

Effect of Emotional Intelligence Training on Methadone-Treated Methamphetamine Users in Qazvin, Iran

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Original Article

Abstract

Background: Drug users have lower emotional intelligence (EQ) than other members of society. This study aimed to determine the effect of EQ training on methadone-treated methamphetamine (meth) users.

Methods: This randomized clinical trial with a pretest-posttest control group design was conducted on methadone-treated meth users referring to the Drop-in Center in Qazvin, Iran. The subjects completed the Wechsler Adult Intelligence Scale (WAIS), and those who scored higher than 80 (n = 70) were entered into the study and randomly divided into the intervention and control groups. The Bar-On Emotional Quotient Inventory (Bar-On EQ-i) was administered for both groups. Subsequently, the intervention group participated in weekly 90-minute EQ training sessions for 4 sessions held by a psychiatric assistant. However, the control group received no intervention. Both groups were re-evaluated by the Bar-On EQ-i 3 months after the end of the training sessions. Eventually, qualitative and quantitative variables were compared between the two groups using an independent t-test and chi-square test, respectively.

Findings: Based on the results, the EQ training program could significantly improve the EQ score in the intervention group (P = 0.03). Nevertheless, it showed no effect on reducing meth use (P = 0.13).

Conclusion: EQ training for meth users could increase EQ. Nonetheless, further studies with more effective methods are required to reduce meth use.

Keywords: Emotional intelligence; Methadone; Methamphetamine; Iran

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Introduction

Methamphetamine (meth) is one of the most widely abused stimulant drugs worldwide. A growing global concern regarding psychiatric problems is reported to be drug-related disorders. In particular, meth disorders and their associated psychosis have become increasingly problematic in hospitals and outpatient departments.¹ Amphetamine can cause feelings of euphoria or irritability, along with increased energy, wakefulness, and boosted concentration and physical activity.²

In the United States (US), 18 million people have used meth for more than 12 years in their lifetime.³ Long-term use of meth can result in abuse/dependency, aggression, violence, weight loss, decreased appetite, mood disorders, poor concentration, hallucinations, and memory loss.^{3,4}

In Iran, meth used to be imported illegally from other parts of the world (mainly from Europe and America); however, it is currently produced illegally in underground laboratories.⁵ Meth has profound effects on the reward region of the brain, including the mesolimbic [ventral tegmental area (VTA) and nucleus accumbens (NAc)]. Dopamine release from the VTA into the NAc is strongly enhanced by using drugs. Regarding this, amphetamine causes dopamine release, increases dopamine synapse levels, and inhibits dopamine reuptake. Changes in dopamine levels play a major role in potentiating psychostimulants. Euphoria is the strongest response generated with the increase of dopaminergic neurotransmitters.⁶

Medications may be needed as part of a comprehensive treatment plan to prevent relapse after drug withdrawal. At present, there are no defined standards for the treatment of individuals who tend to use meth during the drug withdrawal process.² Methadone, as a type of opioid drug, is widely used for the treatment of opioid withdrawal symptoms.² However, it should be noted that providing non-pharmacological treatments, modifying lifestyles, and receiving social support can also be considered options to be included in a comprehensive and sustainable treatment procedure.

The effect of emotional intelligence (EQ) in solving this problem has not been well studied. On the other hand, environmental, social, and psychological factors, especially having trouble in

managing emotions, are also influential in the tendency or misleading towards drugs.^{7,8}

Lutz and Kieffer showed that some factors, such as social skills, brain drug receptors, and cognitive function may have a profound effect on an individual's relapse.⁹ These components are included in the EQ category and can lead a person to a healthier life.¹⁰ EQ refers to a set of social and life skills based on a standard psychological life. These skills are typically acquired rather than being intrinsic abilities that can be enhanced through training. According to the literature review, harmful situations for individuals with low EQ lead them to poor decision-making, especially in personal and social issues.¹¹

Other findings indicated that EQ was associated with mental wellbeing and could increase social skills and reduce the tendency toward immature behaviors.¹² Ruetsch found that drug addiction at the early stage was associated with the person's inability to manage relationships with parents and peers.¹³ On the other hand, since there is a possibility of drug craving after detoxification, it is important to find appropriate non-drug therapies, such as psychological and educational services, to prevent this condition. Therefore, the current study aimed to investigate the effect of EQ training on methadone-treated meth users referring to 22 Bahman Hospital, Qazvin, Iran.

Methods

This randomized clinical trial study was conducted to investigate the effect of EQ training on methadone-treated meth users in Qazvin within December 2016-April 2017. The subjects were complied with the definitions of the Diagnostic and Statistical Manual of Psychiatric Disorders, Fifth Edition (DSM-5). The sample size was determined at 35 cases according to the results of a similar study,¹⁴ which was based on 80% power, 5% alpha, and 10% drop-out rate.

All patients referring to 22 Bahman Psychiatric Hospital in Qazvin were subjected to the Wechsler Adult Intelligence Scale (WAIS), among which 70 subjects with a score of at least 80 were selected and entered into the study after obtaining their informed consent. A demographic form was completed for all participants at the baseline, including age, gender, marital status, occupation, education level, residential place, and methadone

dosage. Afterward, all cases filled out the Bar-On Emotional Quotient Inventory (Bar-On EQ-i). The selected samples were randomly divided into two groups, namely intervention and control (n = 35 each), using Random Allocation Software. Subsequently, training was initiated for the intervention group.

To assess the reliability of the training, 3 months after the completion of the training sessions, all patients underwent re-evaluation with the Bar-On EQ-i. This 90-item questionnaire is scored on a five-point Likert scale (from one to five) and consists of five scales measuring: 1) intrapersonal skills, 2) interpersonal skills, 3) stress management, 4) adaptability, and 5) general mood. Based on the results of a study conducted by Barekatin et al., the cut-off score of this questionnaire was estimated at 253.86 in Iran.¹⁵ The internal validity and reliability of this tool were evaluated in Iran, rendering for the Cronbach's alpha coefficient of 0.76-0.93 and reliability of 0.93 ($P < 0.001$).¹⁶

The inclusion criteria consisted of methadone-treated meth users with a minimum score of 80 from the WAIS, the patient's absence in the acute phase of mood and psychotic disorders related or unrelated to substance use, willingness to participate in the study, and lack of simultaneous participation in another similar study. On the other hand, the patients who were not willing to continue participation in the study and were absent in the sessions were excluded from the study. In case that patients developed acute mood or psychotic symptoms (i.e., intoxication) due to substance use, it would be possible to continue the study after alleviating these symptoms.

After the administration of the questionnaire (pre-test), the patients in the intervention group

participated in weekly 90-minute sessions of EQ training provided by a psychiatric assistant for 4 weeks. The control group received no intervention due to ethical issues regarding the non-provision of EQ training to this group. The training program was carried out using educational materials, such as books, and involved the following procedure:

Session 1: Introducing the plan, emotions, and feelings and defining EQ

Session 2: Introducing the relationship between mind and emotion and recognizing one's and others' emotions and feelings

Session 3: Training the skill of controlling one's and others' emotions by delaying desires

Session 4: Training accepting mistakes, being responsible and flexible, solving problems, managing stress, and communicating effectively

Statistical analysis was performed in SPSS software (version 19, SPSS Inc., Chicago, IL, USA) by considering $P < 0.05$ as significant. Continuous data were described as the mean \pm standard deviation (SD), while categorical data were described as a frequency and percentage. To compare dichotomous variables between the groups, the chi-square test was utilized. Continuous variables were analyzed using the independent t-test, and to compare quantitative variables before and after the intervention, a paired t-test was utilized.

Results

In this study, out of the 70 subjects who entered into the study, 1 patient in the intervention group and 1 patient in the control group were excluded due to being absent from training sessions and unwillingness to continue cooperation, respectively (Figure 1).

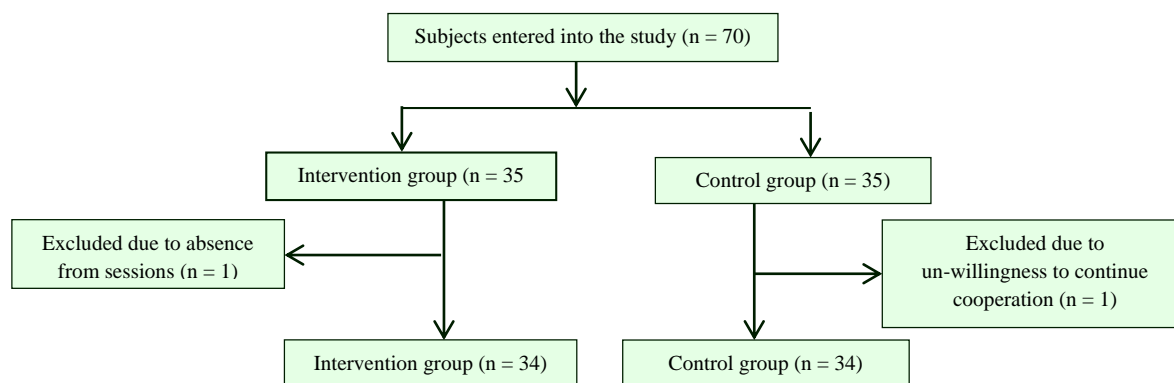


Figure 1. Consortium algorithm showing the number of patients during different stages of the study

Table 1. Demographic characteristics of participants in the intervention and control groups

Variables		Control group (n = 34)	Intervention group (n = 34)	P
Age (year) (mean ± SD)		39.21 ± 10.12	41.47 ± 7.89	0.30
Marital status [n (%)]	Single	11 (32.4)	17 (50.0)	0.31
	Married	12 (35.3)	8 (23.5)	
	Divorced	11 (32.4)	9 (26.5)	
Education [n (%)]	Illiterate	4 (11.8)	0 (0)	0.16
	Middle school	22 (64.7)	27 (79.4)	
	Diploma	6 (17.6)	4 (11.8)	
Residential place [n (%)]	City	31 (91.2)	32 (94.1)	0.50
	Village	3 (8.8)	2 (5.9)	
Occupation [n (%)]	Employed	14 (41.7)	5 (14.7)	0.01
	Unemployed	20 (58.8)	29 (85.3)	
Intelligence situation [n (%)]	Under normal	9 (26.5)	10 (29.4)	0.93
	Normal	19 (55.9)	19 (55.9)	
	Above normal	6 (17.6)	5 (14.7)	
Methadone maintenance dose (mg) [n (%)]	< 40	4 (11.8)	8 (23.5)	0.15
	40-80	15 (44.1)	18 (52.9)	
	> 80	15 (44.1)	8 (23.5)	

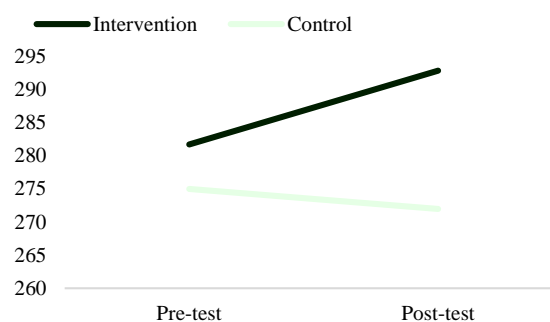
SD: Standard deviation

The following findings were obtained regarding the homogeneity of both groups and the main results based on the research hypotheses. Based on the results, both groups were homogenous regarding all demographic variables, including age ($P = 0.30$), marital status ($P = 0.31$), education ($P = 0.16$), residential place ($P = 0.50$), intelligence status ($P = 0.93$), and methadone maintenance dosage ($P = 0.15$), except for occupational status ($P = 0.01$). Moreover, no significant difference was observed between the two groups (Table 1). It was also revealed that among the other drugs, the use of hashish and opium was significantly higher in the control group ($P < 0.05$) (Table 2).

The mean score of the Bar-On EQ-i was calculated at 281.65 ± 23.71 and 274.94 ± 33.80 [95% confidence interval (CI): -7.45-20.87] for the intervention and control groups, respectively, which was not significant ($P = 0.34$). Subsequently, the subjects in the intervention group took part in weekly 90-minute sessions for 4 weeks. All cases in the intervention and control groups completed the Bar-On EQ-i again 3 months after the intervention. Regarding this, the mean score of Bar-On EQ-i in the intervention and control groups was estimated

at 292.76 ± 22.42 and 271.94 ± 24.41 (95% CI: 9.43-32.17), respectively.

The results of the paired t-test showed that the mean score of EQ in the intervention group increased from 281.65 ± 23.71 at the baseline to 292.76 ± 22.42 after the intervention, which was significant ($P = 0.03$). However, the mean scores of EQ in the control group, calculated by the paired t-test, were obtained at 274.94 ± 33.80 at the baseline and 271.94 ± 24.41 after 3 months, showing no significant difference ($P = 0.50$) (Figure 2).

**Figure 2.** Emotional intelligence (EQ) test scores in the intervention and control groups pre- and post-intervention**Table 2.** Consumption of other drugs in intervention and control groups

Other drugs	Control group (n = 34) [n (%)]	Intervention group (n = 34) [n (%)]	P
Hashish	12 (35.3)	3 (8.8)	0.008
Cigarettes	25 (73.5)	16 (47.1)	0.020
Alcohol	11 (32.4)	4 (11.8)	0.040
Opium	23 (67.6)	16 (47.1)	0.080

All participants in this study were taking meth at the baseline. According to the follow-up results of the participants, 28 (82.3%) and 32 (94.1%) cases in the intervention and control groups mentioned the use of meth at the end of the study, respectively. According to this finding, the rate of meth withdrawal after 3 months showed no significant difference between the two groups ($P = 0.13$).

Discussion

EQ skills help people to stay calm and positive without being irritated in confrontation with external stimuli. Such people are able to manage their impulses properly. Moreover, EQ training helps individuals find ways to overcome obstacles and become creative in the face of adversity rather than feeling helpless, escaping from trouble, or showing immature reactions. As a result, they can benefit from the advantage of this training, which is the reduction in stress level.¹⁷ Individuals with high EQ experience lower stress levels originated from the feeling of failure. Since such people can understand others better, they interpret others' behaviors more rationally and are less likely to be pressurized by being mistaken or misunderstanding.¹⁸

These skills facilitate expressing feelings and expanding relationships with others since social skills are one of the basic components of EQ. Therefore, the development of this ability helps individuals control stressors and improve their mental performance.¹⁹ In addition, the promotion of EQ in drug users enables them to effectively manage the emotions and stress caused by drug withdrawal and leads them to play a positive and significant role in the family and even society.²⁰ Furthermore, since peer pressure has been reported to be one of the main reasons for the tendency toward drug usage, it has been observed that individuals with a higher EQ can resist such pressures better.²¹

The results of the present study indicated that educational intervention in the form of 4 weekly 90-minute sessions could improve EQ among meth users who underwent methadone maintenance therapy (MMT) because of opioid use at the same time; nevertheless, it did not affect their meth dosage. A large body of studies has been performed to investigate the relationship of EQ training in multiple sessions and its increase with the rate of drug use and relapse after

withdrawal. For example, Aryasadr et al. conducted a study on addicts ($n = 16$) referring to an addiction treatment center in Khorramabad, Lorestan Province, Iran. The results of the mentioned study showed that a 10-session EQ training course significantly increased EQ in the intervention group ($n = 8$, $P < 0.004$), compared to the control group ($n = 8$). However, the sustainability of the effect of training on EQ promotion was not evaluated.¹⁴

Soleimani et al. conducted a quasi-experimental study with a pretest-posttest control group design. In this study, 60 subjects were selected among those receiving methadone treatment and referring to the Shafa Clinic, Rasht, Iran. To perform the research, the control group participated in EQ training sessions, and the results showed the improvement of EQ and quality of life among methadone-treated cases. In the above study, the reliability of the training effect was evaluated, which showed that the EQ score was higher after 3 months than that before the intervention. This finding was in agreement with that of our study. According to the mentioned research, EQ promotion could also lead to the early prevention of drug use.²⁰

Another study was carried out by Guo et al. on 798 high school students in Wuhan, China, to reduce drug craving and improve emotional resilience and resistance skills. The subjects in the intervention group ($n = 407$) participated in the Cognition-Motivation-Emotional Intelligence-Resistance Skills Program provided in six 40-minute sessions. Immediately after the training, the intervention group showed a higher mean score than the control group ($n = 391$) regarding addictive substance recognition, motivation, and coping skills ($P < 0.05$). In addition, 3 months after the training sessions, the intervention group had a lower rate of drug use than the control group ($P < 0.05$).²²

In the summer 2014, a study was conducted on 240 female pre-university students in Ardabil, Iran, who were randomly selected using a cluster sampling method. The subjects with a high tendency to use drugs ($n = 60$) were chosen and randomly divided into the intervention and control groups. The intervention group received EQ training for four sessions. The results of the questionnaires distributed among the subjects showed a significant relationship between EQ and prevention from people's tendency to substance abuse.²³

Raisjouyan et al. carried out a study on 116 addicts to investigate the relationship between EQ and relapse rate following drug withdrawal at the Drug Rehabilitation Center in Mashhad, Iran. Accordingly, it was revealed that there was a significant negative relationship between EQ and relapse rate following drug withdrawal. In other words, the probability of relapse and re-use of drugs would be lower in an addict with a higher EQ. The researchers of the above research hypothesized that the improvement of EQ would enable the person to express disagreement and resist the drug-using offer, reducing the likelihood of relapse, especially after withdrawal.²⁴

A quasi-experimental study with a pretest-posttest control group design was conducted by Karami Rad et al. to evaluate the effectiveness of EQ training on addiction readiness among male students of Shahid Chamran University of Ahvaz, Khuzestan, Iran. The criterion sampling was applied to select the eligible subjects (n = 30), which were then randomly divided into control and intervention groups. The experimental group attended eight 90-minute training sessions twice a week, while the control group received no intervention. Both groups completed the post-test questionnaire at the end of the intervention. The results were indicative of the effectiveness of EQ training in reducing addiction readiness among students.²⁵

One of the limitations of the current study was related to its small sample size and relatively short duration of monitoring of the subjects, as

well as its performance on only male subjects and one type of drug (i.e., meth). Therefore, it is recommended to conduct further studies with a larger population consisting of several centers that include both genders. Moreover, it is required to perform research with a longer monitoring period and, if possible, with a neutral intervention for the control group.

Conclusion

According to the results of the present study, which examined the effect of EQ training on meth users, it seems that EQ training alone was not effective in reducing relapse of meth use. Therefore, it is required to consider other areas, such as medication and family, social and economic support, and a comprehensive approach to address this issue.

Conflict of Interests

The Authors have no conflict of interest.

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Authors' Contribution

Conceived and designed the experiments: SMZ; performed the experiments: MK; analyzed and interpreted the data: SHGB; wrote original draft: SD. all authors edited the manuscript.

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تأثیر آموزش هوش هیجانی بر مصرف‌کنندگان مت‌آفتامین تحت درمان با متادون در شهر قزوین

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مقاله پژوهشی

چکیده

مقدمه: افراد مصرف‌کننده مواد، هوش هیجانی پایین‌تری نسبت به سایر افراد جامعه دارند. هدف از انجام پژوهش حاضر، بررسی اثر آموزش بر هوش هیجانی در مصرف‌کنندگان مت‌آفتامین تحت درمان با متادون بود.

روش‌ها: این کارآزمایی بالینی تصادفی شده، با طرح پیش‌آزمون-پس‌آزمون همراه با گروه شاهد بر روی مصرف‌کنندگان مت‌آفتامین تحت درمان با متادون مراجعه‌کننده به مرکز پذیرش در قزوین انجام شد. آزمودنی‌ها مقیاس هوش بزرگسالان (Wechsler Adult Intelligence Scale) Wechsler یا (WAIS) را تکمیل کردند و افرادی که امتیاز بالاتر از ۸۰ (۷۰ نفر) کسب کردند، وارد مطالعه شدند و به طور تصادفی در دو گروه مداخله و شاهد قرار گرفتند. پرسش‌نامه هوش هیجانی (Bar-On Emotional Quotient Inventory) Bar-On یا (Bar-On EQ-i) نیز برای هر دو گروه اجرا شد. سپس گروه مداخله در جلسات هفتگی ۹۰ دقیقه‌ای هوش هیجانی به مدت چهار جلسه که توسط دستیار روان‌پزشک برگزار می‌شد، شرکت نمودند، اما گروه شاهد هیچ مداخله‌ای دریافت نکردند. هر دو گروه، سه ماه پس از پایان جلسات آموزشی با استفاده از پرسش‌نامه Bar-On EQ-i مورد ارزیابی مجدد قرار گرفتند. در نهایت، متغیرهای کمی و کیفی به ترتیب با استفاده از آزمون‌های Independent t و χ^2 بین دو گروه مقایسه گردید.

یافته‌ها: برنامه آموزش هوش هیجانی توانست به طور معنی‌داری نمره هوش هیجانی را در گروه مداخله بهبود بخشد ($P = ۰/۰۳$). با این وجود، تأثیری بر کاهش مصرف مت‌آفتامین نداشت ($P = ۰/۱۳$).

نتیجه‌گیری: آموزش هوش هیجانی در مصرف‌کنندگان مت‌آفتامین، می‌تواند باعث افزایش هوش هیجانی شود، اما برای کاهش مصرف مت‌آفتامین نیاز به مطالعات بیشتر و روش‌های مؤثرتری می‌باشد.

واژگان کلیدی: هوش هیجانی؛ متادون؛ مت‌آفتامین؛ ایران

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