

## Original Article

# The Effect of Group Motivational Interview on Impulsivity among Drug Users under Methadone Treatment

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Received: 10/12/2013

Accepted: 2/25/2014

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### Abstract

**Introduction:** Motivational interviewing techniques can be used to manipulate and boost patients' good behavior in order to achieve better health behavior changes.

**Materials and Methods:** This quasi-experimental research, compares pre-test and post-test by a control group. The statistics obtained from the population include all individuals associated with drug addiction treatment centers in the city of Yazd, using purposive sampling methods. Therefore, 40 patients in methadone treatment were randomly assigned to two experimental and control groups, and then, Barratt Impulsiveness Scale was used. Six 90-minute sessions of motivational interviewing program were administered to the experimental group. At the end of the training period, both groups were assessed again. Data were analyzed using SPSS statistical software.

**Results:** T-test results showed that impulsivity of the experimental and control groups have a significant difference.

**Conclusion:** It concluded that group motivational interviewing on drug addiction reduction and impulsivity is highly effective on drug-dependent individuals.

**Keywords:** motivational interviewing, impulsivity, methadone treatment

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## Introduction

Drug addiction is one of the most unfortunate social damages. Numerous studies indicate that most of the patients with substance abuse are often infected simultaneously by multiple physical illnesses and are more likely confronted to death<sup>[16]</sup>.

The addiction is named as drug dependence by American Psychiatrists Association<sup>[1]</sup>. The addiction is a complicated disease, which is specified with features such as uncontrollable temptation and continuous consumption<sup>[13]</sup>. This disease begins with an intake of a substance and over time changes the behavioral, psychological, social and physiological functions<sup>[21]</sup>.

Conducted studies on addiction reveal that one of the main factors in substance abuse is the impulsivity, which is accounted as a predisposing and continuing factor of drug consumption<sup>[8]</sup>.

Impulsive behaviors include an extensive range of actions, to which less consideration has been given<sup>[17]</sup>. It seems that drug abuse relapse occurs by severe and uncontrolled cravings and poor impulse control (West, 2006).

Specialists have utilized various methods to treat the addiction. One of the methods of non-pharmacological intervention is motivational interviewing<sup>[4, 11]</sup>. The motivational interviewing has been formed to work with alcohol consumers, and it not only avoids being restricted in this area, but also is

generalized to different health domains<sup>[15, 3]</sup>. Preliminary investigations indicate that motivational interviewing can have successful effects on the addiction to substances such as heroin<sup>[2]</sup>, cocaine, and marijuana<sup>[15]</sup>.

Several meta-analyses indicate the application of motivational interviewing in different areas including smoking, alcohol, and drug abuse<sup>[4, 11]</sup>. Certain areas like health care are also examined systematically by motivational interviewing<sup>[24]</sup>.

Leech, Richardson and Goldschmidt<sup>[14]</sup> revealed that drug abuse during pregnancy is directly related to the impulsivity trait in children aged 6.

Miller and et al<sup>[15]</sup> in a study conducted on the effects of impulsivity on cocaine consumption came to the conclusion that there is a bilateral relationship (interactive) between impulsivity and drug abuse. Results of a research conducted by Dom, Hulstijn and Sabb<sup>[6]</sup> demonstrated that the impulsivity in alcohol consumers is more severe in younger people.

The studies also show that constant usage of psychoactive substances creates apparent defects in administrative control functions<sup>[23]</sup>. In ecstasy consumers, behavioral impulsivity also increases and causes an impaired decision making<sup>[5]</sup>. We propose two hypotheses based on the aforementioned literature.

First hypothesis: The motivational interviewing is effective on the impulsivity

reduction in addicts under methadone treatment.

Second hypothesis: The motivational interviewing is effective on reducing the dimensions of impulsivity in the addicts under methadone treatment.

### Materials and Methods

This is a semi-experimental study using pre-test and post-test control group. (Pre-test and post-test control group and random assigned format)

#### The population's statistics

The study sample included all drug-dependent people who referred to the an addiction treatment center in Yazd in June and July 2013 .

#### Sample and sampling

First a list of all addiction centers was prepared from medical university of Yazd and one of these centers has been chosen randomly. From 80 individuals, the impulsive Baratt test<sup>[9]</sup> was taken and 40 of them with highest score randomly were divided in two groups of 20 people as test and control groups.

### Research Tools

To collect the data of this research, Baratt Impulsivity Scale was used.

#### Scale observation's Baratt

Barratt impulsivity scale is one of the most widely used instruments to measure impulsivity construct. Ekhtiyari<sup>[9]</sup> reported a factor of 0.90 to 0.70 for the reliability of this instrument. The reliability of the findings reported by Britt et al.<sup>[3]</sup>, is about 0.81 in the English version. Ekhtiyari<sup>[9]</sup> has shown that the Cronbach's alpha coefficient for addicts and healthy subjects is 0.84 and 0.83, respectively.

#### A group motivational interviewing technique

A total of 6 meetings including two sessions of measurements and running questionnaire and 4- intervention session were conducted. Motivational interviewing was performed according to Miller and Rowlink<sup>[15]</sup> were performed.

### Results

First hypothesis: Motivational interviewing for addicts on methadone treatment is effective in reducing impulsivity

**Table 1:** Average adjusted post-test scores of impulsivity in both control and experimental groups

Group	Average	Standard deviation
Experimental	10/05	2.20
Control	12.90	0.57

Table 1 shows the results of impulsivity scores between control and experimental groups. As it can be seen in Table 1, the average score of the experimental group (10/5) is significantly lower than the control group (12/90). In other words, the difference between the two groups (experimental and control) is statistically significant ( $p < 0/05$ )

Second hypothesis: the motivational interviewing is effective in reducing impulsivity dimensions (cognitive impulsivity, motor and improvident) addicts' methadone treatment. (Test covariance - was used for this purpose) that explained in the tables of below

**Table 2:** Results of covariance analysis of cognitive impulsivity scores between control and experimental groups

Source of charge	Addition square	Degree of freedom	Mean square	Amount F	Significant amount	Eta coefficient	Statistic power
Pretest	81.18	1	81.18	20.79	0.001	0.36	0.99
Group	221.99	1	221.99	56.87	0.001	0.60	1
Error	144.41	37	3.90	-	-	-	-
Total	35266	40	-	-	-	-	-

Table 2 shows the mean scores for cognitive impulsivity, there are significant differences between the two groups ( $P < 0/001$ ). So, we can

conclude that a change in motivational interviewing will cause changes in cognitive impulsivity.

**Table 3:** Results of covariance analysis of motor impulsivity scores between control and experimental groups

Source of charge	Addition square	Degree of freedom	Mean square	F	P-Value	Eta coefficient	Statistic power
Pretest	24.79	1	24.79	5.64	0.001	0.13	0.661
Group	142.75	1	142.75	34.45	0.001	0.48	1
Error	154.20	37	4.16	-	-	-	-
Total	27864	40	-	-	-	-	-

Table 3 shows the average motor impulsivity scores of the two groups are significantly different ( $P < 0.001$ ). Hence, it can

be concluded that motivational interviewing is a change in motor impulsivity.

**Table 4:** Results of covariance analysis in improvident subscale scores in both control and experimental groups

Source of charge	Addition square	Degree of freedom	Mean square	F	P-Value	Eta coefficient	Statistic power
Pretest	16.16	1	16.16	44.56	0.001	0.54	1
Group	118.14	1	118.14	86.08	0.001	0.69	1
Error	50.78	37	1.37	-	-	-	-
Total	21313	40	-	-	-	-	-

Results show that the mean subscale scores of improvident were significantly different between the two groups ( $P < 0/001$ ). Hence, it can be concluded that change in the motivational interviewing group will cause changes in improvident. The results also show that the sample size has sufficient statistical power to examine this hypothesis. Thus, the effectiveness of motivational interviewing in three dimensions of cognitive impulsivity groups, mobility, and extremely improvident is significant between the two groups. The second hypothesis is therefore confirmed.

## Discussion

Substance abuse and dependency is a disorder with different aspects of psychological, social and psychological influences. Nowadays, medication by methadone is considered an important component of treatment of drug dependency. Along with this treatment, conducting

motivational interviews with drug users is also important. In addition, the research is in good agreement with previous researches.

The first hypothesis is based on the efficacy of group motivational interviewing in reducing impulsivity in addicts treated with methadone, the results showed that there are significant differences between the two groups in overall impulsivity ( $P < 0/05$ ).

These findings are also consistent with the results of the studies conducted by Hids et al.<sup>[16]</sup> and Soroudi et al.<sup>[20]</sup>.

The second hypothesis of this study is based on the role of motivational interviewing and group effectiveness in reducing impulsivity dimensions (cognitive, motor and improvident) of addicts on methadone treatment and the results showed a significant level of difference between the two groups in impulsivity dimensions (cognitive, motor and improvident) ( $p < 0/001$ ). The results of the survey are

consistent with those of Edalatee et al <sup>[10]</sup>, and Taylor <sup>[20]</sup>.

Therefore the results of the study suggest that a decrease in impulsivity is possible with a

combination of medication (methadone) and motivational interviewing approach, which have also been used by Buchler and Rolyнк <sup>[10]</sup>.

## References

- 1- Nikkhou MR, Avadis Yans H. American Psychiatric Association. Text revised fourth edition of the Diagnostic and Statistical Manual of Mental Disorders. Tehran: Sokhan. 2000.
- 2- Bilsen HP. Motivational interviewing: perspective from the Netherlands, with particular emphasis on heroin dependent clients. In: Miller WR, Rollnick S,(Eds). Motivational interviewing: preparing people to change addictive behavior. New York: Guilford Press. 2002
- 3- Britt E, Hudson SM, Blampied NM. Motivational interviewing in health setting: a review. Patient education and counseling. 2004; 53(2): 147-55.
- 4- Burke B, Arkowitz H, Menchola M. The efficacy of motivational interviewing: a meta-analysis of controlled clinical trials. Journal of Consult Clin Psychol. 2003; 71(5): 843-61.
- 5- De Win MM, de Win MM, Schilt T, Reneman L et al. Ecstasy use and self-reported depression, impulsivity and sensation seeking: a prospective cohort study. Journal of Psychopharmacology. 2006; 20(2):226-35.
- 6- Dom G, De Wilde B, Hulstijn W, et al. Behavioral aspects of impulsivity in alcoholics with and without a cluster B personality disorder. Alcohol. 2006; 41(4):412-20.
- 7- Dom G, Hulstijn W, Sabbe B. Differences in impulsivity and sensation seeking between early and late onset alcoholics. Addictive Behaviors. 2006; 31(2): 298-308.
- 8- Doran N, Mc Chargue D, Cohen L .Impulsivity and the reinforcing value of cigarette smoking. Addictive Behaviors. 2006; 32(1): 90-8.
- 9- Ekhtiyari H, Rezvan Fard M, Mokri, A. The assessment of impulsivity and various tools: overview and perspective studies. Iranian Journal of Psychiatry and Clinical Psychology. 2008; 8(3): 247-57.
- 10- Edalati H, Yazdi B. Effect of treatment on reducing impulsivity and impulse control on impulsive student university of Al Zahra. MS Thesis, AL Zahra University. 2007.
- 11- Hetteema J, Steel J, Miller WR. Motivational interviewing. Annu Rev Clin Psychol. 2005; 6(1): 91-111.
- 12- Hides L, Carroll S, Catania L, et al. Outcomes of an integrated cognitive behavior therapy (CBT) treatment program for co-occurring depression and substance misues in young people. Journal of Affective Disorder. 2010; 121(2): 169-74.
- 13- Leshner, A. Principles of drug addiction treatment: a research based guide. National Institute of Health. 1999; NO 9: 3-33.
- 14- Leech SL, Richardson GA, Goldschmidt L. Prenatal Substance Exposure: effects of attention and impulsivity of 6- years-old. Neurotoxicology and Teratology. 1999; 2(21):109-18.
- 15- Miller WR, Rollnic S. Motivational interviewing: preparing people for change behavior. New York, Guilford Press. 2002.
- 16- Momtazi S, Carroll S, Catania L, et al. Science addiction, brain, behavior.Tehran: Sepid Barg; 2012.

- 17- Narvaeza JC, Magalhães PV, Trindade EK. Childhood trauma, impulsivity, and executive functioning in crack cocaine users. *Comprehensive Psychiatry*. 2012; 53(1): 238–44.
- 18- Soroudi N, Pereze GK, Gonzalez JZ, et al. CBT for medication adherence and depression (CBT-AD) in HIV infected patient receiving methadone maintenance therapy. *Cognitive and Behavioral Practice*. 2008; 15(1): 93-106.
- 19- Sadock BN, Sadock VA. *Synapses of psychiatry*. Philadelphia: Lippincott the William and Wilkins. 2009
- 20- Taylor JG. A behavioral interpretation of obsessive compulsive neurosis. *Behavioral Research and Therapy*. 1963;2(1): 237-44.
- 21- Verdejo-Garcia A., Lawrence AJ, Clark L. Impulsivity as a vulnerability marker for substance-use disorders: Review of findings from high-risk research, problem gamblers and genetic association studies. *Neuroscience and Bio behavioral Reviews*. 2008; 32(1): 777-810.
- 22- Zhao ML, Li Xu, Wang Zhu-cheng et al. The efficacy of a relapse prevention program in the treatment of heroin dependence in China. Shanghai Mental Health Centre. *Advances in drug abuse research*. 2005; 2(1): 274-77.