



Studying how cognitive-behavioral therapy affects the mental health of people seeking methadone treatment in Kerman addiction centers, Iran

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Original Article

Abstract

BACKGROUND: Drug addiction is a chronic and relapsing disorder in which compulsive drug-seeking behavior and drug use continue despite serious negative consequences. The purpose of the present research is to examine the effectiveness of cognitive-behavioral therapy (CBT) on the psychological well-being of individuals seeking methadone treatment at addiction treatment centers in the city of Kerman, Iran.

METHODS: This is an applied study with a quasi-experimental design consisting of a control and an experimental group. The statistical population of the study included all individuals dependent on substances who sought addiction treatment at an addiction treatment center in Kerman City during the winter of 2021. The number of participants was decided using purposeful sampling, with 10 individuals selected for each group in the experimental study. Following a 10-week CBT intervention administered once a week to the experimental group, the participants were evaluated again using the General Health Questionnaire (GHQ). The data were analyzed using descriptive and inferential statistical methods, such as analysis of covariance (ANCOVA), using SPSS software.

RESULTS: The ANCOVA revealed a significant difference in the psychological well-being variable between the experimental and control groups in the posttest, with a value of $F_{1,27} = 17.98$ ($P < 0.01$). In other words, psychological well-being was significantly higher in the experimental group compared to the control group after CBT sessions ($P < 0.01$).

CONCLUSION: Based on the findings of this study, the utilization of CBT along with methadone treatment significantly enhances the effectiveness of pharmacological therapy and prevention of opioid relapse.

KEYWORDS: Cognitive Behavioral Therapy; Psychological Well-Being; Methadone; Drug Addiction

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Introduction

One of the most critical global problems is drug addiction, which is classified as a global public health threat. Drugs refer to heroin, methamphetamine, marijuana, cocaine, and other illegal substances that can lead to

addiction.¹ According to the World Drug Report 2022, approximately 300 million people worldwide use drugs.² The prevalence of drug use in the Iranian population is 11.9%.³ Drug addiction represents a continuous cycle of seeking and consuming substances that is accompanied over time by a decrease in the pleasure of consumption, as well as severe consequences for well-being.⁴ Drug treatment centers provide the highest level of rehabilitation services for patients with

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addiction, and most recovery programs focus on medical detoxification and mental health interventions.⁵ Research findings have shown that drug addicts have higher levels of depression.²⁻⁸

Drug users do not have favorable mental health. This leads them to seek ways to experience better psychological and mental conditions, which contributes to increased drug use.⁹ Psychological well-being is recognized as a state of complete well-being that includes not only the absence of illness but also optimal physical, mental, and social well-being.¹⁰ Mental health is considered the most essential condition for a good quality of life, and stressful events are severe adverse environmental factors that can predispose individuals to psychiatric disorders, particularly depression.¹¹ Studies have indicated that behavioral addictions and substance use disorders are both associated with mental health problems.¹²⁻¹⁵ Additionally, the increasing number of drug addicts imposes a heavy economic and public security burden on the community each year, highlighting the importance of treating substance users.¹⁶

Among the various treatments, cognitive-behavioral therapy (CBT) is a treatment that reduces clinical symptoms and improves functioning by identifying cognitive dissonances and modifying behavioral patterns.¹⁷ Cognitive restructuring, aimed at identifying and changing negative emotions, and behavioral activation, to increase pleasant activities or maintain and improve psychological well-being, are components of CBT.¹⁸ It reduces anxiety and depression levels and can improve the psychological stress and physical symptoms of clients, such as insomnia.¹⁹ This treatment is also highly effective for anxiety disorders, cannabis addiction, and nicotine addiction.¹⁷ A study by Perrotta and Perri stated that CBT increased motivation and coping, and therefore, using this treatment might enhance drug

abstinence.²⁰ Furthermore, CBT is used for the treatment of various psychiatric disorders such as depression, anxiety disorders, physical disorders, substance use disorders, psychosis, and stressful life situations.²¹

Therefore, addressing the psychological well-being of individuals seeking methadone treatment at addiction treatment centers in Kerman City, Iran, is of particular importance. Despite the importance of this issue, no research directly addressing the effectiveness of CBT on the psychological well-being of methadone treatment seekers at addiction treatment centers in Kerman City has been found. Thus, there is a research gap in this area, and the present study is the first research in this field aiming to investigate the effectiveness of CBT on the psychological well-being of methadone treatment seekers at addiction treatment centers in Kerman City. The present study seeks to answer the question of whether CBT can impact the psychological well-being of patients undergoing methadone treatment at addiction treatment centers.

Methods

This is an applied study using a quasi-experimental design with a control group and an experimental group. The participants in this study were individuals with a long history of addiction who had unsuccessfully tried to quit using various methods and had returned to drug rehab centers in Kerman (Sehat & Kouhpaye) in 2020-2021. The number of participants in the study was decided using purposeful sampling, with 10 individuals chosen for each group in the experimental research.²² The inclusion criteria for the study were seeking treatment for quitting addiction at the addiction treatment clinic from September 22, 2020, until March 5, 2021, having no mental disorders and hallucinations, receiving methadone treatment, and providing informed consent to participate in the research. The exclusion criteria were incomplete

questionnaires and participants dropping out of the study.

After obtaining permission from Islamic Azad University, Kerman Branch, participants were selected in a targeted manner based on the study criteria, in collaboration with the center officials, and after stating the study objectives. According to the research method, the participants were randomly assigned (by throwing dice) to either the group receiving CBT (experimental group)²³ or the group receiving no treatment at all (control group). At the beginning of the study, the participants were given the General Health Questionnaire (GHQ) by Goldberg and Hillier.²⁴ The experimental group underwent a 10-session CBT, held weekly for 90 minutes, while the control group did not receive any intervention during this period (Table 1). The cognitive-behavioral approach used in this study was based on Beck's pathology model and focused on schemas, using a modified version of standard cognitive therapy training that emphasized core beliefs. Each treatment plan was developed after identifying the issues that caused the most problems for patients based on their personality functioning. Modifications were made to the treatment plans as necessary throughout the therapy. Since the sessions were designed and conducted weekly, the

interval between the sessions was allocated to allow individuals to practice newer behavioral and thinking methods before moving on to the next stage of the treatment. Between the sessions, individuals were encouraged to apply their newly acquired skills through cognitive-behavioral techniques by managing the emotions of negative thinking, finding appropriate goals for life, and prevention strategies. The general outline of the CBT sessions includes presenting the treatment rationale, reviewing how sessions will be conducted, evaluating and educating participants on cognitive levels, reaching an agreement on treatment goals, preparing an initial cognitive-behavioral conceptualization of the addicts' problems, and conducting the first to third sessions with the help of counseling files about their problem history and reflecting on what they have raised.

To adhere to ethical guidelines in this study, every participant willingly joined the research. Upon receiving informed consent from each individual, an educational intervention was carried out. Participants had the option to withdraw from the intervention at any point during the study. Furthermore, they were guaranteed that their personal information would remain anonymous and that their data would be kept confidential.

Table 1. Cognitive-behavioral therapy (CBT) sessions

Session	Purpose	Content
One	Awareness building	Clients gain awareness about themselves and the nature of their behavior.
Two	Emotional relief	An important experience often involves the excitement related to a problem.
Three	Self-reassessment	Identifying how current behavior conflicts with personal values and life goals.
Four	Environmental-reassessment	Recognizing the impacts of behavior on others and the environment
Five	Social freedom	Recognizing and establishing substitutes in the social environment that encourage behavioral change
Six	Stimulus control	Avoiding or changing signs in a way that reduces the likelihood of getting involved in problematic behavior
Seven	Deconditioning	Replacing healthy behaviors with unhealthy behaviors
Eight	Reinforcement management	Rewarding positive behavioral changes
Nine	Self-freedom	Believing in one's ability to change and taking action based on this belief by committing to behavioral change
Ten	Supportive relationships	Relationships that provide support, care, and acceptance for individuals who want to change themselves

Following the intervention and post-test phases, all participants were asked to fill out the questionnaires once more. It should be noted that IR.IAU.KERMAN.REC.1399.223 was received from Islamic Azad University, Kerman Branch.

The collected data were analyzed using SPSS software (version 18, SPSS Inc., Chicago, IL, USA). Descriptive statistical methods, such as frequency, percentage, mean, and standard deviation (SD), and inferential statistical methods, such as analysis of covariance (ANCOVA), were used for data analysis. The results of the Kolmogorov-Smirnov test were not statistically significant, demonstrating that the pretest variables followed a normal distribution.

Measure

GHQ: This questionnaire was created by Goldberg and Hillier in 1979, consisting of 28 items and four subscales. Items 1-7 pertain to the somatic symptoms subscale, items 8-14 relate to the anxiety/insomnia subscale, items 15-21 relate to the social dysfunction subscale, and finally, items 22-28 pertain to the severe depression scale. Each item has four options, numbered from 0 to 3. The maximum score in this questionnaire is 84. A score lower than 23 on the overall scale and lower than 14 in each of the subscales indicates better mental health.²⁴

In Taghavi's study, the validity of this questionnaire was assessed concurrently with the Middlesex Hospital Questionnaire (MHQ),

resulting in a correlation coefficient of 0.55 and correlation coefficients between the subscales and the total score ranging from 0.72 to 0.87, indicating high reliability. The calculated alpha coefficient for all the items was 0.90. Furthermore, concurrent and construct validity were reported as desirable.²⁵

Results

At first, the researcher investigated the description of demographic variables. The mean age of the participants in the study was around 41 years, with an SD of 8.2. Furthermore, 40% of the individuals had completed high school or had a lower level of education. According to the data, 81.7% of the participants were self-employed. The percentage of married participants was 68.3%, whereas 18.3% were single, 8.3% were widowed, and 5.0% were divorced. In addition, 58.3% of the participants resided in rural areas. When examining the duration of addiction among the participants, measured in years, it was revealed that 26.7% of the sample population had been struggling with addiction for at least four years.

Positive skewness indicates that outliers are distributed to the right of the mean range. Negative kurtosis indicates that the distribution curve of the data is shorter than a normal distribution. Positive kurtosis indicates that the distribution curve of the data is taller than a normal distribution (Table 2).

Table 2. Description of the psychological well-being score and its components in the experimental group

Variable	Groups	Mean \pm SD		Pre-test		Post-test	
		Pre-test	Post-test	Kurtosis	Skewness	Kurtosis	Skewness
Psychological well-being	Experimental	63.78 \pm 9.32	81.82 \pm 10.48	-0.85	1.12	1.12	0.82
	Control	62.87 \pm 7.48	61.34 \pm 8.12	-1.08	0.97	-0.79	0.66
Anxiety/insomnia	Experimental	11.57 \pm 3.41	8.63 \pm 2.87	1.22	0.88	-1.24	-0.65
	Control	11.02 \pm 3.34	11.38 \pm 3.70	-0.91	0.57	-1.24	0.93
Social dysfunction	Experimental	10.15 \pm 3.04	7.87 \pm 2.88	-0.94	-0.71	-0.62	-0.51
	Control	10.66 \pm 3.42	10.16 \pm 3.66	-0.85	0.47	-0.81	0.33
Somatic symptoms	Experimental	10.75 \pm 2.96	6.66 \pm 2.47	-1.06	0.59	-0.61	-1.14
	Control	9.74 \pm 4.05	10.18 \pm 3.96	-0.47	0.97	-1.01	0.55
Depression	Experimental	64.75 \pm 5.96	51.37 \pm 4.83	-1.22	0.78	-0.89	-1.01
	Control	66.02 \pm 5.34	66.38 \pm 4.70	-0.91	0.59	-1.10	0.66

SD: Standard deviation

The pretesting effect shown in table 3 has a non-significant value of $F_{1,27} = 1.15$, at a significance level of $P < 0.05$, indicating that the two groups differ significantly in terms of psychological well-being. The results showed that the two groups had a significant difference in the posttest, with a value of $F_{1,27} = 17.98$, at a significance level of $P < 0.01$, indicating that after receiving CBT sessions, the experimental group significantly outperformed the control group in responding to the GHQ ($P < 0.01$).

Table 3. Results of analysis of covariance (ANCOVA) in the variable of psychological well-being

Source	SS	df	MS	F	P
Pretest	91.33	1	91.33	1.15	0.17
Groups	627.85	1	627.85	17.98	0.01
Error	825.66	27	32.47	-	-

SS: Sum of squares; df: Degree of freedom; MS: Mean square

Discussion

The present study was conducted to investigate the effectiveness of CBT on the psychological well-being of methadone treatment seekers at addiction treatment centers in Kerman City. The findings indicated that individuals who were attempting to quit could experience improved mental well-being through the implementation of CBT. According to Pourpashang and Mousavi, group schema therapy was found to be successful in enhancing the mental health and resilience of individuals undergoing treatment with methadone and buprenorphine.²⁶ Moreover, a study by Ray et al., combining CBT with pharmacotherapy resulted in greater benefits when compared to just receiving usual care and pharmacotherapy alone. However, CBT did not show superior effectiveness when compared to another evidence-based treatment in this scenario, whether used alone or in addition to usual care and pharmacotherapy.²⁷ Kamarzarin and Golestani demonstrated that CBT had a notable impact on improving

overall health attributes and decreasing the urge to use drugs in individuals receiving methadone treatment.²⁸ Kiluk et al. found that individuals who initially had lower-quality coping skills in response to specific high-risk situations showed improvement in their coping strategies after receiving CBT in addition to standard methadone treatment.²⁹ It can be argued that cognitive-behavioral techniques teach patients how to cope with physical and psychological problems during and after addiction withdrawal and create cognitive control.²⁸ CBT has a direct impact on the mental well-being of individuals who are addicted to opium and heroin. This is because mental health includes physical functioning, sleep disorders, and anxiety, all of which are symptoms of withdrawal. In the group receiving CBT, individuals experience these symptoms for a longer duration but can improve their mental health.¹⁸

Kamarzarin and Golestani found that combining methadone treatment with cognitive-behavioral principles not only led to a decrease or complete cessation of heroin use but also improved mental health and reduced social crimes.²⁸ The legal status of medication use changes the individual's social standing from a criminal to a patient and results in the absence of withdrawal symptoms.²⁸ This relative psychological and physical tranquility is comparable to the time when the individual was using substances and can contribute to their productivity. The use of pharmacological and cognitive-behavioral treatments can help to alleviate symptoms of anxiety and sleep disorders, decrease smoking and the use of sedative drugs, improve personal and social functioning, reduce cravings and relapses, facilitate the patient's transition from the action stage to the maintenance stage, and ultimately promote a more successful recovery. Due to the effectiveness of this therapeutic approach in enhancing the mental health of addicts, it is recommended that future research explore the

combination of these two methods on other psychological aspects of addicts or on samples of addicts who are dependent on hallucinogens, stimulants, and other substances. The simultaneous use of pharmacological and cognitive-behavioral treatments can result in improvements in anxiety symptoms, sleep disorders, decreased cigarette consumption, reduced use of sedative medications, enhanced personal and social functioning, and a faster transition from the action stage to the maintenance stage.²⁷

Methadone treatment has been found to positively impact the physical health of addicts, resulting in increased energy levels, improved mobility, and reduced pain during withdrawal. The authors suggest that combining methadone treatment with cognitive-behavioral strategies not only reduces or completely stops heroin use but also improves mental health and decreases rates of social crimes. In this context, the individual's social status transitions from a criminal to a patient, eliminating withdrawal symptoms and offering psychological and physical calmness similar to the time of active substance use.²⁸⁻³⁰ This can, in turn, transform them into productive members of society. Research examining the effectiveness of cognitive-behavioral approaches in substance abuse treatment has shown that this form of therapy effectively reduces cravings and slips, increases self-control, decreases anxiety and depression, alters beliefs about substances, and enhances emotional intelligence components such as intrapersonal skills, interpersonal skills, stress tolerance, adaptability, and general mood. It appears that CBT is significantly advantageous in the treatment of substance abuse and relapse prevention.²⁵⁻³⁰

The study had limitations, such as being conducted in the statistical population of Kerman City. Furthermore, many participants lived in families with another addicted person, leading to increased craving or slip, which

could affect the external and internal validity of the study. Various variables, including education level, intelligence level, duration of dependency, presence of addiction in the family, cultural acceptance of substance use, and easy access to drugs, may also impact the validity of the research. Additionally, factors such as cigarette use, involvement in risky relationships, and participation in illegal activities at the beginning of the study could only be assessed through self-reports, potentially affecting the internal validity of the research.

Conclusion

Based on the findings of this research, the adoption of CBT along with methadone therapy significantly enhances the effectiveness of pharmacotherapy and prevention of opioid relapse. In this regard, it is suggested that future studies investigate the combined effect of these two therapeutic approaches on other psychological aspects of addicts or individual's dependent on hallucinogens, stimulants, and other substances to provide a more comprehensive understanding of the integration of these two treatment approaches.

Conflict of Interests

Authors have no conflict of interests.

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This research has received the code of ethics from the Ethics Committee of Islamic Azad University, Kerman Branch. The study was conducted by the ethical guidelines of the Declaration of Helsinki.

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