ORIGINAL ARTICLE

Effectiveness of Motivational Interviewing on Self-control, Self-efficacy, and Relapse Rate in Clients Undergoing Substance Abuse Treatment

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Abstract

Background: This study aimed to determine the effect of motivational interviewing (MI) on self-control, self-efficacy, and relapse rate in clients undergoing substance abuse treatment in Foman city, Iran.

Methods: Using a multi-stage random sampling, 72 patients undergoing substance abuse treatment were equally divided into an experimental and control group and participated in this experimental study. Patients participated in eight 45-60-minute motivational interviewing sessions based on Miller's recommendations. Data were collected before and 3 months after the MI using demographic questions, temptation questionnaire, Tangney's self-control scale, general self-efficacy scale, and relapse prediction questionnaire (short form).

Results: After controlling the effect of the pretest, the mean of temptation significantly decreased in the experimental group after the MI, and the mean of self-efficacy and self-control increased significantly in the experimental group after the MI ($P<0.001$). In addition, the mean intensity of desire and the probability of consumption improved significantly in the experimental group after MI, after controlling for the pre-test effect ($P<0.001$).

Conclusion: MI is a promising approach to reduce the relapse rate in addicted patients receiving treatment. Therefore, it is suggested that the effectiveness of common drug therapy for successful substance abuse treatment can be increased by including MI in the treatment protocol.

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Introduction

Substance abuse, as the second most common mental disorder, is a complex, chronic, and multidimensional disease that is characterized by a compulsive and irresistible desire to use, negative side effects, and frequent relapse even after long periods of abstinence.[1] Today, substance abuse is considered a major public health problem worldwide that seriously threatens the health, welfare, and economic structure of countries.[2]

The results of various epidemiological studies show that the prevalence of substance abuse in Iran is expanding in a very dangerous and complex way.[3] In addition, Afghanistan, Iran, and Pakistan have the highest proportion of opioid-dependent clients compared to other countries in the world.[4]

Despite the various activities carried out by various organizations and families to treat substance abuse, the problem of relapse after quitting substance abuse significantly reduces the effectiveness of

different strategies of treatment.[5] Relapse is defined as the repeated use of a drug or a problematic behavior following a period of abstinence. In addition, prevention of relapse is known as the main element of substance abuse treatment, and the simultaneous presence of psychosocial variables such as temptation, lack of coping skills, and craving will probably lead to relapse.[6]

Studies emphasize the very high rate of relapse after substance abuse treatment. Also, it has been claimed that only about 20 to 50% of these clients can continue withdrawal after one year of substance abuse treatment. In addition, the probability of recurrence in the most optimistic case is predicted to 0.50.[7, 8] The findings of Karimyar Jahromi et al.'s (2015)[9] study have shown that in the best possible conditions related to substance abuse withdrawal, 95% of addicts return to the cycle of substance abuse six months after withdrawal, and the remaining 5% will return to this cycle in the next year or two.

Meta-analyses have shown that motivational interviewing (MI) is sometimes more effective than other interventional methods, such as cognitive-behavioral therapy and medication-based treatment, to prevent relapse.[10, 11] In addition, the effectiveness of MI has been proven in modifying a wide range of behaviors such as smoking, drinking, substance dependence, treatment adherence, eating disorders, healthy diets, weight loss, and physical activity promotion.[12, 13] Previous studies have confirmed the effectiveness of MI in modifying a wide range of addictive behaviors such as smoking, drinking, and eating disorders. Moreover, MI has led to the improvement of psychological mediators affecting successful quitting, as self-esteem and self-efficacy.[14, 15]

MI is a client-centered, short-term, and guided treatment approach, the purpose of which is to induce behavior change by helping therapy seekers to explore and resolve existing discrepancies in the field of desired behavior change.[16] The purpose of this method is to prepare people for change, not necessarily to lead them to change and could have the greatest effect in creating motivation for treating addicts.[17]

Identifying the factors related to positive and negative outcomes after treatment of substance abuse disorder is necessary to design effective treatment protocols. In this regard, self-efficacy is considered one of the most important variables reducing relapse rate.[18] Positive self-efficacy represents a sense of optimism about personal abilities and plays a crucial role in human motivation. Research has shown that high self-efficacy is related to a better quality of life, higher self-confidence, less addiction, and better treatment results.[19]

In many modern definitions of substance dependence, temptation is known as the central phenomenon and the main cause of relapse.[20] Temptation is a strong and resistant desire to substance abuse which, if not satisfied, will result in psychological and physical suffering such as weakness, anxiety, insomnia, aggression, and depression.[21] Therefore, the correct evaluation of the intensity of temptation and its related factors is an essential step in designing interventions for relapse reduction.

Another variable that is significantly related to the successful treatment of substance abuse is self-control.[22, 23] Self-control is a set of processes of attention, motivation, and behavior that are regulated by people to achieve higher goals despite immediate obstacles and long-term demands. Self-control is related to the skills of directing attention and is probably one of the ways to resist temptation and avoid it.[24, 25] The research results have emphasized the prominent role of self-control ability in social deviance. Also, substance abuse is defined as an uncontrollable and involuntary desire for substance abuse, and self-control plays an important role and is a predictor of drug craving in addicted people.[24-26] Cognitive-behavioral treatments, such as mindfulness meditation or MI, increase self-control and reduce substance dependency by improving the pain function of these brain areas.[27, 28] Therefore, considering the increasing prevalence of substance abuse in Iran and its serious consequences on the public health dimension, the efficiency of MI in the successful treatment of substance abuse and the significant relationship between variables such as self-efficacy, temptation and self-control with the successful withdrawal of substance abuse, the aim of the study was to determine the effectiveness of MI on self-efficacy, self-control, temptation, and relapse rate in clients treated in substance abuse rehabilitation clinics in Foman city in 2021-2022.

Methods

The current research is an experimental study with pre-post evaluation, which was investigated with the aim of determining the effectiveness of MI on relapse rate and mediating psychological variables such as self-control, self-efficacy, and temptation in clients who refer to non-governmental rehabilitation clinics in Foman city.

The statistical population of the research was all the clients who referred to non-governmental substance abuse rehabilitation clinics in Foman city between the years 2021 to 2022, who were in an age range of 18-50 years. The samples included 72 clients of non-governmental substance abuse rehabilitation clinics who had completed the treatment course. To select the patients, we randomly selected three rehabilitation clinics from among all active non-governmental addiction treatment clinicsin Foman city (9 centers),

and a list of clients in each clinic was prepared based on the inclusion and exclusion criteria. Then, using a table of random numbers, clients were randomly and equally assigned to experimental (n=36) and control groups (n=36) in each center. Therefore, 6 clients from each center were randomly assigned to the experimental group and 6 to the control group. To avoid information contamination, different days were chosen to receive interventions and participate in the research. The sample size was calculated based on a previous study[16] and using G*Power software, 95% confidence interval, 85% test power, 20% attribution rate, and 0.45 effect size; finally, 36 subjects were determined for each of the control and experimental groups.

The inclusion criteria were voluntary and informed participation, age range of 18-50 years, male gender, and living in Foman city during the study period, ability to read and write in Persian (Farsi), lack of suffering from debilitating physical or mental disorders, and lack of attendance in similar interventional or educational programs at the same time. Also, the clients must have completed a detoxification course, and their urine test should be negative for opiates. In addition, suffering from severe mental disorders such as psychosis, bipolar or dissociative disorder; suffering from a physical illness or physical disability that prevents participation in the program in any way (which is registered in the medical records or approved by a specialist); or being absent in more than one session in the MI were the exclusion criteria. In addition, people who changed or left the rehabilitation clinic during the study period were also excluded from the study. Stages of participants allocation in current study is shown in consort Figure 1.

The information in the current research was collected using a set of self-report questionnaires as follows:

A) Demographic information: This part included age, job status, educational level, marital status, relapse history, economic status, and a history of suffering from chronic physical diseases or severe mental disorders.

B) Substance abuse temptation Questionnaire: This questionnaire was designed by Asli khalan et al. (2020)[29] and contains 20 items that measure the number of thoughts and fantasies related to substance abuse and the temptation experienced after rehabilitation.

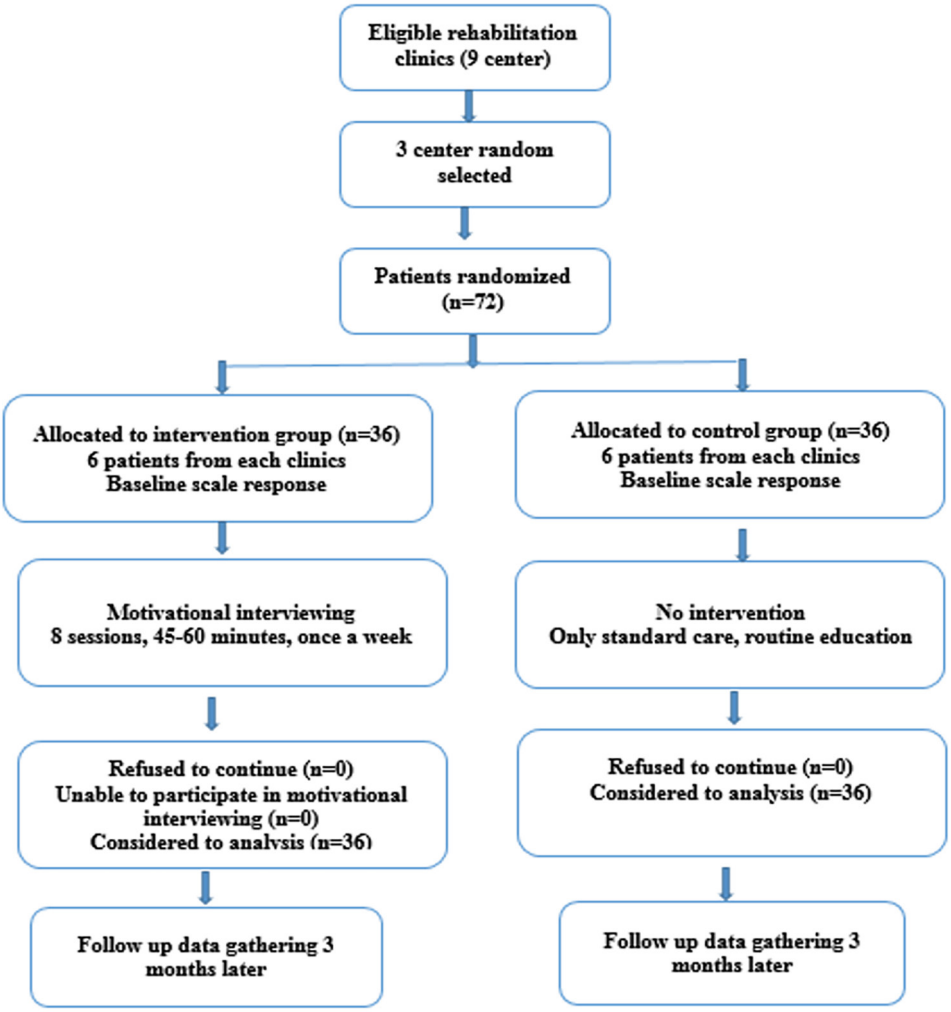

Figure 1: Consort flow diagram of the study

The questionnaire items are scored using a 6-point Likert scale (0=not true at all to 5=completely true). The highest score (100) means experiencing a lot of temptation, and the lowest score (zero) means the absence of temptation. The validity and reliability of this questionnaire have been evaluated and confirmed in several studies.[30, 31]

C) Tangney's self-control scale: This questionnaire was developed by Tangney et al. (2004)[32] to evaluate the people's level of self-control as a psychological trait. The main form of the scale has 35 items, but the short form has 13 items in a 5-point Likert scale, whose purpose is to measure people's control over themselves. To calculate the overall score of the scale, we add the total points of each item together. The maximum score for Tangney's self-control scale is 65, and the minimum is 13. Also, higher scores indicate greater self-control and vice versa. The psychometric properties of this scale have been calculated and confirmed in previous studies.[33, 34]

D) General Self-Efficacy Questionnaire (GSES): This questionnaire contains 17 questions scored using a Likert scale ranging from strongly disagree (score 1) to strongly agree (score 5). The range of total scores of this questionnaire is between 17 and 85, and higher scores indicate stronger self-efficacy and vice versa. This scale measures the self-efficacy expectations of subjects in three levels: "willingness to initiate behavior", "willingness to try to complete behavior", and "their resistance in encountering obstacles". The previous studies have evaluated and confirmed the validity and reliability of this questionnaire.[35, 36]

E) Relapse Prediction Questionnaire: It is a 45-item self-assessment scale; the full and original version of which was designed by Kelly et al. (2011).[37] Due to the large number of questions in the mentioned questionnaire, the short form (15 items) was used in this research. Each item includes a situation in which the patient must imagine himself; this scale includes two parts: the intensity of desire in a specific situation (7 items) and the probability of consumption in that situation (8 items). All items are scored using a 5-point scale ranging from 0 (none) to 4 (very strong). The cross-cultural adaptation of this questionnaire has been done using the process of translation and back-translation, and its psychometric properties have been confirmed in numerous studies.[37, 38]

Questionnaires were completed by the clients twice, including pretest and post-test, or 3 months after the MI. In addition, the clients performed four tests that included morphine, amphetamine, marijuana, and tramadol before the intervention in the pre-test stage and after the intervention, along with the post-test. These tests are routinely performed in rehabilitation centers and are free of charge for clients. All tests were performed using a kit by a trained nurse at the rehabilitation clinics by taking a urine sample.

After randomly assigning clients to the experimental and control groups, we conducted the pre-test using the measuring tools for both groups under the same conditions. All clients were asked to attend the rehabilitation clinic according to the schedule arranged with them over the phone. Questionnaires were given to each of the experimental and control group clients face-to-face, and they were asked to answer the questions in approximately 45 minutes. The research team provided the clients with explanations about how to answer the questions and the importance of accurate and complete answers. The presence of a member of the research team at the time of completing the questionnaires was to answer possible questions, explain how to complete the instrument, emphasize providing honest answers, and ensure that all questions are answered. In addition, all clients were assured that the questionnaires were anonymous or had no tracking codes, all information would remain confidential, and information would be provided to the managers and trusted physicians of rehabilitation clinics in the form of a general report.

The structure of MI sessions was designed and implemented based on Miller's book on MI in addiction treatment.[39] A group MI was held in eight sessions of 45 to 60 minutes and once a week for the experimental group, which finally lasted for 2 months. Motivational interviews were conducted by the research team who had participated in training courses related to MI, and the skills needed to manage MI were confirmed by psychological experts. In addition, in the interval between each MI session, 5 educational messages were sent to the clients of the experimental group via mobile phone. These text messages were excerpts from the content presented in the MI sessions. Also, all the clients of the experimental group were asked to raise all their possible questions and problems with the research team by phone or in person. The general content of the MI sessions is presented in Table 1.

The control group only received the routine care program in the rehabilitation clinics, provided by the physician of each center. Moreover, all the MI sessions were conducted exactly after the implementation of the second stage follow-up for the clients of the control group to comply with the ethics of the research.

The present research was approved by the ethics committee of Qazvin University of Medical Sciences (IR.QUMS.REC.1398.398). Also, the voluntary participation in the research was explained to all the participants in the research, and all the clients signed the informed consent form. All questionnaires were anonymous, and all participants were assured that the information included in the questionnaires would remain confidential.

Table 1: The schedule of motivational interview sessions

Session	Intervention content
1	Pretest - introduction, general facts toward substance dependence and treatment methods, group norms and processes, introduction of motivational approach, introduction of stages of change, and performing phasing exercise
2	Strengthening communication, getting permission and building trust - creating or raising doubts and concerns in clients about the pattern of substance abuse by helping to discover the meaning of the events that led clients to be substance abuser, providing scientific information about substance abuse, and providing individual feedback on assessment findings
3	Naturally showing doubts, Helping clients to make decisions towards change with help, drawing out and weighing the strengths and weaknesses of substance abuse, changing motivation from external to internal, assessing the client's individual values, and expressing freedom of choice, responsibility, and self-efficacy for change
4	Clarifying personal goals for change, defining and identifying self-control and its barriers, proposing a list of options for change or treatment, negotiating for change, behavioral plan and agreement, considering and reducing barriers to change, and helping clients to obtain social support.
5	Involving clients in treatment and reinforcing the importance of treatment continuation, emphasizing a realistic view of change by taking small steps, introducing problems to clients in the early stages of change, helping clients, and finding new positive reinforcements.
6	Deconditioning clients, emphasizing lifestyle changes, emphasizing clients' solutions and self-efficacy, making supportive contacts, identifying tempting factors and ways to deal with them.
7	Helping the clients to get back into the cycle of change if they slip, discovering the meaning of relapse as a learning opportunity, and helping the client to find new adaptive strategies.
8	Post-test - summary and conclusion - presentation of suggestions

The data was entered into SPSS software (version 25), and the normality of data distribution was confirmed by the Kolmogorov-Smirnov test. Data were analyzed using paired t-tests (comparison of the mean of a quantitative variable such as self-efficacy in a group before and after MI), independent t-test (comparison of the mean of a quantitative variable such as self-control between two experimental and control groups), chi-square (comparison of the relationship between two qualitative variables such as the educational status and gender), one-way analysis of variance (ANOVA) (comparison of the mean of a quantitative variable such as the temptation mean between three or more independent groups), and ANCOVA (determining the effect of MI on a quantitative variable such as the relapse rate by controlling the effect of the pre-test). The significance level in the current study was considered less than 0.05.

Results

The demographic characteristics of the participants in the experimental and control groups before the MI are shown in Table 2. The mean age of the participants was 32.72±16.43 years, with a range of 18 to 50 years 66.7% of them had middle school and high school education, and 32% were married. Also, 62.5% of the participants reported their economic status as weak and medium, and 26.38% were unemployed. 61.11% reported a history of chronic disease, and 62.5% had a history of relapse. The comparison of the demographic variables did not show any significant difference between the two groups.

The comparison of the main variables, including temptation, self-efficacy, self-control, and relapse prediction between the control and experimental groups before and 3 months after the MI is shown in Table 3. The results of the independent t-test indicated that there were no significant differences between the two groups in terms of the four mentioned variables before the MI. Nevertheless, the results of the paired t-test showed a significant difference in the mean of temptation (from 39.12±9.35 to 33.26±8.46), self-efficacy (from 22.48±13.17 to 33.86±15.28), self-control (from 20.61±11.00 to 31.19±13.46), desire strength (from 22.71±9.28 to 16.25±8.46), and probability of consumption (from 23.98±11.25 to 17.62±12.55) in the experimental group after the MI ($P<0.001$)

The results of the analysis of covariance and the effect of MI on the psychological variables and relapse rate are shown in Table 4. As shown in the Table, there was a significant difference between the groups in terms of the temptation variable in the post-test and after controlling for the effect of the pre-test ($F=19.794$, $P<0.001$). In addition, the Eta coefficient indicated that 23.3 percent of the variance of the temptation variable was explained by MI. Also, the results of ANCOVA showed a significant difference between the experimental and control groups in terms of self-control ($F=47.212$, $P<0.001$) and self-efficacy ($F=42.730$, $P<0.001$) in the post-test and after controlling for the pre-test effect. Moreover, as to the Eta coefficient, it can be concluded that 42.1% and 39.7% of the variance of self-control and

Table 2: Comparison of the demographic variables of the participants in the experimental and control groups before and 3 months after the motivational interviews

Variables	Category	Experimental group Frequency (%)	Control group Frequency (%)	P_{value} (χ^2 test)
Age (year)	Less than 30	13 (36.11)	14 (38.89)	χ^2=3.529, df=2, P=0.388
	31-40	16 (44.44)	13 (36.11)	
	4-50	7 (19.45)	9 (25.0)	
Educational Level	Elementary	8 (22.22)	9 (25.0)	χ^2=4.182, df=3, P=0.242
	Middle school	11 (30.56)	13 (36.11)	
	High school & diploma	13 (36.11)	11 (30.56)	
	University	4 (11.11)	3 (8.33)	
Economic status	Week	15 (41.67)	11 (30.56)	χ^2=2.525, df=3, P=0.171
	Medium	9 (25.0)	10 (27.77)	
	Good	8 (22.22)	13 (36.11)	
	Excellent	4 (11.11)	2 (5.56)	
Job	Student	4 (11.11)	2 (5.56)	χ^2=4.310, df=2, P=0.455
	Self-employed	24 (66.67)	23 (63.89)	
	Unemployed	8 (22.22)	11 (30.56)	
Marital status	Married	12 (33.33)	11 (30.56)	χ^2=2.616, df=2, P=0.470
	Single	15 (41.67)	16 (44.44)	
	Divorced	9 (25.0)	9 (25.0)	
Relapse history	Yes	22 (61.11)	23 (63.89)	χ^2=1.133, df=1, P=0.735
	No	14 (38.89)	13 (36.11)	
History of chronic disease	Yes	23 (63.89)	21 (58.33)	χ^2=1.934, df=1, P=0.677
	No	13 (36.11)	15 (41.67)	

Table 3: Comparison of mean and standard deviation of temptation, self-efficacy, self-control, and relapse rate in the experimental and control groups before and after motivational interviewing (MI)

Variables	Assessment time	Control Group	Experimental Group	P_{value} (Between 2 group)
		Mean±SD	Mean±SD	
Temptation	Baseline	38.45±8.92	39.12±9.35	0.412
	After motivational interviewing	37.86±9.05	33.26±8.46	P<0.001
	P_{value} (Pre-Post)	0.361	P<0.001	
General Self-efficacy	Baseline	23.75±12.60	22.48±13.17	0.286
	After motivational interviewing	24.52±14.38	33.86±15.28	P<0.001
	P_{value} (Pre-Post)	0.255	P<0.001	
Self-control	Baseline	19.33±10.75	20.61±11.00	0.473
	After motivational interviewing	20.05±12.24	31.19±13.46	P<0.001
	P_{value} (Pre-Post)	0.512	P<0.001	
Relapse Prediction (1) (desire strength in a particular situation)	Baseline	21.55±8.32	22.71±9.28	0.194
	After motivational interviewing	20.92±8.46	16.25±8.46	P<0.001
	P_{value} (Pre-Post)	0.209	P<0.001	
Relapse Prediction (2) (Probability of consumption in that situation)	Baseline	24.71±10.43	23.98±11.25	0.460
	After motivational interviewing	23.86±10.91	17.62±12.55	P<0.001
	P_{value} (Pre-Post)	0.433	P<0.001	

self-efficacy was described by the MI, respectively. Finally, there was a significant difference between the groups in terms of the relapse rate in the post-test and after controlling the effect of the pre-test (F=13.703, P<0.001). In addition, the Eta coefficient indicated that 12.4 percent of the variance of the temptation variable was explained by MI.

Discussion

The present study was conducted to investigate the effectiveness of MI on self-control, self-efficacy, and the rate of relapse in the clients undergoing substance abuse treatment from addiction treatment centers in Foman city. In general, the findings of the study showed the improvement of the psychological variables affecting successful withdrawal, such as self-control, self-efficacy, and temptation, as well as a significant decrease in the relapse rate in the clients of the experimental group.

One of the important findings of the present study was the significant improvement of self-efficacy after MI in the experimental group, which was in line with

Table 4: The results of covariance analysis and the effect of motivational interviewing on the mean score of temptation, self-efficacy, self-control, and relapse in the post-test with the control of the pre-test effect

Variables	Source	Sum of square	df	Mean of square	F	Sig	Eta
Temptation	Pre-test	4520.327	1	4520.327	89.177	0.000	0.578
	Group	1003.372	1	1003.372	19.794	0.000	0.233
	Error	3294.814	65	50.689	-	-	-
	Total	148908.00	68	-	-	-	-
Self-control	Pre-test	466.790	1	466.790	20.366	0.000	0.239
	Group	1028.119	1	1028.119	47.212	0.000	0.421
	Error	1489.832	65	22.920	-	-	-
	Total	123106.00	68	-	-	-	-
Self-efficacy	Pre-test	773.264	1	773.264	18.856	0.000	0.225
	Group	1752.615	1	1752.615	42.737	0.000	0.397
	Error	2665.603	65	41.009	-	-	-
	Total	219.99.00	68	-	-	-	-
Relapse	Pre-test	11438.597	1	11438.597	91.542	0.000	0.585
	Group	462.619	1	462.619	13.702	0.019	0.124
	Error	8122.011	65	124.954	-	-	
	Total	2403077.00	68	-	-	-	

the results of previous studies.[40-43] For example, the findings of Dehghani et al. (2013)[43] showed that group counseling sessions in the style of MI during eight 90-minute sessions increased the self-esteem and self-efficacy of addicted women in the experimental group. Tran et al. (2020)[40] also emphasize that MI is an effective approach to achieving more successful quitting, improving self-efficacy, and eliminating smoking triggers. In addition, Walpole et al. (2011)[41] concluded that MI could lead to resolving ambivalence, enhancing intrinsic motivation, and improving self-efficacy in a person's ability to make behavior changes. Self-efficacy is achieved when a person acquires the ability to influence and control the events and environmental conditions that affect his/her life, and this is the essential principle for controlling behavior and its continuity, which should follow the implementation of cognitive behavioral interventions, such as MI, to be realized in the client.[44] MI pays special attention to how the patient can be helped to decide on behavior change.[45] The motivation for change is completely flexible and changeable, and it is formed specially in the field of communication. Specific behavioral skills to control substance abuse allow the clients to improve their self-control to prevent the temptation despite its serious consequences.

Another important result of the present study was the significant improvement of self-control after the MI in the experimental group, which was in line with the results of previous studies.[46-48] Kang et al. (2021) confirmed the effectiveness of MI with cognitive behavioral therapy on behavior changes and self-control promotion in heavy drinkers.[46] In addition, Maredpour et al. (2015) showed that mindfulness-based relapse prevention group psychotherapy was effective in preventing relapses, craving, and improving self-control in opioid dependent people.[47] On the other hand, clients learn not to act hastily in decision-making situations, especially if a person is under nervous conditions and stressful status, and to reduce wrong decisions as much as possible by examining the possibilities and options ahead and the consequences of choosing each of them.[49] Self-control is a dominant and independent variable that plays the main determining role in problematic behaviors such as substance abuse, and people with high self-control, by believing in their ability to deal with increasing stress, can better resist temptations.[50]

Finally, the main finding of the current study was the effectiveness of MI on the relapse rate, desire strength in a particular situation, and probability of consumption in that situation, which was consistent with the results of previous studies.[14, 51-53] The findings of Heidari et al. (2017) showed the effect of MI on reducing craving and relapse rate in patients treated with methadone.[51] In addition, Asif et al. (2023) emphasized the effect of MI on reducing relapse rate after MI with CBT and mindfulness-based relapse prevention for substance use disorder in Pakistan.[52] Shekarchi et al. (2021) showed that the self-control training program led to a decrease in the level of readiness for addiction in students.[53] Also, the findings of the study by Oveisi et al. (2020) also emphasized the effectiveness of MI in reducing addiction symptoms and relapse rates in patients receiving methadone maintenance treatment.[14] One of the major current challenges in maintenance treatment with methadone, which is the main and dominant treatment for addiction in Iran, is the durability of treatment or prevention of relapse. Studies show a relapse rate of 20-90% in addicts who are treated.[54] Treatment of substance abuse has a high number of relapses because craving is more of a psychological phenomenon than a physiological phenomenon. Therefore, substance abuse treatment (often detoxification) alone is not enough to deal with drug dependence.

Therefore, the clients must find inner motivation to change and acquire skills for dealing with situations. On the contrary, MI combined with drug therapy reduced relapse rates more in the 6-month follow-up compared to the use of drug therapy alone.[55] In the present study, the MI could reduce the relapse rate by reducing the desire and temptation. Also, craving increases the relapse rate. The experience of dealing with the urge to use reduces the relapse rate and prevents relapse to substance abuse because clients have a greater desire to relapse as a result of the desire to use drugs in tempting and difficult situations. During MI sessions, using strategies such as evaluating the pros and cons of a healthy lifestyle, problem-solving skills, familiarizing the patient with tempting and difficult situations, identifying the triggers and their exposure and control methods, setting goals and steps of behavior change programs can increase the durability of withdrawal in addicts.

In the current research, therewas an attempt to avoid the pitfalls that could distract the consultant's mind during the MI and lead to more resistance from the references as much as possible. Some of these variables were confrontation, denial, question-answer, taking sides with a problem with benevolent intentions, specialization, labeling, early focus on the issue of change, and blaming. Considering the increase in the problem of addiction in Iranian societies, special attention to minor group of the society, such as university students, marginalized, the poor, the chronically ill, the unemployed, etc., and becoming more sensitive to prevention and successful treatment for predicting special programs and documenting them are of particular importance.

The limitations of the present study were the small sample size which was due to budget and research limitations, and of course it affects the possibility of generalizing the results. Secondly, we assiged the clients to control and experimental groups instead of assigning clinics to experimental and control groups, which can cause information contamination between the participants of the two groups. Thirdly, the follow-up period in the present study was only 3 months, and evaluating the results of MI at 6-month and 1-year time intervals can be more helpful in evaluating the effectiveness of the intervention.

Authors' Contribution

All authors contributed to the concept of the study and the study design, data analysis, and manuscript development.

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