

# Research Paper: A Comparative Study of Early Maladaptive Schemas and Impulsivity Between Opioid Abusers and Non-Abusers



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## ABSTRACT

**Objective:** The present study aimed to examine and compare early maladaptive schemas and impulsivity between opioid abusers and non-abusers.

**Methods:** In this cross-sectional study, early maladaptive schemas and impulsivity were compared between 60 individuals dependent on opioids who were sampled from five drug rehabilitation centers in Qazvin and 60 workers of the Qazvin Glass Factory who were not dependent on opioids. The Young Schema Questionnaire and the Barratt Impulsiveness Scale were used to gather data; data were analyzed using one-way multivariate analysis of variance.

**Results:** The results indicated higher levels of early maladaptive schemas (overvigilance,  $F=48.81$ ,  $P<0.01$ ; other-directedness,  $F=46.99$ ,  $P<0.01$ ; disconnection,  $F=44.09$ ,  $P<0.01$ ; impaired limits,  $F=25.62$ ,  $P<0.01$ ; and impaired autonomy,  $F=45.75$ ,  $P<0.01$ ) and impulsivity ( $F=58.41$ ,  $P<0.01$ ) in opioid abusers than in non-abusers.

**Conclusion:** The presence of early maladaptive schemas may be an underlying factor in drug abuse tendency. On the other hand, because the prevalence of impulsivity among individuals dependent on opioids increases the likelihood of risk behaviors, including drug abuse, it seems necessary to design interventions aimed at improving impulsivity in such individuals, so that the strengthening of early maladaptive schemas could be prevented, and patients could be helped to change their schemas.

## 1. Introduction

**D**rug addiction is a complex illness characterized by compulsive behaviors, irresistible temptations, drug-seeking behaviors, and continuous drug use despite numer-

ous negative consequences. The long-term effects of continuous drug use on the brain performance lead to a range of behavioral, psychological, and physiological dysfunctions that prevent addicts from functioning normally in the family, workplace, and society (Haddadi,

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Roštami, Rahiminejad, & Zardkhaneh, 2012). Therefore, treating drug addiction is crucial.

Drug abuse, including that of opioids, is still an important public health problem; it can have devastating impacts at both individual and social levels (Mokri, Ekhtiari, Ganjgahi, & Naderi, 2008). Some personal-level problems of drug abuse include reduced motivation, thought and cognition impairments, mood disorders, physical disorders, delinquency, academic failure, and problems with interpersonal relationships (Zargar, Kakavand, Jalali, & Salavati, 2011). Recent studies on the prevalence of drug abuse, especially that of opioids, have indicated that drug abuse is a serious growing problem in Iran (Zargar et al., 2011). Opioid dependence is defined as continued use of opioids despite numerous negative effects, including physical, behavioral, and cognitive dysfunctions (Sadock, Kaplan, & Sadock, 2013).

For years, many interdisciplinary efforts have been made to develop effective interventions for drug abuse, but the complex nature of drug dependence makes its treatment very difficult; although efforts to treat drug abuse have led to successful outcomes, they have never met the expectations (Zargar et al., 2011). Here we analyzed and compared two variables, early maladaptive schemas and impulsivity, between opioid abusers and non-abusers. Although early maladaptive schemas and impulsivity are related variables, they can have separate impacts on different human behaviors (Zolfaghari, Fatehizadeh, & Abedi, 2008). In addition, we have introduced early maladaptive schemas and impulsivity and have explained their relationship.

Schemas are the deepest cognitive structures (Haghighatmanesh, Sherbaf, Hashemabadi, & Mahram, 2010). When confronted with new stimuli, schemas screen, encode, and evaluate new information based on their previous structure (Haghighatmanesh et al. 2010), thereby influencing the way people perceive themselves and the world around them. Because schemas form the core of self-concept, the presence of maladaptive schemas can make individuals vulnerable to a range of dysfunctions and problems (Young, Klosko, & Weishaar, 2007).

Notably, dangerous impulsive decisions are an important part of the personal and social lives of individuals, and impairment in this type of decision-making constitutes the core of impulsivity and impulsive behaviors (Ekhtiari & Behzadi, 2001). Impulsive behaviors, also called risk behaviors, are behaviors that, despite being accompanied by possible harms, enable the achievement

of some sort of reward (Ekhtiari, Behzadi, Jannati, & Moghimi, 2003).

Various studies have indicated that using psychological interventions in addition to pharmacological treatments for opioid users can increase the chance of recovery and further prevent drug abuse relapse. These studies have shown that drug addicts are different from non-addicts in terms of psychological characteristics, such as coping strategies, attachment styles, locus of control, negative thoughts, and personality traits (Mohammadi et al., 2005; Hill et al., 1989; Kallach et al., 1994; Chabroll et al., 2001; Ramsi et al., 2002, as cited in Riso, du Toit, Stein, & Young, 2007). Further, impulsivity is associated with problems such as drug abuse, delinquency, obsession, pyromania, alcoholism, violence, gambling, driving while intoxicated, and high-risk sexual behavior (Ekhtiari & Behzadi, 2001a).

Although in recent decades, many studies have been conducted on maladaptive schemas and effectiveness of schema therapy, few have focused on early maladaptive schemas and substance dependence disorders. In one study conducted by Decouvelare et al. (2002) (cited in Riso et al., 2007), 46 patients with alcohol use disorder were compared with 55 non-alcoholic individuals. Individuals with alcohol use disorder scored higher than non-alcoholics on all schemas; the two groups particularly differed in terms of impaired self-regulation and mistrust, i.e. mistreatment, sacrifice, and abandonment schemas. In another study by Brotchie et al. (2004, as cited in Riso et al., 2007), patients with alcohol use disorder scored high on vulnerability to harm or illness, compliance, and emotional deprivation schemas.

Based on the theoretical background and the findings of previous research studies, the following points can be summarized: early maladaptive schemas are related to a spectrum of behaviors and behavioral reactions in human beings. The evidence for this relationship has been found by studies on personality disorders, marital conflict, and substance use disorders other than opioid addiction (Brotchie et al. 2004, as cited in Riso et al., 2007). Therefore, the differences between the present study and the previous ones are in terms of the study sample and focus on impulsivity; our study sample was selected from individuals dependent on opioids, and we focused on impulsivity because addicts face problems in controlling their craving for drugs.

Beyond the differences between this study and previous studies, if a primary and inconsistent primary role and inclining role in the tendency to use drugs with re-

search studies as in the past entails it, it can help reduce the desire for drugs at possible prospects. Results can also be used in maintenance treatments using treatment and treatment plans to control impedance and help to better understand the intent and inadequate early practices in adolescents to prevent them from being at risk and by providing treatment to prevent problems and educate their parents.

Based on the previous research findings, the present study tested two main hypotheses: 1. There are significant differences in early maladaptive schemas between opioid abusers and non-abusers; and 2. There is a significant difference in impulsivity between opioid abusers and non-abusers.

## 2. Methods

This study had a cross-sectional design and included men dependent on opioids recruited from five rehabilitation centers (Mobin, Bahar, Zendegie Novin, Kasra, & Raha) in Qazvin (the drug dependent group) and non-addict workers of the Qazvin Glass Factory (the normal group). Because of some limitations in accessing the population of people dependent on opioids throughout Qazvin province and because not many rehabilitation centers were not ready to cooperate, just the five above-mentioned centers were selected.

A purposeful sampling method was used to select 60 individuals from those attending the five rehabilitation centers for receiving drug rehabilitation treatment in 2012. Inclusion criteria were as follows: individuals aged 18-50 years old; dependent on only one opioid (opium or heroin) and not using any other drug, such as cannabis or amphetamines; literate enough to complete the study questionnaires; and with the course of illness in the "partial remission, under treatment with antagonists" stage. Other inclusion criteria used in this study were as follows: age of 20-45 years, at least high school diploma-level education, male gender (to control for gender), and dependence on only one opioid (opium or heroin) to control for the impact of the drug type on the results. The exclusion criteria were as follows: age <20 years and >45 years, less than high school diploma-level education, female gender, and abuse of drugs other than opium and heroin.

The non-addict controls were selected only from the workers of the Qazvin Glass Factory to control for the career position element (a socioeconomic factor). Because factory work is a strenuous job and this working condition can affect the study results, both groups were

selected from the population of workers. The controls were matched with the study addicts in terms of age and education level. From this population, a total of 60 individuals were selected using a simple random sampling method. After signing the informed consent forms, all participants underwent a structured clinical interview and completed the study questionnaires. Questionnaire data were analyzed using SPSS version 22 software.

The Young Schema Questionnaire (YSQ) is a self-report scale developed by Young and Brown (1994, as cited in [Salavati, 2007](#)) to assess early maladaptive schemas, with items rated on a Likert-type scale ranging from 1 (completely untrue for me) to 6 (describes me perfectly). The long form of the YSQ (YSQ-LF) contains 205 items assessing 16 early maladaptive schemas. These 16 subscales have shown acceptable test-retest reliability and discriminant validity estimates. For example, in a study with general population (187 individuals), 15 of the 16 schemas were confirmed using factor analysis ([Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002](#)). In addition, in the first comprehensive study on psychometric properties of the YSQ conducted by [Moeller et al. \(2001\)](#), Cronbach's alphas ranging from 0.83 to 0.96 were obtained for early maladaptive schemas in a clinical population and test-retest reliability estimates ranging from 0.53 to 0.82 were obtained in a non-clinical population. The YSQ-LF has shown good discriminant validity with reported psychological distress, self-worth, cognitive vulnerability toward depression, and symptomatology of personality disorders ([Young, Klosko, & Weishaar, 2007](#)).

The short form of the YSQ (YSQ-SF) contains 75 items among the 205 items in the YSQ-LF that are most related to schemas. This was designed to facilitate the assessment of early maladaptive schemas. The results of the factor analysis for the YSQ-SF are consistent with those for the YSQ-LF, and the hypothesis confirms the assessment of 15 schemas. Good internal consistency of the subscales of the YSQ-SF has also been reported (Cronbach's alpha ranging from 0.75 to 0.93) ([Welburn et al. 2002](#)).

The third version of the questionnaire, YSQ-3<sup>rd</sup>, with 232 items was introduced in 2005 by Young. The short form of the YSQ-3<sup>rd</sup> has 90 items and has been validated in Iran by Ghiasi. In this questionnaire, respondents rate each item based on how well it describes them ([Ghiasi, 2009](#)). The validated form of the YSQ-3<sup>rd</sup> was used in the present study. In the current research, the Cronbach's alpha for the internal consistency of the instrument was 0.93 in the opioid users and 0.92 in the controls. The alpha value of the overall questionnaire was 0.91 and of the early maladaptive schemas was as

follows: overvigilance (0.83), other-directedness (0.74), disconnection (0.82), impaired limits (0.77), and impaired autonomy (0.85).

The Barratt Impulsiveness Scale (BIS) developed by Barratt is a scale for assessing how individuals think or behave. It has 30 items that are rated on a 4-point scale (never, rarely, often, and almost always) and can assess cognitive, motor, and non-planning impulsivity (Besharat, 2009, as cited in Shamohammadi, 2011). It was translated and validated in Iran in 1999. Janbozorgi reported a Cronbach's alpha of 0.71 and a test-retest reliability of 0.74 for this scale (Mokhtari et al. 2000, as cited in Shamohammadi, 2011). In the current research, the Cronbach's alpha for the internal consistency of the instrument was 0.72 in the opioid users and 0.74 in the controls. The alpha value of the overall questionnaire was 0.73 and of the impulsivity was as follows: cognitive (0.66), motor (0.71), and non-planning (0.63).

The study groups were compared using univariate regression analysis (in two-group comparisons, this analysis yields the same results as the independent samples t-test). Box's M test was used to examine the equality of covariance matrices, and Levene's test was used to assess the equality of variances. The significance level was set at  $P \leq 0.05$ . Data were analyzed using SPSS version 22.

### 3. Results

The age of non-addict controls in the normal group was 18-50 years, with most participants in the age range of 31-35 years; 11 participants had a high school diploma, 7 had an associate's degree, 34 had a bachelor's degree, and 8 had a master's degree. The age of opioid addicts in the drug-dependent group was 20-45 years, with most participants in the age range of 21-26 years; 9 participants had less than high school education, 27 had a high school diploma, 7 had an associate's degree, 14 had a bachelor's degree, and 3 had a master's degree. The addiction duration of most participants was 1-3 years. Approximately 67% of opioid addict participants were receiving treatment for 1-2 years and 2% were receiving treatment for 5-6 years.

The descriptive findings (means and standard deviations) of the 60 participants are shown in Table 1. The two groups demonstrated differences in the mean scores of all subscales of early maladaptive schemas, with higher mean scores in the drug-dependent group than in the normal group.

The multivariate test for the linear combination of the dependent variables revealed significant differences between the two groups; the descriptive findings (means and standard deviations) obtained from the 60 participants are shown in Table 2. This table shows the between-subject effects that could be used to examine the differences in the means scores of each variable between the two groups. It demonstrates the differences in the mean scores of the dependent variables between the two groups. Bonferroni correction was used to reduce the type I error. In this method, the alpha level was divided by the number of dependent variables, and the new alpha level is used for comparison. Based on the corrected alpha level (0.0084), significant differences were observed in the scores between the two groups on all subscales; the drug-dependent group demonstrated higher mean scores on all subscales of early maladaptive schemas (total score) than the normal group. Table 3 presents the descriptive findings (means and standard deviations) of impulsivity and its subscales (cognitive, motor, and non-planning impulsivity) of the 60 participants; the mean scores were higher in the drug-dependent group than in the normal group.

The multivariate test for the linear combination of the dependent variables revealed significant differences between the two groups (Table 4). Table 4 presents the between-subject effects that could be used to examine the differences in the scores of each variable between the two groups. The descriptive findings (means and standard deviations) obtained from the 60 participants are shown in Table 4. This table shows the differences in the mean scores of all dependent variables between the two groups. Bonferroni correction was used to reduce the type I error. In this method, the alpha level was divided by the number of dependent variables, and the new alpha level is used for comparison. Based on the corrected alpha level (0.0012), mean scores of all four dependent variables were different between the two groups. The mean scores on total, cognitive, motor, and non-planning impulsivity were higher in the drug-dependent group than in the normal group.

### 4. Discussion

The study results indicated that opioids abusers have more salient early maladaptive schemas than non-abusers. This finding is consistent with that of previous studies (Ball & Cecero, 2001; Razavi, Soltaninejad, & Rafeie, 2011; as Cited in Zargar et al., 2011). We also found that opioids abusers had significantly different schemas than non-abusers, indicated by higher mean scores on all

**Table 1.** Descriptive data for the total score of early maladaptive schemas in both study groups

| Variables                | Group                | Number | Mean   | SD     |
|--------------------------|----------------------|--------|--------|--------|
| Early maladaptive schema | Dependent on opioids | 60     | 304.10 | 67.483 |
|                          | Normal               | 59     | 219.59 | 51.999 |
|                          | Total                | 119    | 262.20 | 73.528 |
| Over vigilance           | Dependent on opioids | 60     | 75.38  | 17.96  |
|                          | Normal               | 59     | 55.73  | 15.035 |
|                          | Total                | 119    | 65.64  | 19.23  |
| Other-directedness       | Dependent on opioids | 60     | 54.73  | 11.964 |
|                          | Normal               | 59     | 40.88  | 9.971  |
|                          | Total                | 119    | 47.87  | 12.993 |
| Disconnection            | Dependent on opioids | 60     | 76.37  | 21.291 |
|                          | Normal               | 59     | 53.36  | 16.109 |
|                          | Total                | 119    | 64.96  | 22.084 |
| Impaired limits          | Dependent on opioids | 60     | 37.87  | 9.364  |
|                          | Normal               | 59     | 29.78  | 7.998  |
|                          | Total                | 119    | 33.86  | 9.580  |
| Impaired autonomy        | Dependent on opioids | 60     | 60.52  | 19.297 |
|                          | Normal               | 59     | 39.53  | 14.113 |
|                          | Total                | 119    | 50.11  | 19.879 |

schemas in the drug-dependent group than in the normal group. This finding is consistent with that of Ghiasi (2009) and Lotfi, Donyavi, and Khosravi (2007). Thus, our study results support an etiology based on personality traits for drug abuse.

Some researchers suggest that we should not look for an antecedent personality disorder in drug abuse, maintaining that based on the stress-vulnerability model, there are personality traits in drug abusers that make them vulnerable to starting drug use or continuing their use.

**Table 2.** Results of one-way multivariate analysis of variance for early maladaptive schemas (between-subject effects)

| Source | Dependent Variable                      | Sum of Squares | df | Mean Square | F       | Eta  |
|--------|-----------------------------------------|----------------|----|-------------|---------|------|
| Group  | Total score<br>Early maladaptive schema | 212441.52      | 1  | 212441.52   | 58.41** | 0.33 |
|        | Over vigilance                          | 11491.618      | 1  | 11491.618   | 41.81** | 0.26 |
|        | Other-directedness                      | 5707.946       | 1  | 5707.946    | 46.99** | 0.28 |
|        | Disconnection                           | 15751.331      | 1  | 15751.331   | 44.09** | 0.27 |
|        | Impaired limits                         | 1945.503       | 1  | 1945.503    | 25.62** | 0.18 |
|        | Impaired autonomy                       | 13107.885      | 1  | 13107.885   | 45.75** | 0.28 |

\*\* P<0.05



**Table 3.** Descriptive data for the total score of impulsivity and its subscales in both study groups

| Variables               | Group                | Number | Mean  | SD    |
|-------------------------|----------------------|--------|-------|-------|
| Impulsivity total score | Dependent on opioids | 60     | 82.47 | 13.31 |
|                         | Normal               | 60     | 50.83 | 9.91  |
|                         | Total                | 120    | 66.65 | 19.71 |
| Cognitive               | Dependent on opioids | 60     | 22.53 | 4.51  |
|                         | Normal               | 60     | 13.80 | 3.41  |
|                         | Total                | 120    | 18.17 | 5.92  |
| Motor                   | Dependent on opioids | 60     | 28.35 | 5.64  |
|                         | Normal               | 60     | 16.65 | 3.68  |
|                         | Total                | 120    | 22.50 | 7.55  |
| Non-planning            | Dependent on opioids | 60     | 30.52 | 5.44  |
|                         | Normal               | 60     | 18    | 4.02  |
|                         | Total                | 120    | 24.26 | 7.88  |

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Based on the psychoanalytic approach that considers drug dependence as a progressive response to self-regulations deficits and as an adjustment mechanism to deal with self-regulations deficits resulting from childhood traumas and maladaptive child-parent interactions (Saddock, et al., 2013), drug dependence can be regarded as a problem with roots in childhood and interactions with parents; thus, childhood traumas and maladaptive interaction with parents are crucial in the shaping of early maladaptive schemas, a finding confirmed by the current study results. In addition, in the cognitive behavioral approach, tendency for using opioids is attributed to basic beliefs, attitudes, assumptions, and schemas as the main factors in current psychological problems. In this approach, drug abuse is described as a learning process associated with environmental (such as availability of drugs, peer groups, mental pressures) and cognitive

(such as coping strategies, cognitions, self-regulation mechanisms) factors, which are involved in the development of dependence, effectiveness of therapy, and relapses (Riso et al., 2007).

According to the study results, impulsivity is higher in drug-dependent individuals than in normal individuals. Compared with the normal group, the drug-dependent group scored higher on all subscales of impulsivity. This finding is consistent with that of previous studies (Mokri et al., 2008; Rezvanfard et al., 2007; Ekhtiari & Behzadi, 2001b). Impulsivity is an important factor associated with the tendency for risk behaviors, such as drug abuse. Based on Dickman's theory, it can be concluded that to prevent addiction at the society level, dysfunctional impulsivity or the tendency to act with the least foresight leading to problems should be turned into functional im-

**Table 4.** Results of one-way multivariate analysis of variance for impulsivity (between-subject effects)

| Source | Dependent Variable       | Sum of Squares | df | Mean Square | F         | Eta   |
|--------|--------------------------|----------------|----|-------------|-----------|-------|
| Group  | Total score              | 30020.033      | 1  | 30020.033   | 218.028** | 0.649 |
|        | Cognitive impulsivity    | 2288.133       | 1  | 2288.133    | 142.817** | 0.548 |
|        | Motor impulsivity        | 4106.700       | 1  | 4106.700    | 180.730** | 0.605 |
|        | Non-planning impulsivity | 470.008        | 1  | 470.008     | 205.029** | 0.635 |

\*\* P<0.05

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pulsivity or the tendency to act with the least foresight when everything is optimal (Zermatten, Van der Linden, d'Acremont, Jermann, & Bechara, 2005); this is because Dickman believed that all impulsive behaviors are not useless and that the functional and beneficial aspects of impulsivity are the reasons why it has survived evolution. In addition, the social approach to impulsivity considers it as a learned behavior in the environment and maintains that based on their experiences, children learn to show hasty reactions to get reward. Therefore, impulsive individuals cannot properly evaluate the outcomes of their behaviors (Moeller et al. 2001).

This study has some limitations. First, the study data were gathered using self-report questionnaires; thus, the participants' answers may have been subject to self-report bias. Second, because the study sample included working people from a single city (Qazvin), the generalization of the results to other communities should be made with caution.

Based on the results, we suggest that psychological tests should be administered to students, factory workers, and office employees to identify their personality traits for guiding them in different domains of their lives, including education, career, and family relationships. In addition, future studies are warranted to examine impulsivity and early maladaptive schemas in individuals dependent on other drugs, such as cocaine and methamphetamine.

Based on the study results, the differences between opioid abusers and non-abusers can be explained by the following reasons:

1. Individuals with early maladaptive schemas may yield to their schemas, try to avoid or deny them, or excessively try to compensate them instead of confronting them or trying to solve their maladaptive beliefs. Excessive compensation is also maladaptive and may further strengthen the maladaptive schemas. In some cases, such individuals may start using drugs to solve their problems, and even if they do not get dependent, they continue living with difficulty and social problems. Further, individuals who tend to act impulsively may try to achieve personal demands without paying attention to the results of their actions; this is another factor that can make impulsive people more vulnerable toward drug abuse.

2. Analyzing different options while taking risky decisions is based on the impact of the decisions on the reward and punishment system (Ekhtiari et al., 2003). Thus, individuals who act impulsively are more likely to use drugs because they may see drugs as an instant

reward to enjoy or as a form of punishment for personal issues or guilt feeling; in both cases, a risky decision is made without the right judgment.

## Ethical Considerations

### Compliance with ethical guidelines

The following ethical considerations were observed in both the groups: protection of the participant confidentiality, freedom to participants during the study, and using participants' data only for the study objectives. Moreover, all the participants signed the informed consent.

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### Conflict of interest

The authors declared no conflict of interest.

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