were selected and were assigned randomly to two groups of experimental and control consisting of 15 participants. Then the experimental group was invited to the cognitive-behavioral training sessions and after 12 sessions of training over lasting for 4 months both groups completed the questionnaires under the same conditions and submitted them to the tester. The conditions for being included in this experiment were: addiction to narcotic drugs according to the standards of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), participant's agreement to participate in this research, the least acceptable level of literacy, and commitment for not leaving the training sessions during the process. After receiving the proper agreement by the researcher, the experimental group received the cognitive-behavioral trainings. The items on the meetings' agenda were devoted to the following: “The first session: introduction and review of objectives, the second session: understanding the different types of drugs, their effects and dangers, the third session: coping with the desire to use drugs, the fourth

session: enhancing the individual's motivation and commitment to quit drugs, the fifth session: the refusal and assertiveness skills, the sixth session: self-knowledge and self-confidence, the seventh session: decision-making skills, the eighth session: all-purpose coping plan, the ninth session: problem-solving, the tenth session: case management, the eleventh session: prevention of diseases such as AIDS, the twelfth session: evaluation of the training procedure and the previous sessions."

The Questionnaires of this research were included:

Buss–Perry Aggression Questionnaire: The new version of Aggression Questionnaire is a revised version of a previous one under the title of Hostility Questionnaire, which has been revised by Buss and Perry. This questionnaire is a self-report instrument consisting of 29 items and 4 subscales that includes: physical aggression, verbal aggression, anger and hostility. The subjects responded to each of the items in a 5 scale degree. This questionnaire has acceptable reliability and validity. The results of the retesting coefficients for 4 subscales (after 2 weeks) were 0.79 to 0.80 and the correlations between 4 subscales from 0.38 to 0.49 have been obtained [19]. The reliability of this questionnaire in Iran has been measured with 0.78 retesting method and its validity was confirmed by the factor analysis [20]. In the present study the Cronbach's alpha coefficient was used to assess the internal validity of the scale. The obtained results from the Cronbach's alpha were as follows: the internal consistency of the scale for physical aggression 0.82, verbal aggression 0.81, anger 0.83, and for hostility 0.80.

World Health Organization Quality of life Questionnaire: The short form of this questionnaire contains 26 questions and assesses the 4 domains of physical health, mental health, social relationships, and environmental health. Nejat et al normalized this scale in Iran, and have obtained the Alpha coefficient of the questionnaire for the healthy population in the areas of physical health 0.70, mental health 0.73, social relationships 0.55, environmental health 0.84, and the reliability coefficient of total retesting after 2 weeks has been reported as 0.70 [21]. In this study the internal consistency of the Cronbach's alpha of the test was 0.71. To analyze the data, the software SPSS-18 was used and the results were reported in the framework of descriptive statistics, Levine test, and multivariate covariance test.

Results

The participants of the study consist of two groups of 15 people from the prisoners suffering from addiction who have been assigned to two groups of control and experimental using simple random sampling. The mean and standard deviation of the age of the experimental group were 31.73 and 5.54, respectively and for the control group the age was 32.33 and the standard deviation 5.02. Also mean of the period of drug use for the experimental group was 6/46 years and standard deviation 3.54 and mean of the period of drug use for the control group was 8.20 years and standard deviation 3.12: Table 1 displays the mean and standard deviation of the pretest-posttest scores for the components of aggression and quality of life according to control and experimental groups respectively. To evaluate the effectiveness of cognitive-behavioral training on the reduction of aggression and enhancement of quality of life of the subjects first the equality of the variances of the control and experimental groups have been examined using Levine test and the results have been shown in Table 2.

The results of the Levine test showed that the two groups are comparable. Therefore, to evaluate the effectiveness of cognitive-behavioral training on the enhancement of the quality of life, multivariate covariance analysis was used.

The first hypothesis: the cognitive-behavioral training is effective in reducing the aggression of the drug addict's prisoners.

The significant level of all the components suggests that there is a significant difference between the control and experimental groups

regarding one of the dependent variables. To find out the existence of such difference the results of the Table 4 have been presented. The significant level of all the components

Table 1 *Statistical properties for variables in the pretest, posttest on the studied groups*

Variable	Group	Number	Pre-test Mean ± SD	Post-test Mean ± SD
Aggression scale				
Physical aggression	experimental	15	36 ± 3.29	30.26 ± 2.73
	control	15	37.40 ± 1.99	36.73 ± 2.66
Verbal aggression	experimental	15	19.40 ± 1.40	15.86 ± 1.30
	control	15	19.46 ± 1.50	19.06 ± 1.48
Anger	experimental	15	25.46 ± 2.77	20.20 ± 1.52
	control	15	26.40 ± 3.62	25.20 ± 3.52
Hostility	experimental	15	28.26 ± 3.86	22.53 ± 3.52
	control	15	29.46 ± 3.22	28.66 ± 3.22
Total score	experimental	15	109.13 ± 6.77	88.86 ± 5.80
	control	15	112.73 ± 6.37	109.66 ± 6.33
Quality of Life scale				
Physical	experimental	15	21.73 ± 3.23	27 ± 1.85
	control	15	22.26 ± 3.19	22.73 ± 2.91
Psychological	experimental	15	19.06 ± 1.90	23.26 ± 1.22
	control	15	19.60 ± 1.63	19.80 ± 1.47
Social relationships	experimental	15	8.80 ± 1.56	11.53 ± 1.40
	control	15	8.66 ± 1.44	8.86 ± 1.24
Environmental	experimental	15	22.86 ± 3.24	29.13 ± 2.66
	control	15	25.26 ± 3.78	24.66 ± 3.39
Total score	experimental	15	72.46 ± 5.57	90.93 ± 3.08
	control	15	75.80 ± 4.75	76.06 ± 3.94

Table 2 *The results of levin test to evaluate the equality of the variances of the two groups*

Variables	F	df1	df2	p-value
Aggression scale				
Physical Aggression	3.117	1	28	0.080
Verbal Aggression	2.654	1	28	0.114
Anger	0.022	1	28	0.884
Hostility	7.106	1	28	0.012
Total score	0.131	1	28	0.720
Quality of Life scale				
Physical	0.012	1	28	0.910
Psychological	0.077	1	28	0.784
Social relationships	0.165	1	28	0.688
Environmental	0.367	1	28	0.549
Total score	4.425	1	28	0.045

Table 3 *The results of the analysis of covariance multivariable on the posttest scores by controlling the dependent variable of pretests*

Group	Value	F	df1	df2	p-value
Pillai's trace	0.944	89.27	4	21	0.0001
Wilks' Lambda	0.056	89.27	4	21	0.0001
Lawley–Hotelling Trace	17.006	89.27	4	21	0.0001
Roy's Largest Root Test	17.006	89.27	4	21	0.0001

Table 4 *The results of the multivariate covariance analysis to investigate the effectiveness of training on aggression reduction*

Variable	Square	df	Mean square	F	p-value	Eta-squared
Physical Aaggression	203.824	1	203.824	149.780	0.0001	0.86
Verbal Aggression	60.295	1	60.295	57.885	0.0001	0.70
Anger	133.995	1	133.996	53.528	0.0001	0.69
Hostility	167.998	1	167.998	106.800	0.0001	0.81
Total score	2169.581	1	2169.581	364.760	0.0001	0.93

Table 5 *The results of the multivariate covariance analysis on the posttest scores with the control of pretest variables*

Group	Value	F	df1	df2	p-value
Pillai's Trace	0.953	107.108	4	21	0.0001
Wilks' Lambda	0.047	107.108	4	21	0.0001
Lawley–Hotelling Trace	20.401	107.108	4	21	0.0001
Roy's Largest Root Test	20.401	107.108	4	21	0.0001

indicated that there was a significant difference between the experimental and control groups in terms of one of the dependent variables. To demonstrate the difference, the results of Table 6 have been presented.

The results of covariance analysis indicated

Table 6 *The results of multivariate covariance analysis to examine the effectiveness of the trainings on improving the quality of life*

Variables	Square	df	Mean square	F	P-value	Eta-squared
Physical	129.886	1	129.886	56.002	0.0001	0.70
Psychological	87.700	1	87.700	58.604	0.0001	0.78
Social Relationships	41.610	1	41.610	54.700	0.0001	0.69
Environmental	245.981	1	245.981	149.865	0.0001	0.86
Total Score	1840.075	1	1840.075	420.095	0.0001	0.94

that there was a significant difference between the experimental and control groups on the total score of quality of life and its dimensions. Therefore, the second hypothesis of the research, namely the effectiveness of cognitive-behavioral training on enhancing quality of life is confirmed. Also Eta squared degree indicating coefficient of effect of training on each of the dimensions and the total score of the subjects' quality of life can be seen in the Table 6.

Discussion

The results of covariance analysis showed that there was a significant difference between experimental and control groups in the total score of aggression and its subscales. Therefore, the first hypothesis of the research, namely the effectiveness of cognitive-behavioral training on the reduction of aggression in the experimental group was also confirmed. The Results of the present study were consistent with researches of Barnes et al [22], Daunic et al [23], and Kazemini et al [24].

In a similar study with title of "A comparison of effectiveness of cognitive-behavioral therapy, methadone treatment, and combined method on the treatment of depression among the addicted individuals undergoing treatment", the results indicated that all three methods (cognitive-behavioral, methadone treatment, and the combined treatment) in comparison with the control group was effective on the treatment of depression. The results also suggested that there is no significant difference between effectiveness of methadone treatment and the combined treatment on reducing depression. Therefore both methods of treatment are effective on reducing depression [25]. In a study, which was conducted with the aim of reducing aggressive behavior in the framework of cognitive-behavioral therapy based on the mindfulness among the adolescent offenders of rehabilitation center, the results showed that cognitive-behavioral therapy employing mindfulness was effective on reducing their aggressive behavior and that this difference was significant compared to the control group [26]. The results of another study showed that cognitive-behavioral therapy is effective on reducing aggression and improving the mental health of women suffering from premenstrual syndrome (PMS) [27]. According to the findings of this study, it can be concluded that aggression and hostility are behaviors resulting from the individual's inefficient cognitive-behavioral strategies in expressing his/her thoughts and feelings, therefore an integrated intervention using cognitive-behavioral method will play a major role in creating productive strategies [28]. Furthermore, the results of covariance analysis showed that there is a significant distinction between control and experimental groups in the total score of quality of life and its scales. Based on this the second hypothesis of the research, namely the effectiveness of cognitive-behavioral training on the enhancement of the quality of life in the experimental group is confirmed. The findings of the present study are consistent with the researches of Zhuang et al [29], Khayam Nekouei et al [30], Heslop et al [31], and Hofmann et al [32].

The results of another study indicated that cognitive-behavioral therapy and the treatment directed towards improving quality of life have been successful in increasing the addicted individuals' self-efficacy and quality of life scores compared to the control group; of course, it is worth mentioning that the treatment oriented based on improving quality of life was effective on self-adequacy of the addicted individuals during the follow-up step [24]. To explain this result, we can say that quality of life is one of the indications, which present itself as a measurement for measuring health, and the enhancement of quality of life in connection to health must be one of main objectives of treatment in the patients, and low quality of life in these patients can be a predictor of developing psychological disorders such as anxiety and depression [33]. In a study conducted to investigate the effectiveness of cognitive-behavioral therapy on enhancing psychological well-being of patients suffering from cardiovascular diseases, the results indicated that this treatment has a significant effect on improving the quality of life and life satisfaction in patients suffering from cardiovascular diseases [34]. In another study which was conducted to investigate the effectiveness of cognitive-behavioral therapy and stress management training on blood-sugar control, psychological helplessness, and quality of life in individuals suffering from two type's diabetes, the intervention results showed a significant improvement in

the patients' quality of life and psychological helplessness. However, in other variables there was not a significant effect between the control and experimental groups [35]. The findings of a study indicated that treatment of anxiety disorders using an indirect method of cognitive-behavioral therapy produces a significant effect on improving patients' quality of life [36]. In explaining the effectiveness of cognitive-behavioral treatments on the enhancement of quality of life of addicted individuals, it can be inferred that the primary aim of all of the treatments is improving the quality of life of the patients, and this holds true for the most of the psycho-therapeutic systems. Cognitive-behavioral therapy, by presenting behavioral and cognitive methods directs its interventions towards the fact that altering the cognitive belief system and behavioral pattern of the patients can lead them in the direction of improvement of quality of life, efficient relationship with others and so on [37]. One of the limitations of this study is using a single method of treatment, therefore it is recommended that multiple methods of treatment be used and their results be compared. Limiting the effect of treatment only on the variables of aggression and quality of life is another limitation. Furthermore, absence of follow-up tests was another limitation of the present study, thus it is recommended that in future studies this issue be considered.

Conclusion

According to the results of the study, it can be concluded that cognitive-behavioral treatments are one of the effective therapeutic interventions on enhancing quality of life and aggression reduction in addicted individuals. In other words, alteration of self-destructive cognitive belief systems and vulnerable behaviors using cognitive-behavioral methods plays a crucial role in two and three level health care prevention. Based on this in terms of practical application it is recommended that this method be used for the purpose of enhancing quality of life and reducing aggression in addicted individuals and other social groups. This study indicated that this type of intervention with the aim of level 2 and 3 health care prevention can be used for empowerment the vulnerable social classes in jails and rehabilitation centers. Finally, it is recommended that this form of therapy in rehabilitation centers be administered by competent therapists.

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Contributions

Study design: FA, BA
Data collection and analysis: RSh
Manuscript preparation: SS

Conflict of interest

"The author declare that they have no competing interests."

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