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Factors affecting substance use relapse among Iranian addicts

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Abstract:

BACKGROUND: Substance use relapse after treatment is one of the most important aspects of addiction. The present study aimed to investigate the factors affecting the substance use relapse among Iranian addicts.

MATERIALS AND METHODS: This cross-sectional study was conducted in 2019 on 396 addicts referring to the addiction treatment centers in Hamadan, who were selected using a cluster random sampling method. The data were collected by a two-section questionnaire (demographic variables and risk factors for substance abuse recurrence). The collected data were analyzed using descriptive statistics and logistic regression analysis.

RESULTS: The participants' mean (standard deviation) age was 36.56 (8.8) years, and 84.6% of the participants had a history of relapse. The logistic regression analysis revealed that marital status (odds ratio [OR] = 2.594; 95% confidence interval [CI]: 1.472–4.570), personal willingness (OR = 8.186; 95% CI: 1.875–35.738), pleasure (OR = 2.738; 95% CI: 1.122–6.679), drug availability (OR = 3.392; 95% CI: 1.023–11.247), family disputes (OR = 4.583; 95% CI: 1.345–15.609), an addicted friend (OR = 2.693; 95% CI: 1.014–7.157), and close addicted relatives (OR = 3.513; 95% CI: 1.193–10.348) were the main predictors of addiction relapse ($P < 0.05$).

CONCLUSION: The present study confirmed the effect of several factors (namely demographic, individual, interpersonal, environmental, and behavioral) on the substance use relapse. Accordingly, designing and implementing some interventions based on the findings of the present study may contribute to preventing substance use relapse.

Keywords:

Addiction, drugs, recurrence, relapse, substance use

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Introduction

Addiction is a chronic and relapsing disorder and one of the most important health problems in human societies.^[1] Like many other countries, Iran is also tackling with this problem as it is one of the countries containing the largest number of drug users.^[2,3] Although addiction treatment is widely used in different societies, the rate of entry into treatment and successful continuation of treatment is low.^[4] Moreover, the high rate of drug use relapse is a major problem in drug addiction treatment, even after a long period of quitting.^[5] Returns to

substance use after a period of quitting an addiction is called relapse,^[6] on which many factors have great impacts.^[7] A large number of studies show the high prevalence of substance use relapse. In a study by Haghghi *et al.*, more than 80% of the addicts returned to substance use during <6 months after quitting the addiction.^[5] The results of a study by Shafiee *et al.* revealed that 72% of the addicts who were treated in addiction treatment centers returned to substance use completely within a year after quitting.^[8] Nunes *et al.* documented that the recurrence rate was high among all treatment initiation settings (77% in short-term hospitalization, 59% in long-term hospitalization, and 61% in outpatient) 6 months after normal treatment.^[9]

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Studies have revealed that various factors are involved in the onset, continuation, and relapse of addiction after treatment. Fallahzadeh and Hosseini showed that some factors such as addicted friends, ignorance by the family, and returns to previous places can be effective in returning to addiction.^[10] In a study by Deepti *et al.*, friends played a key role in substance use relapse.^[11] Afkar *et al.* argued that individual, family, occupational, and economic factors were the most important predictors of substance use relapse.^[12]

Although various studies have been conducted in this field, few studies have ecologically measured the impact of factors on relapse of substance use, and most previous studies have examined the relapse factors of substance use at the individual and interpersonal levels. Considering the above mentioned, as well as changing patterns of drug use and the high percentage of substance use relapse, the present study was conducted to investigate the factors affecting the substance use relapse among male addicts covered by addiction treatment centers.

Materials and Methods

This research was a cross-sectional descriptive-analytical study on 396 addicts referring to the addiction centers in Hamadan, Iran, in 2019.

According to a study by Haghghi *et al.*,^[5] the rate of substance use relapse was reported to be 80%. At a 95% confidence level and 5% accuracy, the sample size was estimated to be 264 persons. Moreover, with applying the cluster coefficient of one and half, the sample size increased by 396 persons. In this study, it was assumed that about 20% of the participants would not complete the questionnaires completely, accordingly, the sample size increased from 396 to 440. Cluster random sampling method was used to collect the required data. For this purpose, out of 80 active addiction treatment centers in Hamadan (including 3 government addiction treatment centers and 87 private addiction treatment centers), 22 centers (25%) were randomly selected as clusters, and 20 patients from each center were randomly selected. Finally, excluding incomplete questionnaires, the information of 396 participants in this study was used. In this study, after receiving a letter of recommendation from the Vice-Chancellor for Treatment of the University of Medical Sciences, a researcher along with two trained questioners, by referring to addiction treatment centers and preparing a list of covered addicts, using a random number table, selected samples and collected the data. It is noteworthy to mention that if someone was reluctant to participate in the study, alternative people would enter the study according to the random number table to complete the study sample size.

Inclusion criteria for this study were addicts who were covered by addiction treatment centers, willingness to participate in the study, and lack of a physical or mental illness considering the medical records of each patient in addiction treatment centers. Exclusion criteria were also as follows: incomplete questionnaires and lack of insufficient cooperation in completing the questionnaire. The data collection tool was a self-administered questionnaire including demographic variables and risk factors for substance use relapse, which required approximately 25 min to be completed. (A) Demographic factors: age, marital status, level of education, place of residence, income, and job status; (B) risk factors for substance use relapse, scored based on a Yes/No scale: sense of curiosity, personal willingness, friends' requests, pleasure, drug availability, living area, family disputes, lack of success at work, psychological distress, escaping from problems, an addicted father, an addicted mother, an addicted sister, addicted close relatives, other addicted relatives, addicted best friends, other addicted friends, and history of substance use relapse. Questions were designed based on the study by Barati *et al.*^[13] The face and content validity of the questionnaire was evaluated by a panel of experts ($n = 10$). Of the ten panel members, seven were health education and promotion professionals and three were psychologists. The questions were slightly modified based on the panel of experts' opinions. The Kuder-Richardson formula was used to assess the internal consistency reliability of the test, and the extracted value was 0.86. In this study, the data were analyzed using descriptive statistics (number, percentage, mean, and standard deviation [SD]) and logistics regression analysis with SPSS software (version 22.0; SPSS, Chicago, Illinois, USA). $P < 0.05$ was statistically significant.

The present study was approved by the Ethics Committee of Hamadan University of Medical Sciences (No. IR.UMSHA.REC.1397.1035), and the procedure and objectives of the project as well as the confidentiality of information were explained to the participants.

Results

The mean (SD) age of the participants was 36.56 (8.8) years, with a range of 13–70 years. Most of the participants (47.5%) were at the age group of 31–40 years. In terms of marital status, most of the participants were single (55.5%). The mean age of the participants for the first experience of substance use was 20 years (5.4). Regarding their monthly income, 59.5% of the participants had monthly income below the moderate level, and only 8.5% of these patients reported monthly income above the moderate level. Moreover, 84.6% of the participants had a history of substance use relapse, of which 59.8% reported a history of substance use relapse between 1

and 5 times. Furthermore, 13.9% of the participants had a history of substance use relapse more than 10 times.

The results of logistic regression analysis to assess the association between demographic variables and the likelihood of substance use relapse among study participants are shown in Table 1.

Based on these results, among the demographic variables, marital status was the significant predictor of substance use relapse ($P < 0.005$) as such the likelihood of substance use relapse among the single subjects was 2.69 times larger than that among the married (odds ratio [OR] = 2.594; 95% confidence interval [CI]: 1.472–4.570).

Table 2 presents the results of logistic regression analysis to assess the association between individual, interpersonal, and environmental risk factors with the likelihood of substance use relapse among study participants.

According to the results, personal willingness, pleasure and enjoyment, drug availability, and family disputes were significant predictors of substance use relapse ($P < 0.005$) as such the likelihood of substance use relapse was 8.18 times larger in those who reported “tendency to

substance use,” compared to the others (OR = 8.186; 95% CI: 1.875–35.738), and the likelihood of substance use relapse in those who reported the pleasure of drug use was 2.73 times larger compared to those who did not report such a pleasure (OR = 2.738; 95% CI: 1.122–6.679). Easy access to drug increases the risk of recurrence by 3.39 times (OR = 3.392; 95% CI: 1.023–11.247), and the risk of substance use relapse among the subjects with family disputes was 4.58 times larger than that in those with no family disputes (OR = 4.583; 95% CI: 1.345–15.609).

The association between behavioral risk factors (having relatives and friends who are addicted) and the likelihood of substance use relapse among study participants is shown in Table 3.

According to the results, close addicted relatives and also addicted friends were significant predictors of drug use recurrence ($P < 0.005$) as such the likelihood of drug use recurrence among subjects meeting this criteria (having close addicted relatives) was 3.51 times larger than that among others (OR = 3.513; 95% CI: 1.193–10.348). Furthermore, the likelihood of drug use recurrence in subjects who had addicted friends was 2.69 times larger, compared to those who had no addicted friends (OR = 2.693; 95% CI: 1.014–7.157).

Table 1: Demographic risk factors of substance use relapse in addicts

Variables	Nonrelapse, n (%)	Relapse, n (%)	OR (95% CI)	P
Age				
≤20	0 (0)	9 (2.27)	4.039 (0.000)	0.99
21-30	14 (3.53)	84 (21.21)	1.50 (0.48-4.65)	0.48
31-40	33 (8.33)	154 (38.88)	1.16 (0.41-3.33)	0.77
41-50	9 (2.27)	68 (17.17)	1.9 (0.57-6.3)	0.30
≥50	5 (1.26)	20 (50.05)	5 (Reference)	
Marriage status				
Married	39 (9.84)	136 (34.34)	1 (Reference)	
Single	22 (5.55)	199 (50.25)	2.59 (1.47-4.57)	0.001
Place of residence				
City	51 (12.87)	252 (63.63)	1 (Reference)	
Village	10 (2.52)	83 (20.95)	1.68 (0.82-3.45)	0.15
Education status				
Illiterate	8 (2.02)	26 (6.56)	1 (Reference)	
Primary school	13 (3.28)	71 (17.92)	1.68 (0.62-4.52)	0.30
Secondary school	19 (4.79)	109 (27.52)	1.76 (0.70-4.48)	0.23
High school	14 (3.53)	94 (23.73)	2.07 (0.78-5.45)	0.14
University	7 (1.76)	35 (8.83)	1.54 (0.49-4.78)	0.45
Income				
Weak	47 (11.86)	283 (71.46)	1 (Reference)	
Medium	6 (1.51)	26 (6.56)	0.72 (0.28-1.84)	0.49
Good	8 (2.02)	26 (6.56)	0.54 (0.23-1.26)	0.15
Job				
Worker	6 (1.51)	41 (10.35)	1 (Reference)	
Employee	5 (1.26)	11 (2.77)	0.32 (0.08-1.25)	0.10
Self-employment, temporary, or permanent job	46 (11.61)	259 (65.40)	0.824 (0.331-2.052)	0.67
Unemployed	4 (1.01)	24 (6.06)	0.878 (0.225-3.427)	0.85

P=Level of significance, n=396. CI=Confidence interval, OR=Odds ratio

Table 2: Individual, interpersonal, and environmental risk factors of substance use relapse in addicts

Variables	Nonrelapsed, n (%)	Relapsed, n (%)	OR (95% CI)	P
Curiosity				
No	51 (12.87)	297 (75)		
Yes	10 (2.52)	38 (9.59)	0.65 (0.27-1.59)	0.35
Personal willingness				
No	59 (14.89)	274 (69.19)		
Yes	2 (0.5)	61 (15.40)	8.18 (1.87-35.73)	0.005
Friends' requests				
No	57 (14.39)	301 (76.01)		
Yes	4 (1.01)	34 (8.58)	2.22 (0.70-7.03)	0.17
Pleasure and enjoyment				
No	54 (13.63)	253 (63.88)		
Yes	7 (1.76)	82 (20.70)	2.73 (1.12-6.67)	0.027
Drug availability				
No	58 (14.64)	285 (71.96)		
Yes	3 (0.75)	50 (12.62)	3.4 (1.02-11.24)	0.046
Living area				
No	59 (14.89)	301 (76.01)		
Yes	2 (0.50)	34 (8.58)	2.55 (0.54-11.96)	0.23
Family disputes				
No	58 (14.64)	266 (67.17)		
Yes	3 (0.75)	69 (17.42)	4.58 (1.34-15.60)	0.015
Lack of success at work				
No	56 (14.14)	299 (73.48)		
Yes	5 (1.26)	44 (11.11)	0.97 (0.33-2.83)	0.96
Psychological distress				
No	48 (12.12)	228 (57.57)		
Yes	13 (3.28)	107 (27.2)	1.67 (0.81-3.44)	0.15
Escaping from problems				
No	53 (13.38)	255 (64.39)		
Yes	8 (3.02)	80 (20.20)	1.70 (0.72-3.98)	0.22

P=Level of significance, n=396. CI=Confidence interval, OR=Odds ratio

Table 3: Behavioral risk factors of substance use relapse in addicts

Variables	Nonrelapsed, n (%)	Relapsed, n (%)	OR (95% CI)	P
Addicted father				
No	54 (13.63)	269 (67.92)		
Yes	7 (1.76)	66 (16.66)	1.58 (0.69-3.64)	0.27
Addicted brother				
No	46 (11.61)	231 (58.33)		
Yes	15 (3.78)	104 (26.26)	1.60 (0.82-3.13)	0.16
Addicted best friends				
No	56 (14.14)	261 (65.90)		
Yes	5 (1.26)	74 (18.68)	2.69 (1.01-7.15)	0.047
Other addicted friends				
No	54 (13.63)	259 (65.40)		
Yes	7 (1.76)	76 (19.19)	2.08 (0.88-4.920)	0.09
Addicted close relatives				
No	57 (14.39)	265 (64.39)		
Yes	4 (10.01)	70 (17.67)	3.51 (1.19-10.34)	0.023*
Other addicted relatives				
No	58 (14.64)	306 (77.27)		
Yes	3 (0.75)	29 (7.32)	1.08 (0.29-3.98)	0.90
Others				
No	55 (13.88)	316 (79.79)		
Yes	6 (1.51)	19 (4.79)	0.76 (0.27-2.18)	0.62

P=Level of significance, n=396. CI=Confidence interval, OR=Odds ratio

Discussion

The results of this study showed that, among the demographic variables, marital status was a significant predictor of drug use recurrence. In this regard, Kikhavandi *et al.* also concluded that the tendency to re-use drugs was more common among the single than the married.^[14] Other studies have also provided similar results.^[5,12] Accordingly, it can be stated that family support decreases the likelihood of substance use relapse.^[15] This can be justified based on the fact that the single, the ones with deceased spouses, and the divorced individuals receive less family and emotional support so that they are potentially at higher risk for drug use recurrence. According to the results of our study, among the individual factors, the tendency to use drugs and pleasure are the significant predictors of drug use recurrence. This finding is consistent with the results of many similar studies.^[16-18] Tendency and pleasure of drug use can be explained with regard to the positive attitude toward taking drugs and its effects.

Individuals with a positive attitude toward drugs are more likely to enjoy them. The role of attitude toward drug addiction is so important that the positive attitudes of the addicted lead them to re-use or quit drugs forever.^[19] Personal willingness, pleasure, and enjoyment increase the drug use recurrence, highlighting the crucial role of authorities in enriching the leisure time of the young.^[20] In this study, family disputes were another significant predictor of substance use relapse. The study conducted by Ashrafi Hafez *et al.* showed that a positive atmosphere at home and a good emotional relationship in the family environment are important factors in preventing the recurrence of drug use.^[21] Other similar studies have also reported such results, which are consistent with the results of our study.^[5] With increasing family conflicts, the value of peers increases for individuals, and social pressures from peers can increase the tendency to re-use drugs.^[14] Social support is a family and social factor that can make people resistant to sociopsychological problems and harms, including drug abuse.^[22]

Among environmental factors, "access to drug" was one of the significant predictors of recurrence. In this regard, results of studies conducted by Din Mohammadi *et al.*, Safari and Mousavi-Zade, and Sharg *et al.* revealed that access to drugs was one of the major factors affecting the tendency to re-use drugs.^[23-25] Based on the results of the present study, socializing with addicted friends and the presence of addicted people among close relatives were among the significant predictors of drug use recurrence among behavioral factors. In many studies, addicted friends reported unhealthy social environment as a major factor affecting the tendency to re-use drug.^[12,25,26]

In this regard, it can be stated that the high prevalence of addiction among close relatives breaks the taboo of drug use for many of them and makes them more likely to re-use drugs. Furthermore, encouragement to re-use drugs by addicted friends can affect drug use recurrence. Subcultures of drug users also play a critical role in their tendency to re-use drug for some kind of social pressure, thereby increasing the drug use recurrence rate.^[14,27,28]

Evaluating the determinants of relapse of substance use at different levels (individual, interpersonal, environmental and social) in addicts was one of the strengths of this study. Since the required data in this study were collected using a questionnaire, it has limitations since some patients might not have had an honest cooperation with the research team and provided no accurate and real information. Another limitation of this study was to collect data using a questionnaire since it could lead to recall bias. Accordingly, some longitudinal studies are recommended. Moreover, this study included only male addicts, and it is not clear whether the same findings would be obtained for the female addicts. Therefore, it is suggested that similar studies be performed on addicted women in future studies.

Conclusion

According to the findings of this study, several risk factors such as demographic variables (marital status), individual factors (e.g., personal willingness and pleasure and enjoyment), interpersonal factors (e.g., family disputes), environmental factors (e.g., access to drugs), and behavioral factors (e.g., socializing with addicted friends and the presence of an addict among close relatives) were important predictors of substance use relapse. As a result, the abovementioned factors at the level of public policy should be considered to determine appropriate policies in order to prevent the substance use relapse. In this regard, planning and implementing educational interventions would also be beneficial.

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Conflicts of interest

There are no conflicts of interest.

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