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Original Article

The effect of cognitive hypnotherapy on preventing relapse to opium use in men under methadone treatment

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Abstract

Background: Opium addiction is a global problem that is difficult to overcome and has a high relapse rate. Some studies have shown the effect of hypnosis in helping control withdrawal symptoms and reduce relapse. The present study aimed to investigate the effect of cognitive hypnotherapy on preventing relapse to opium use in men under methadone treatment.

Methods: This clinical trial was conducted on 34 opium addicts who were admitted to the Addiction Center of 5 AZAR GORGAN Hospital in 2024. The study population was selected from the referring patients using convenience sampling and was randomly assigned into two groups (methadone plus hypnosis) and a control (methadone only). Participants with negative urine were included in the study. Cognitive hypnotherapy was conducted, including 8 sessions (60 minutes) once a week. For all samples (intervention and control), before and after the intervention, 3 and 6 months later, a morphine test was performed, and questionnaires were completed using the Ernest Barratt Impulsiveness Scale and the Substance Craving Scale. The data were analyzed using SPSS-19 software. The significance level was considered at $P<0.05$.

Findings: The rate of relapse in opium use and the mean impulsivity score in all of its dimensions in the hypnotherapy group was lower than that in the control group after the intervention, three and six months later, though it was not statistically significant ($P>0.05$). Although the mean craving score in the two groups was not statistically significant, the craving score in the hypnotherapy group was lower than that in the control group ($P>0.05$).

Conclusion: Cognitive hypnotherapy can help reduce the desire to use opiate drugs.

Keywords: Cognitive hypnotherapy, Opium, Methadone

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Introduction

Addiction to narcotics and psychotropic substances ranks fourth in the burden of disease classification after accidents and incidents, cardiovascular diseases, and depression. According to official statistics, there are 1.35 million people in Iran who are addicted to addictive substances. According to the report of the Forensic Medicine Organization in 2013, 8 people lose their lives every day due to addiction.[1]

Methadone maintenance treatment is a well-known approach to treating opioid dependence, especially for harm reduction. One of the major challenges in methadone maintenance treatment is relapse of substance abuse after discharge from rehabilitation centers.[2]

According to scientific reports, at least 2 out of 3 patients who try to stop using opiate compounds relapse within six months. The majority of these individuals relapse within the first year of treatment, and the first three months of treatment are the most susceptible period for relapse. According to the studies conducted in Iran, 20-90% of addicts undergoing treatment would relapse to substance abuse.[3,4] Relapse to substance abuse is a complex and dynamic phenomenon in which psychological and neurobiological processes, as well as environmental factors, seem to play a role;[5] however, only some demographic factors have been investigated in relapse to substance abuse.[6]

In recent years, hypnosis has been used to support quitting smoking, alcohol, substance abuse, anxiety, and pain management.[7,8] In recent decades, psychological theories and research have proposed new educational programs and interventions to treat and reduce relapse to substance use, one of which is the use of hypnosis.[9]

Hypnosis is described as a state of consciousness

characterized by focused attention, diminished awareness of the surrounding environment, and an enhanced capacity to respond to therapeutic suggestions.[10] Hypnosis sessions usually last between 60 and 90 minutes. Depending on the individual's needs, a typical course of hypnotherapy can range from two or three sessions to several sessions over the course of a week or month. The central concepts of hypnotherapy rely on a model of the mind that includes both conscious and unconscious aspects. In a hypnotic state - when the active subconscious mind is more accessible- the therapist can help the individual to program the addictive behaviors into more positive behaviors through relaxation, guided imagery, and positive hypnotic suggestions.[11] Krupink and Klor found that the state that addicts achieve while using drugs is similar to what they go through during hypnosis. Young also reported the positive effects of hypnosis on symptoms after alcohol withdrawal in the form of better stress control, feeling good, better ability to control impulses, and improved sleep.[12] Given the high statistics of drug dependence in Iran and the need for treatment centers for complementary programs, the present study aimed to investigate the effect of cognitive hypnotherapy in preventing relapse to opium use in men undergoing treatment in methadone maintenance treatment (MMT) centers.

Methods

Design

The present study is a clinical trial, and the statistical population includes men addicted to opium referring to the addiction treatment center of AZAR Hospital 5, GORGAN, who have completed at least one month of detoxification and are under methadone treatment. The sample size was 34 people based on the study of Hashemi et al.[12], considering a power of 80% and a type I error of 5%, using the relevant formula, and 38 people (19 people in each group) considering a 10% dropout rate.

Participants and Setting

After receiving the ID (IR.GOUMS.REC.1401.602) and the IRCT code (IRCT20170108031818N4), the list of patients from the addiction treatment center was extracted using convenience sampling, considering the inclusion and exclusion criteria. Patients were randomly assigned to one of the treatment groups by drawing lots, with even numbers in the methadone-only treatment group and odd numbers in the methadone and cognitive hypnotherapy treatment group.

The inclusion criteria included male opium users who had completed at least one month of detoxification and were under methadone maintenance treatment, had a file in the addiction treatment center affiliated with the 5th Azhar Hospital in Gorgan, were aged 18-55 years, had not used other drugs or narcotics for the previous month, had at least primary education, had no history of stimulant use, and had a negative urine test for morphine. The exclusion criteria included missing more than two treatment sessions, noncooperation in urine testing, having a positive urine test for morphine, and having a serious medical illness or major psychiatric disorder (Depression, psychosis, etc.) based on a clinical interview conducted by a senior psychiatric resident.

Data Collection

After explaining the study objectives and obtaining informed consent, a checklist of demographic variables (age, marital status, education level, previous history of drug withdrawal, amount of opium consumed) was recorded. Then, urine samples were taken for all subjects to examine urinary morphine, and those whose urine tests were negative were included in the study. Cognitive hypnotherapy was performed for the intervention group. Cognitive hypnotherapy sessions were held in groups (maximum 8 people per session) once a week (60 minutes per session) for 8 consecutive weeks by a psychiatrist, and relaxation was performed by a psychiatric assistant. Patients were followed up, and urine morphine tests were repeated after completing cognitive hypnotherapy sessions, 3 and 6 months later. If the urine morphine test was positive, a multidrug test (Morphine, Methadone, Amphetamine, Tramadol-TML, Metamphetamine, Barbiturates, Cocaine-COC, Marijuana-THC) was performed. If the multidrug test result was positive, it was considered a relapse of substance abuse. All subjects also completed the Ernest Barratt Impulsiveness Scale and the Substance Craving Scale questionnaires at the aforementioned times.

Cognitive Hypnotherapy

Cognitive hypnotherapy was performed for the intervention group. Cognitive hypnotherapy sessions were held in groups (maximum 8 people per session) once a week (60 minutes per session) for 8 consecutive weeks by a psychiatrist, and relaxation was performed by a psychiatric assistant.

The first session: Included getting to know the patients and their current life as well as family situation, examining their views on hypnosis, explaining the treatment about hypnosis and resolving ambiguities, as well as teaching progressive muscle relaxation to accelerate the session process. At the end of the session, they were asked to increase the intensity of the exercise until the next session, every day for 20 minutes.

The second session: Asking about doing the exercises and examining their obstacles, explaining to the patient about unconscious and the effects of suggestion, performing hypnotherapy, and suggestions related to relaxation and reducing psychological stress.

The third session: Increasing self-confidence, creating

peace in the patient, along with reminders of substance craving, such as time, place, friends, music, etc.

Fourth session: While deepening the trance, getting to know the harms of substance use and its negative effects on the individual, family, and society.

Fifth and sixth sessions: In the deepest stage of trance, along with reminding the numerous harms of substance use, aversion suggestions were given.

Seventh session: In the depth of trance, work was done on recognizing the positive effects of remaining in abstinence, such as taking care of personal and family affairs, deepening relationships, career advancement, and children's academic progress, increasing self-confidence, and preventing the harms of substance use.

Eighth session: While reviewing the exercises of the previous sessions, conditioning suggestions were given to make self-hypnosis at home easier. Also, problems caused by quitting or withdrawal (such as insomnia, restlessness, pain, depression, and temptation) were identified.

All patients were tested for morphine after the intervention and in months 3 and 6. A positive result was considered a relapse.

Scales

Ernest Barratt Impulsiveness Questionnaire

It was developed by *Ernest* Barratt et al. in 2004, and contains 30 questions assessing three factors (cognitive impulsivity, motor impulsivity, and non-planning impulsivity). The questions are graded as 4-point items from 1 (never) to 4 (almost always), with the maximum score being 120. Individuals whose average total score is higher than 64 are considered impulsive.[13] The validity and reliability of this questionnaire were established by Ekhtiari et al. in 2008. The correlation of the unplanned, motor, and cognitive subscales was reported to be 0.80, 0.91, and 0.81, respectively, and Cronbach's alpha was reported to be 0.89.[14]

The short-form Craving Scale

It is a self-report 8-item scale developed by Somoza, DeBernfoot, Goldsmith, Misinskis, and Cohen (1995) that measures the duration, frequency, and intensity of substance craving on a 5-point Likert scale from not at all (0) to very much (4). The validity and reliability of this tool were confirmed with a Cronbach's alpha of 0.78.[4]

Data Analysis

The data were analyzed using SPSS-19 software. Descriptive findings were calculated using central limit indices, including mean, standard deviation, number, and percentage. To compare the proportion or rate of relapse in the two treatment groups at different time intervals, first, the chi-square test was used, then the normality of the impulsivity and craving data in the two groups was examined using the Kolmogorov-Smirnov and Shapiro-Wilk tests. If normality conditions were established, the independent t-test was used to compare the means in the two groups, and the paired t-test was employed to compare the means before and after the intervention. To compare the changes in the mean of impulsivity and craving over time in the two groups, the repeated measures analysis of variance test was applied. The statistical significance level was considered at $P<0.05$.

Results

The present study included 34 patients undergoing methadone treatment (17 people in each group). In the hypnotherapy group, 12 (6/70) and in the control group, 10 (8/58) were single. The mean age in both groups was over 40 years. There was no significant difference between the two groups for mean age ($P=0.64$), marital status ($P=0.15$), duration of previous abstinence, and daily methadone consumption ($P>0.05$). The level of education between the two groups showed a significant difference, so that the level of education with a diploma or higher was higher in the brief hypnotherapy group ($P=0.001$). Morphine tests were negative in all samples in the hypnotherapy group at the end of the intervention, 3 and 6 months later, but in the control group, 3 people at the end of the intervention and one person at the follow-up of 3 and 6 months later had a positive morphine test. In the control group, Fisher's exact test after the end of the intervention, 3 and 6 months later, revealed an increase in the frequency of relapse over time, but in the hypnotherapy group, no cases of relapse were observed, though this difference was not statistically significant (Table 1).

To determine the impulsivity score (Barrett questionnaire), the Shapiro-Wilk test was used to compare the results of the normal distribution of the impulsivity score, and the repeated measures analysis of variance test was employed to compare the means. The results indicated that the mean impulsivity score in the hypnotherapy group was lower than that of the control group at all three times (completion of the intervention, 3 and 6 months later), but this difference was not statistically significant. Also, intra-group changes in the mean impulsivity score

Table 1. Comparison of the frequency of relapse to methadone use between the two hypnotherapy and control groups

Variable	Variable level	Control group	Hypnotherapy group	*P* value
		No. (%)	No. (%)	
Abuse relapse immediately after intervention	Yes	-	-	0.07
	No	17(100.0)	17(100.0)	
Abuse relapse three months after intervention	Yes	2(11.8)	-	0.07
	No	15(88.2)	17(100.0)	
Abuse relapse six months after intervention	Yes	3(17.6)	-	0.07
	No	14(82.4)	17(100.0)	

in both groups did not show significant changes at the above times (Table 2).

The normality of the scores of unplanned impulsivity, motor impulsivity, and cognitive impulsivity was tested through the Shapiro-Wilk test; the results confirmed their normal distribution. Repeated-measures analysis of variance was used to compare the means. Inter-group changes indicated that the scores of unplanned impulsivity and motor impulsivity of the individuals in the hypnotherapy group were lower than those in the control group at the end, three, and six months after the intervention, but this difference was not statistically significant. Again, intra-group changes showed that the changes in the mean scores of unplanned impulsivity and motor impulsivity were not significant in either group (Tables 3-5).

The normality of the cognitive impulsivity score was tested through the Shapiro-Wilk test; the results confirmed the normal distribution of the cognitive impulsivity score. Repeated-measures analysis of variance was used to compare the means. The results of inter-group changes showed that the average cognitive impulsivity score of

Table 2. Comparison of intra-group and inter-group changes in impulsivity score

Impulsivity determination using Bart 11 Scale	Group				*P* value$
	Intervention group (n=17)		Control group (n=17)		
	Mean (SD)	*P* value*	Mean (SD)	*P* value#	
Stage 1	68.471±10.829	0.307	72.588±7.349	0.132	0.204
Stage 2	68.471±8.747		72.294±6.780		0.164
Stage 3	67.882±8.558		71.529±7.063		0.185
Stage 4	68.353±8.253		72.529±10.381		0.203

*: Comparison within the Hypnosis group; #: Comparison within the non-hypnosis group; $: Comparison between Hypnosis and non-hypnosis groups.

Table 3. Comparison of intra-group and inter-group changes in impulsivity score for lack of planning

Non-planning impulsivity score	Group				*P* value$
	Hypnotherapy group (N=17)		Control group (N=17)		
	Mean (SD)	*P* value*	Mean (SD)	*P* value#	
Stage 1	21.176±3.540	0.217	21.941±3.418	0.367	0.526
Stage 2	20.824±3.127		21.941±2.989		0.295
Stage 3	20.588±2.671		21.941±3.030		0.177
Stage 4	20.647±2.597		21.529±2.741		0.343

*: Comparison within the Hypnosis group; #: Comparison within the non-hypnosis group; $: Comparison between Hypnosis and non-hypnosis groups.

Table 4. Comparison of intra-group and inter-group changes in motor impulsivity score

Motor impulsivity score	Group				*P* value$
	Hypnotherapy group (n=17)		Control group (n=17)		
	Mean (SD)	*P* value*	Mean (SD)	*P* value#	
Stage 1	25.529±4.155	0.484	27.765±3.800	0.157	0.112
Stage 2	25.000±3.984		27.706±3.567		0.045
Stage 3	24.882±4.121		27.353±3.724		0.076
Stage 4	25.176±4.035		29.176±8.286		0.083

*: Comparison within the hypnosis group; #: Comparison within the non-hypnosis group; $: Comparison between Hypnosis and non-hypnosis groups.

Table 5. Comparison of intra-group and inter-group changes in cognitive impulsivity score

Cognitive impulsivity score	Group				*P* value$
	Hypnotherapy group (n=17)		Control group (n=17)		
	Mean (SD)	*P* value*	Mean (SD)	*P* value#	
Stage 1	8.765±3.192	0.385	9.353±1.539	0.004	0.501
Stage 2	9.471±1.908		9.059±1.784		0.520
Stage 3	9.294±2.024		8.765±1.954		0.443
Stage 4	9.235±1.954		8.471±1.972		0.264

*: Comparison within the Hypnosis group; #: Comparison within the non-hypnosis group; $: Comparison between Hypnosis and non-hypnosis groups.

the individuals in the hypnotherapy group was lower than that of the control group. However, the difference between the two groups before treatment, immediately after the completion of the treatment sessions, and three and six months later was not statistically significant. The results of intra-group changes revealed that the average cognitive impulsivity score in the control group diminished significantly in the immediate, three, and six months after treatment compared to before treatment, but in the hypnotherapy group, the changes did not show a significant difference (Table 5).

The normality of the craving impulsivity score was confirmed by the Shapiro-Wilk test. Repeated-measures analysis of variance was used to compare the means. Inter-group changes showed that the mean craving impulsivity score of the hypnotherapy group was lower than that of the control group at the end of the intervention, three and six months after the intervention, but this difference was not statistically significant. Intra-group changes indicated that the mean craving impulsivity score in the intervention group decreased significantly over time, but in the control group, these changes were not significant (Table 6).

Frequency of relapse in opium use: At the end of the sessions, three and six months after the intervention, according to age, it was found that only in the control group, there were 3 cases with a mean age of 38 years of relapse in opium use (Table 7).

The results of the frequency of relapse of opium use by marital status showed that among the three control group samples who relapsed, one of them was married, and the others were single. No significant relationship was observed between the marital status of the individuals and relapse of opium use ($P=0.87$).

The results of the frequency of relapse of opium use by education demonstrated that only three people in the control group relapsed, one of whom had primary education, and the others had a diploma. No statistically significant difference was found between the level of education and relapse of opium use ($P=0.41$).

The results of the frequency of relapse of opium use only in the control group, according to the history of previous addiction cessation, showed that the average history of previous cessation in people who used opium was the same as in people who did not use opium ($P=0.25$).

Discussion

The results of the study demonstrated that the frequency of relapse in the control group increased over time, but no relapses were reported in the hypnotherapy group, though the frequency of relapse between the two groups after the end of the hypnotherapy sessions, three and six months later, did not show a statistically significant difference. The results of the present study are consistent with the results of the studies conducted by Hashemi et al and Gulati et al, which aimed to investigate the effectiveness of hypnotherapy in preventing relapse to opium withdrawal. They reported that hypnotherapy is effective in preventing relapse to opium use.[12,15] In a clinical trial in Norway, Shestopal et al reported that hypnotherapy and motivational interviewing could reduce alcohol consumption, though this effect was not statistically significant.[13] Hasan et al found that hypnotherapy reduced the rate of cigarette smoking relapse compared to maintenance treatment with nicotine.[16] Golabadi et al also showed that 40% of the hypnotherapy group and 73% of the control group relapsed to opiate use.[17] Given that the results of our study in terms of reducing relapse to opiate use in the hypnotherapy group are consistent with the results of the above-mentioned study, it seems that hypnotherapy plays a role in reducing relapse to opiate use. However, the difference in the results of the above studies and our study could be statistically due to slight differences in methodology, such as differences in sample size and follow-up intervals.

The results revealed that the mean score of impulsivity in all its dimensions, including lack of planning, motor, and cognitive, after the end of the intervention, three and six months after treatment, was higher in the control group than in the hypnotherapy group, though this difference was not statistically significant. However, the addition of hypnotherapy could be a factor in reducing the score of impulsivity in its various dimensions. Our study

Table 7. Comparison of mean age by relapse of opium use in the control group

Variable	Variable level	No.	Age	*P* value
Opium use	Yes	3	38±13.45	0.41
	No	14	41.07±8.47	

Table 6. Comparison of intra-group and inter-group changes in craving score

Craving score	Group				*P* value$
	Hypnotherapy group (n=17)		Control group (n=17)		
	Mean (SD)	*P* value*	Mean (SD)	*P* value#	
Stage 1	13.235±4.764	0.001	11.412±7.116	0.128	0.386
Stage 2	8.176±3.432		10.059±7.004		0.327
Stage 3	7.588±2.763		10.000±7.000		0.201
Stage 4	7.471±2.809		10.000±7.000		0.181

*: Comparison within the Hypnosis group; #: Comparison within the non-hypnosis group; $: Comparison between Hypnosis and non-hypnosis groups.

is consistent with the results of the study by Hashemi et al, who found that the level of impulsivity in the group receiving hypnotherapy was lower than in the control group.[12] The research results show that personality and behavioral characteristics such as impulsivity and craving play a key role in the tendency to use opioids and unsuccessful quits.[13,18] Alizadeh et al reported that people who use opioids are more impulsive in general, and the mean score of unplanned, motor, and cognitive impulsivity is higher in these people.[19] Also, in the study, the mean craving score in the two groups at different times of intervention and follow-up did not differ significantly, but the craving score of individuals in the control group was higher than that of the hypnotherapy group, though this difference was not statistically significant. Also, within-group changes indicated that the mean craving score in the hypnotherapy group significantly diminished at the end of the sessions and the follow-up period, but it was not significant in the control group. Consistent with the results of the present study, Hashemi et al and Gulati et al showed that the level of craving for opioids was lower in the group receiving hypnotherapy sessions.[12,15] Similarly, Lie et al reported that hypnotherapy is effective in reducing craving for cigarettes.[10] Since craving has a significant impact on relapse, hypnotherapy can be an effective method to reduce craving for opium. In the present study, age, education level, marital status, and previous quit history did not have a significant effect on relapse to opium. However, single individuals with a high school diploma or lower had a higher relapse rate than married individuals with a university degree. Kikhavandi et al also reported that low education level and single status are factors contributing to relapse to addiction.[20] Rollins et al found that older individuals were less likely to relapse to drugs.[21] The results are consistent with the above-mentioned study. In the study by Kikhavandi et al, the risk of relapse was higher in younger individuals.[20] Given that older people have more experience and can consider consequences with more maturity, it can be expected that they can make more strict decisions, and as a result, it seems logical that they are less likely to relapse.

Conclusion

Hypnotherapy during detoxification can be effective in reducing cravings for opioids, thus reducing the risk of relapse. It is recommended that hypnosis be continued once a month until the end of the first year, when relapse is most likely. The effectiveness of cognitive hypnotherapy in preventing opioid relapse in men and women undergoing methadone treatment should also be compared.

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Authors' Contribution

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Competing Interests

The authors declared no conflict of interest.

Ethical Approval

The Vice-Chancellor for Research and Technology, Golestan University of Medical Sciences (Ethical Approval code: IR.GOUMS.REC.1401.602) approved this study, and participants filled out a consent form before conducting the research.

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