The Relationship between Demographic Factors and Substance Craving Among Drug-Dependents

Fatemeh PoorSeyedMousaiee, Valiollah Mousavi, Mosa Kafi

Fatemeh PoorSeyedMousaiee
M.A. of Psychology
Lecturer, Gilan University
E-mail: e.poorseyd@yahoo.com

Valiollah Mousavi
Associate Professor, Psychology Department
Gilan University
Iran

Mosa Kafi
Associate Professor, Psychology Department, Gilan University
Iran

Research on Addiction Quarterly Journal of Drug Abuse
Presidency of the I. R. of Iran
Drug Control Headquarters
Department for Research and Education

Vol. 8, No. 32, Winter 2015
http://www.etiadpajohi.ir/

Abstract

Objective: This study was conducted with the aim of examining the role of demographic factors such as age, marital status, education degree, the age of initiating addiction, duration of addiction, monthly cost of drug use, and an incarceration history in the intensity of addicts' craving for substance use. **Method:** In this descriptive and cross-sectional study, 195 male addicts, after being interviewed, were selected as the participants of the study via convenience sampling method. They constituted six groups of opium smokers, heroin inhalers, heroin smokers, heroin injectors, methamphetamine smokers, and crack smokers and answered the questions of demographic characteristics and Franken's desire for drug questionnaire. Indeed, substance craving of the respondents was measured by the computerized test of measuring visual indicators of substance craving. **Results:** The results showed that there is a significant positive relationship between education degree and induced substance craving, monthly cost of drug use and induced substance craving, and also between education degree and instantaneous substance craving. **Conclusion:** Some demographic factors can be important factors in predicting substance craving in addicts, which is, in itself, among the significant dimensions in treatment process.

Keywords: Demographic Factors, Substance Craving, Substance Dependence

Introduction

Addiction is a chronic disease that is influenced by a variety of biological, psychological, and social factors. Not many phenomena can be found that threaten human society as terribly as addiction. Despite the risks and complications of addiction, the number of victims of this deadly trap is being added every day and even the observations of its terrible scenes has not managed to act as a serious warning for the avoidance of other people, especially the youth community. Addiction victimizes people so quietly that no addicts remember the initiation of their addiction. Craving for substance use plays an important role in relapse after abstention and the maintenance of consumption status and drug dependence. Substance craving can be defined as an intense and resistant desire for drug use. If such a desire is not satisfied, psychological and physical pains such as weakness, anorexia, anxiety, insomnia, depression, and aggression will show up (Addolorato, Leggio, Abenavoli & Gasbarrini, 2005; cited in Mokri, Ekhtiari, Hassani Abharian & Ganjgahi, 2008). Rosenberg (2009) referred to craving as a personal experience and multidimensional phenomenon that is mixed with the desire and passion to get a pleasant feeling and overcome an unpleasant feeling. Studies have shown that demographic factors such as age, gender, education, type of drug, method of use, and a history of previous treatment can influence the severity of substance craving and, consequently, the success of treatment. Mokri, Ekhtiari, Edalati & Ganjgahi (2008) showed that higher substance craving is correlated with age, duration of addiction, low level of education, and higher daily cost of drug use among heroin injectors. The results of this survey showed that heroin injectors who experience a more intense substance craving are more sensitive to the symptoms associated with it and also experience a larger number of deprivation signs. Fox et al. (2005) found that longer duration of drug use in cocaine addicts is associated with higher levels of substance craving.

Walton Moss & Mc Coul (2006) found that a history of unsuccessful treatment and relapse experience has a significant relationship with higher levels of substance craving, more drug use, higher score of alcohol use, serious legal problems, a history of at least three times pregnancy, and a history of physical abuse. Guindalini, Wallada, Breen & Laranjera (2006) compared consumers of cocaine powder, crystal, and consumers of both substances and observed that those who were taking both of the substances were younger than the other two groups and had higher levels of substance craving and lower education degrees than the consumers of cocaine powder. Similarly, this group had been more involved in arrest and incarceration compared to the other groups. Elman, Karlsgodt & Gastfriend (2001) reported that female cocaine users showed higher substance craving during their treatment duration than their male counterparts. Due to what was mentioned above, the present research is aimed at examining

the relationship between demographic characteristics and substance craving severity in drug-dependent people.

Method

Population, sample, and sampling method

This descriptive and cross-sectional study was conducted on 195 male addicts in six groups (25 heroin injectors, 25 heroin smokers, 26 heroin inhalers, 36 opium smokers, 38 crack smokers, and 45 methamphetamine smokers) who were selected from the addicts referring to rehabilitation centers of Rasht via convenience sampling. The criteria for the inclusion of the participants in this study were: literacy, consent, placement in substance abusers in line with Diagnostic and Statistical Manual of Mental Disorders criteria (revised fourth edition), substance type, and method of substance use in the last six months. The exclusion criteria were: the specialists' request based on their examination, the main clinical intemperance symptoms such as runny nose, musculoskeletal pains, hand tremors, being unwell, the last time of substance use, and the use of other psychotropic medication.

Instrument

Inventory of demographic characteristics: This inventory included demographic characteristics such as age, marital status, education degree, the age of initiating addiction, duration of addiction, monthly cost of drug use, and incarceration history, and history of drug sales. These pieces of information were collected by the interviewer based on constructed forms of interviews.

Desire for drug questionnaire (DDQ): This questionnaire was designed by Franken & Hendricks with an emphasis on substance craving as a motivational state and measures instantaneous craving at the time of assessment (2002). The questionnaire consists of 14 questions which encompasses three factors. The first factor is desire and intention, which contains the items numbered 1, 2, 12, and 14. The second factor is propensity to consume and negative reinforcement or the belief in tackling life problems and gaining concurrent enjoyment with substance use, this factor includes the items numbered 4, 5, 7, 9, and 11. The third factor is pleasure and the absence of control which contains the questions numbered 3, 6, 8, 10, and 13. It is noteworthy that these three components together share a high correlation together. The internal consistency of the components of this questionnaire was obtained .89, .79, and .4 based on the scores of different types of opiate abusers, including heroin and crack while this value was obtained for the three components equal to .78, .65, and .81 based on the scores of methamphetamine abusers. In the present study, the internal consistency was evaluated through Cronbach's alpha and the results were suggestive of the following coefficients for the total scale: .96 for opium users,

.95 for crack users, .90 for methamphetamine users, .94 for heroin smokers, .94 for heroin inhalers, and .98 for heroin injectors.

Visual assessment of substance craving: This test consists of ten images. Since the consumption of any of the substances is followed by specific conditions, the signs that inspired craving also varied for different drug users (according to the type of drug). Hence, specific tests were employed for each. In this test, the respondent sees the images on the computer screen and is asked "to what extent the image creates craving". The respondent is required to rate his/her craving on a 7-degree scale from "not at all, which means no craving" to "extremely, which means 7 and shows the end of craving". The number that is obtained between 0 and 7 represents the respondent's craving. Amongst the total of ten images, two images (pen and battery) were shown in each of the 5-image categories as neutral or control images. In this way, if the mean score of substance craving in the two control images were higher than 20, this would be considered as a fault and excluded from statistical analysis. This test has been designed based on the studies done by Ekhtiari, Behzadi, Aghabian, Edalati, & Mokri (2006) and Ekhtiari, et al (2008).

Results

The sample consisted of six sub-groups depending on the type of substance and method of consumption. There were 9 single and 16 married participants in heroin injectors, respectively. In this group, 21 participants had an incarceration history and 21 participants had a history of drug sales. In the group of heroin inhalers, 4 participants were single and 22 ones were married. In this group, 19 participants had an incarceration history and 16 participants had a history of drug sales. Among heroin smokers, 6 people were single and 19 people were married. The number of 19 participants of this group had an incarceration history and 17 people had a history of drug sales. In the group of opium smokers, 11 participants were single and 22 ones were married. In this group, 7 participants had a history of incarceration and 8 people had a history of drug sales. In the group of crack smokers, 22 participants were single and 15 ones were married. In this group, 26 participants had a history of incarceration and 13 people had a history of drug sales. Last but not least, in the methamphetamine group, 35 participants were single and 7 ones were married. In this group, the number of 16 participants had an incarceration history and 24 people had a history of drug sales.

Descriptive statistics of the demographic variables are presented in the following table for each group.

Table 1: Descriptive statistics of the demographic variables for each group

Variable	*Heroin smokers*		*Heroin inhalers*		*Heroin injectors*	
	Mean	***SD***	***Mean***	***SD***	***Mean***	***SD***
N	25	-	26	-	25	-
Age	39.59	7.95	44.23	6.68	38.36	6.64
Education	9.60	3.04	8.76	5.32	8.56	2.38
Age of initiating addiction	22.80	3.30	26.11	5.22	22.92	3.10
Addiction duration	16.76	7.07	18.11	5.80	15.44	5.16
Monthly cost of drug use	646000	26700	539230	25100	768400	39600
Variable	*Methamphetamine*		*Crack smokers*		*Opium smokers*	
	Mean	***SD***	***Mean***	***SD***	***Mean***	***SD***
N	45	-	38	-	36	-
Age	26.91	4.95	29.47	5.01	36.91	9.69
Education	11.46	3.50	9.39	2.69	9.72	3.26
Age of initiating addiction	20.60	3.70	20.23	3.59	25.58	5.75
Addiction duration	6.31	3.72	9.23	5.61	11.41	6.15
Monthly cost of drug use	793777	42000	622631	42900	430555	91493

The descriptive statistics pertinent to substance use craving are presented in table 2.

Table 2: Results of six visual tests pertinent to substance craving in the six groups (N=195)

Substance craving test	N	Images of drug use tools		Images of drugs		Images of drug use act		Images of drug use act and tools		Multiple images		Reliability	
		Image 1	Image 2	Image 3	Image 4	Image 5	Image 6	Image 7	Image 8	Image 9	Image 10	Mean of substance craving	Cronbach's alpha
1.Crack smoking	38												
		4.18 (1.9)	5.52 (1.76)	5.84 (1.58)	5.57 (1.62)	5.47 (1.85)	5.55 (1.75)	5.5 (1.81)	5.72 (1.62)	5.57 (1.82)	5.65 (1.75)	5.45 (1.59)	0.97
2.Heroin injection	25												
		5.24 (1.56)	4.88 (1.76)	5.16 (1.65)	4.96 (1.90)	4.84 (2.25)	4.84 (2.20)	4.72 (2.12)	5.08 (1.89)	4.88 (2.04)	4.56 (2.02)	4.91 (1.74)	097
3.Heroin inhalation	26												
		5.5 (1.20)	5.24 (1.46)	5.52 (1.10)	5.61 (1.06)	5.69 (1.01)	5.61 (1.16)	5.42 (1.29)	5.52 (1.06)	5.46 (1.02)	5.52 (1.12)	5.58 (1.00)	0.96
4.Heroin smoking	25												
		5.68 (1.31)	5.44 (1.72)	5.48 (1.58)	5.36 (1.46)	5.4 (1.47)	5.4 (1.60)	5.56 (1.08)	5.44 (1.26)	5.56 (1.32)	5.56 (1.32)	5.48 (1.17)	0.94
5.Opium smoking	35												
		3.55 (1.62)	4.30 (1.81)	4.52 (1.62)	4.36 (1.94)	4.55 (1.66)	4.44 (1.76)	4.25 (1.62)	4.41 (1.74)	4.55 (1.66)	4.47 (1.76)	4.37 (1.49)	0.96
6.Methamphetamine	45												
		6.15 (1.26)	6.48 (0.78)	6.57 (0.83)	6.22 (1.16)	6.26 (1.07)	6.48 (0.94)	6.12 (1.32)	6.22 (1.25)	6.26 (1.19)	6.17 (1.43)	6.3 (0.79)	0.90

Pearson's correlation coefficient was used to examine the relationship between demographic variables and substance craving as follows.

Table 3: Correlation matrix of demographic variables and components of substance craving

Variable	*Age*	*Education*	*Age of initiating addiction*	*Addiction duration*	*Monthly cost of drug use*
Education	***-.24	1	-	-	-
Age of initiating addiction	***.67	-.07	1	-	-
Addiction duration	***.858	***-.265	**.195	1	-
Monthly cost of drug use	.06	.002	**-.176	.04	1
Stress	-.04	***.231	-.04	-.03	*.142
Induced craving	-.10	***.238	-.09	-.07	*.16
Instantaneous craving	-.07	**.198	.004	-.10	.11
Desire and intention	-.05	**.217	.01	-.09	.12
Negative reinforcement	-.06	**.192	-.01	-.07	.07
Pleasure and the absence of control	-.09	*.156	.01	-.12	.125

* P<.05; ** P<.01; *** P<.001

The results of the Pearson correlation coefficient show that induced craving has a significant positive correlation with education and monthly cost of drug use and also between education and instantaneous craving.

Stepwise regression analysis was used to determine whether education and monthly cost of drug use predict substance craving. It is necessary to heck the assumptions of using regression analysis before employing it. To this end, Durbin-Watson test was done for evaluation of error transmission, collinearity test with two indexes of tolerance factor and variance inflation factor was conducted for evaluating the normality of distribution. Durbin-Watson statistic was obtained 1.97 in terms of the prediction of instantaneous craving for substance use by education while this value was obtained equal to 1.68 in terms of the prediction of induced craving for substance use by education and monthly cost of drug use which are indicative of error transmission and normality of data distribution.

Table 4: Stepwise regression analysis of induced and instantaneous craving for drug use based on demographic variables

Predictor variables	*Criterion variables*	*R*	*R^2*	*Df*	*F*	*B*	*Beta*	*t*	*Tolerance*	*VIF*
Education	Induced craving	.238	.052	193, 1	11.59	.116	.239	3.44	9.3	1.07
Monthly cost	Induced craving	.282	.07	192, 2	8.32	6.06	0/152	2.196	9.3	1.07
Education	Instantaneous craving	.195	.03	193, 1	7.60	.06	.112	1.59	1	1

Discussion and Conclusion

The concept of craving for substance use can be considered as a personal experience and multidimensional phenomenon that is mixed with the desire and passion to get a pleasant feeling and overcome an unpleasant feeling (Rosenberg, 2009). Cognitive factors such as strong tendency to drug use, intention to drug use, and one's expectation of the effect of the substance are effective in the development of substance craving. Various symptoms such as the display of images associated with drugs strengthen one's motivation for drug use and create an irresistible sense to substance use. This situation continues even months or years after the end of drug abuse and can be the main reason for addiction relapse after detoxification (cited in Ekhtiari, et al., 1389).

As per the relapse prevention model, craving for substance use is motivated by environmental or psychological stimuli. Thoughts and feelings pertaining to craving for substance use have a strong association with temptation for substance consumption. In many cases, substance craving is very debilitating to addicts and they are directed to return to drugs. Following this slip, relapse into drug use is triggered which can be intensified by being in high risk situations. High risk situations can be divided into three main groups. The first one refers to a situation that leads to the formation of negative emotions such as stress, anxiety, and depression. The second one refers to positive mood states such as attendance in parties which can also stimulate internal excitation. The third high risk is habit or repetition of patterns of behavior. According to conditioning, habit or repetition of consumption will lead to the establishment of associations, like viewing the environments that evoke old memories (Bazmi, 2011). According to cognitive theory, the association and recall of one of the signs that are coded together and enter memory will lead to the activation of all of them. In other words, recalling each of the situations associated leads to the persistence of drug use (Ekhtiari et al., 2010). In this study, the relationship between demographic factors and substance craving has been examined. Studies in the field of visual cues that induce craving for substance use in addicts in Iran have shown that substance craving is one of the most influential indicators of inducement. In this regard, demographic characteristics such as age, gender, education, type of drug,

method of consumption, and the history of previous treatment can affect the severity of craving.

In this study, amongst demographic indicators, education and monthly cost of substance use had a significant positive correlation with stress and induced craving for substance use; and education also was positively correlated with instantaneous craving for substance use and its subscales such as desire and intention for drug use and negative reinforcement or the belief in tackling the life problems and gaining concurrent enjoyment with substance use. In terms of monthly cost of drug use, it can be argued that the consumption of narcotic drugs and alcohol is a way to avoid negative emotions and stress among addicts. Since this effect is temporary, higher levels of consumption, followed by the repeated consumptions are necessary to achieve the initial feeling of pleasure. According to the incentive model, the experience of craving is more enjoyable than deprivation, particularly in relation to positive stimuli such as amphetamines and conditioned responses. Rising consumption rate is associated with high levels of substance use craving. This finding is consistent with that of Fox et al. (2005) who showed that higher rate of drug consumption will be tantamount to more stimulation of pleasure areas and, thereby, people experience more cravings. Tolliver et al (2010) concluded that craving was strongly correlated with the repetition and dose of methamphetamine during 60 days before the experiment. In one study, it was shown that longer duration of cocaine use is associated with self-administration behavior, anxiety, and substance craving (Foltin & Fischman, 1997; Evans, et al., 2002, cited in Fox et al., 2005; Walton-Moss & McCoul, 2006). In the present study, no relationship was found between duration of addiction and craving for drug use. This contradiction in terms of longer duration of cocaine use can be attributed to the nature of dependence on this substance which brings a weaker dependence compared to opioid and industrial drugs. In terms of the relationship between education and craving, it can be stated that the activity of the autonomous nervous system will become higher under the influence of stress, especially educational stresses and the experiencers of such stresses get less accustomed to repetitive stresses. The increase of cortisol level means the intensity of activity and stress which leads to higher levels of craving for substance use. Gostigan and Antony believe that drug use patterns in the form of taking addictive drugs such as crack, methamphetamine, and Temgesic are more available in people with higher education, although cultural poverty and the low level of education have been representative of an increased rate of addiction in all the related studies (cited in Najjari, 2007).

One of the limitations of this study was the lack of proper cooperation on part of some rehabilitation centers due to the immorality of displaying the images pertinent to craving for drug use which negatively influenced the process of conducting this survey. As far as the sample was composed of the volunteers who had referred to rehabilitation centers, it is possible that a sense of disgust has been created in some of the participants with regard to some images. These

conditions are caused by psychological preparation of them for entry into treatment period or perhaps personal considerations to show the willingness to enter treatment. Therefore, care and discretion should be exercised in generalizing the findings of the research. It is suggested that the effectiveness of craving control methods among people with different personality traits be investigated in future studies. Due to the differences in addiction and drug properties between Iran and other countries, the conduct of more accurate studies in terms of the intensity of craving for substance use on Iranian contexts and samples seems indispensable.

Reference

Bazmi, N. (2011). *Psychology of Drug Dependence*, Tehran: Arjomand Publication.

Ekhtiari, H., Behzadi, A., Aghabian M., Edalati, H. & Mokri, A. (2006). Visual cues inducing substance craving among heroin injectors, *Advances in* Cognitive *Science,* 8 (31), 43-51.

Ekhtiari, H., Edalati, H., Behzadi, A., Safaea, H., Noori, M. & Mokri, A. (2008). Construction and evaluation of the effectiveness of five visual tests of assessment of substance craving in addicts, *Iranian Journal of Psychiatry and Clinical Psychology*, 14 (3), 337-349.

Ekhtiari, H., Elm Mehrjerdi, Z., Hassani Abharian, P., Noori, M., Farnam, R. & Mokri, A. (2010). Examination and evaluation of the words inducing substance craving in Persian substance abusers, *Advances in* Cognitive *Science,* 12 (2), 69-82.

Elman, I., Karlsgodt, K.H., & Gastfriend, D. R. (2001). Gender differences in cocaine craving among non-treatment –seeking individuals with cocaine dependence. *American Journal of drug and alcohol Abuse*, 27,193-202.

Fox, H.C., Talih, M., Malison, R., Anderson, G.M., Jeanne kreek, M., Sinha, R. (2005). Frequency of recent cocaine and alcohol use affects drug craving and associated responses to stress and drug related cues. *Psychoneuroendocrinology*, 30,880-891.

Franken, I. H. A., Hendricks, V. M. (1999). Predicting outcome of inpatient detoxification of substance abusers. *Psychiatric Services*, 50, 813-817.

Guindaline, C., Wallada, H., Breen, G., & laranjera, R. (2006). Concurrent crack and powder cocaine users from Sao Paulo: Do they represent a different group? *BMC public Health*, 6(10).

Mokri, A., Ekhtiari, H., Hassani Abharian, P. & Ganjgahi, H. (2010). Validation of instantaneous and periodic substance craving scale among consumers of all kinds of opiates (heroin, crack, and methamphetamine), *National Center for Addiction Studies*, Tehran University of Medical Sciences.

Mokri, A., Ekhtiari, H., Edalati, H. & Ganjgahi, H. (2008). The relationship between substance craving and different dimensions of addiction severity among heroin injectors, *Journal of Psychiatry and Clinical Psychology*, 14 (3), 298-306.

Najjari, F. (2007). Evaluation of addiction in the addicted women referring to rehab centers in Tehran in 2005-2006, *Journal of Medical Council of Islamic Republic of Iran*, 25 (4), 457-463.

Rosenberg, H. (2009). Clinical and Laboratory assessment of the subjective experience of drug craving. *Clinical Psychology Review*, 29 (6), 519 – 534.

Tolliver, B.K., McRae -Clark, A.L., Saladin, M., Price, K. L., Simpson, A.N., Desantis, S, M., Baker, M. L., Brady, K.T. (2010). Determinants of Cue - Elicited Craving and Physiologic Reactivity in Methamphetamine - Dependent subjects in the laboratory. *The American Journal of Drug and Alcohol Abuse*, 36, 106-113.

Walton-Moss, B., McCoul, M.E. (2006). Factors associated with life time history of drug treatment among substance dependent women. *Addiction Behaviors*, 31, 246-253.