Factors Effective in Drug Abuse from the Perspective of University Students: Application of Fuzzy Cognitive Maps

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Abstract

Objective: This study is an attempt to examine the factors influencing drug use from the perspective of university students through fuzzy cognitive maps. **Method**: The number of 20 Master's students in Islamic Azad University of Urmia constituted the participants of this study. They responded to a questionnaire consisting of 30 fuzzy items. **Results**: The results of this study showed that the unemployment rate with the outer degree of 1.53 is the most effective variable among other variables. Family members' addiction with the outer degree of 1.08 and deviant peers with the outer degree of 0.70 were the next effective factors in the model. On the other hand, the inner degree index showed that addiction with the inner degree of 7.03 was the factor that was influenced to the greatest extent by the other available factors in the map. In this regard, deviant peers with the inner degree of 1.37 and hope for the future with the inner degree of 0.72 were placed in the second and third in terms of the degree of the effect they received from the other factors. The results also showed that when students are unemployed, they will be more likely to turn to deviant peers to spend leisure time with and, subsequently, they will be susceptible to get trapped in substance use. **Conclusion**: These findings have important implications in regard to the assignment of attention to the factors contributing to drug abuse among students and the development of necessary measures to prevent students' tendency to social problems, especially drug use.

Keywords: drug abuse, fuzzy cognitive maps

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

Vol. 11, No. 41, Spring 2017
http://www.etiadpajohi.ir

Introduction

Addiction is one of the most fundamental issues related to the health of the social community. This problem is one of the most important social traumas that threatens the health of individuals and society, and also leads to psychological and moral decline. Drug addiction is a mental, recurrent, and chronic illness along with motivational disorders and loss of behavioral control that leads to the destruction of the human personality. Drug addiction and dependency, as the most important problem related to youth health (Mohyeddin, Hooshyar, Mohammadi Esfahani, & Ghaffari, 2012), the second most common psychiatric disorder (Kazemiyan & Delavar, 2012), and one of the most risky behaviors during childhood, adolescence, and youth (Wimberg, 2002; quoted in Babapour kheiroddin, Dadashzadeh & Toosi, 2011), is one of the major problems in the biological, cultural, mental, social, behavioral, and spiritual areas (Narimani & Pour Esmaeili, 2011). It is accompanied by significant impacts and antecedents in these areas. In other words, substance abuse has been one of the most serious problems pertaining to human beings as well as a complicated phenomenon in recent years which, as a maladaptive pattern of drug consumption, causes to occupational, social, and legal problems (Mansoori Jaliliyan & Yazdanbakhsh, 2014). By changing thoughts, mood, personality, and behavior, it can easily destroy the foundations of one's individual, family, and social life (Turner, Macdonald, & Somerset, 2008). Substance abuse can also seriously lead to the decline of the world nations' health, security, and economy (Akbarzadeh, Akbarzadeh & Javanmard, 2014; Hosseinifar, 2011).

This phenomenon, whose diagnosis and treatment are currently considered as the first issue in the battle against behavioral diseases, such as AIDS, hepatitis, and other diseases (Margooline, 2006; quoted in Ajilchi, Naderi & Ghaemi, 2010), have always imposed several problems in human life. These problems include general health decline, increasing mortality, family, and social trauma, loss of educational and occupational opportunities, increasing rates of conflict with the judiciary system, generating a drug use cycle, the continuation of trauma and its recurrence in the subsequent generations (quoted in Aderam & Nickmanesh, 2012). According to statistics, millions of people suffer from this disorder all around the world, which is often manifested by other mental illnesses and can impose various social and economic costs on the society (Dollas, 2010; quoted in Alimoradi, 2011).

In general, addiction or maladaptive patterns of drug use lead to disorder or distress which is of clinical importance. This pattern emphasizes on the high frequency of maladaptive behaviors, the lack of control, the ignorance of pleasures and other desires in favor of the substance. Addiction occurs when a person takes the compulsory behaviors to obtain the given substance and loses the control over the use of that substance (Mohammadzadeh & Aghaei, 2014; Ganji, 2013). In fact, addiction is a person's captive entanglement to a substance

or opiate that makes him physically and psychologically dependent and affects his individual and social behaviors, and, as the most important social trauma, attacks to the human community (Mehryar, 2009). Unfortunately, the spread of drug use in today's societies is so high that even the thoughtful and educated class has come to its notice. Undoubtedly, drug use has undesirable and significant psychological, social, humanistic, economic, political, educational, and cultural impacts on the structure and functioning of the society (Savadkoohi, Arjmand, & Nowroozi, 2006).

From the psychological point of view, the destructive effects of addiction are so significant because its immediate consequences are not limited to the addict, but the surrounding environment, friends and family members, and their co-workers are also exposed to its destructive effects (Keldy & Mahdavi, 2003). Furthermore, Substance abuse among Iranian youth, especially students and university students, is a major concern for scholars and policymakers (Ahmadi & Estwane, 2002). Since in drug addiction, like other illnesses and problems, treatment has received a great deal of attention rather than prevention, there has not been much success in this regard. However, in addition to providing a comprehensive understanding of the mechanism and the nature of addiction and identifying the causes and factors behind it, it is necessary to set the grounds in order to provide the public awareness and understanding about this phenomenon. With regard to the aforementioned explanations, investigating the social, cultural, economic, political, and medical causes of addiction and the factors influencing the attitude of different classes of people toward drug is one of the significant issues in the social medicine; it will provide essential information for medical and social decision making pertaining to this massive social class. A considerable amount of research has been conducted in the area of causality of drug dependence, and new issues have always been raised.

During the past decade, several risky factors have been identified for substance abuse. These factors include: high level of conflicts in families, educational problems, simultaneous psychological disorders like depression, drug use by peers and parents, impulsivity and beginning to smoke at an early age. The higher the number of risky factors in one person, the more likely s/he is exposed to drug use (Sadeghiyeh Ahari, Azami, Brak, Amani, & Seddiq, 2004). In addition to the above-mentioned factors and according to the results of the conducted research in this area, some factors are also effective in addiction relapse. These factors include personality disorders, the reversal of the traditional hierarchy of the family and feeling of insecurity in the family, the weak mutual relationship between family members, the life and work environment, the existence of an addicted person in the family, addicted friends, being rejected by the family, the loss of social and occupational status, and unemployment.

As noted earlier, several factors are associated with the occurrence of addiction. These factors have also mutual and complicated interactions with each

other. The point here is that it is not possible to examine these factors via correlations or interventional designs due to the high number of variables. In such cases, according to the scholars, the best way to discover these factors and how they affect a phenomenon is to use fuzzy cognitive maps (Hossain & Brooks, 2008). In Iran, youth are the largest and the most susceptible group of people who are exposed to addiction (Chirilu, translated by Pirmoradi, 1999). So far, no research has been conducted on factors influencing drug abuse employing this method. Thus, the purpose of this study is to investigate factors affecting substance abuse using a fuzzy cognitive map approach from the perspective of university students. The findings of this study could be helpful in providing suggestions and recommendations for struggling against substance abuse and in preventing this harmful habit in young people.

Method

Population, sample, and sampling method

The present research is an exploratory research using fuzzy cognitive maps. Cognitive maps were first introduced by Axelrod. These maps represent the causal relationships among several objects or issues, which include expert opinions about a mental reality. The cognitive map contains two major elements, including concepts and causal relationships. Concepts and causal relationships are represented as the variables and the relation between variables respectively. Causal relationships connect the variables and could be positive or negative. Variables leading to change are called the cause variable, while the variables affected by changes are called effect variables. With regard to the qualitative nature of the cognitive maps, and on the other hand, with regard to the fuzzy logic capability in quantization, Kosko introduced fuzzy cognitive maps with fuzzy weights (Kosko, 1986). In these maps, the paths in addition to having a positive or negative direction, take numeric weights of -1 to 1. These weights indicate the impact degree of the variables on each other. Fuzzy cognitive maps eliminate the problem of uncertainty in determining the overall effect.

The participants of the present study consisted of Master's students at Islamic Azad University of Urmia, who had in-depth information about addiction. They were selected by the snowball sampling method. That is, after finding and interviewing the first student who had enough information about addiction, he was asked to introduce another person with enough knowledge in this area to be interviewed. This process continued until the last interviewee was selected. Fuzzy cognitive maps are based on the views of people who provide rich information about the discovery of causal mechanisms between variables. Given the exploratory nature of this method and the long-time period of data collection, using a large sample size is not possible. In addition, since this method deals with exploration rather than generalization, there is no need for sampling (Özesmi & Özesmi, 2004). Özesmi and Özesmi (2004) suggest 10-30 as the appropriate sample size for this type of research. In this research, due to the

length of the interview 20 students were selected as the sample. Data collection in the cognitive map method is done in three ways. Sometimes, researchers want to use a questionnaire. In this regard, by studying the previous research conducted in the area of the study, the effective factors and how they affect each other are extracted and identified. Then, a questionnaire is designed and the participants are asked to identify the negativity and positivity of effects and also their extent (Hossain & Brooks, 2008). The second method is employing a fuzzy matrix in which the factors affecting a phenomenon are implemented on a matrix and the participants are required to identify the extent of the effect of the phenomenon on it (Doostmohammadi, Ghobeishi, & Amani, 2012). In the third method, which is carried out in the form of an interview, the participants are asked to draw the phenomenon and the factors affecting it on a white paper in a circle form and also identify paths to indicate how these factors influence on the given phenomenon and on themselves. In addition, they should determine its negativity and positivity on the paths (Özesmi & Özesmi, 2004). A questionnaire was used in the process of data collection. To design a research questionnaire, the method used by Hossain and Brooks (2008) was employed. First, by studying the previous research conducted in the area of the study, the effective factors and how they affect each other were extracted and identified. These factors and how they influence on each other are presented in Fig. 1.

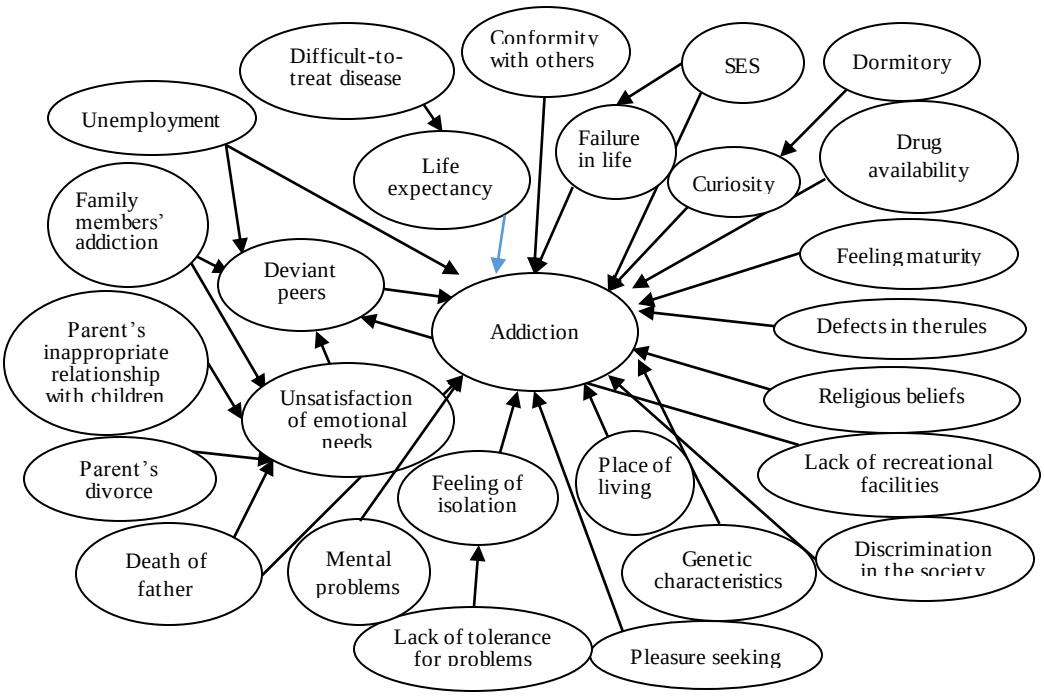

Figure 1: A Theoretical Model of Factors influencing Students' Addiction Based on previous research

After identifying the effective factors and how they influence on each other and also on addiction, these pathways were turned into declarative sentences. An example of these sentences is: "Hope for the future has a positive/negative, low/medium/ high / very positive / no effect on addiction". After constructing the questionnaire, the expert was asked to identify whether or not the specified factor in the sentence affects the other factor? If no, draw a circle around the word "does not have". If the answer is yes, identify the direction of the effect, i.e., negative or positive, at the beginning of the sentence. And then identify the size of the effect, i.e., low / medium / high/ and very high. Furthermore, the participants were asked to write such sentence as above if there are factors influencing addiction other than those mentioned above.

Results

After collecting the data, the completed questionnaires turned into matrices. A sample matrix of one of the participants is illustrated in Table 1.

Table 1: A sample matrix extracted from the data

variables	*addiction*	*Failure in life*	*Curiosity*	*Peer group*
addiction	-	high	none	none
Failure in life	very high	-	none	none
Curiosity	medium	none	-	none
Peer group	none	none	none	-

After completing the matrices for all participants, this matrix turned into the fuzzy numbers based on the criteria of Hossain and Brooks (2008). According to this criterion, the words none, low, medium, high, and very high received the score of 0, (0.25), (0.5), (0.75), and (1) respectively. The fuzzy numbers matrix of table 1 is presented in Table 2.

Table 2: Fuzzy Numbers Matrix of one of the participants

variables	*addiction*	*Failure in life*	*Curiosity*	*Peer group*
addiction	-	0.75	0	0
Failure in life	1	-	0	0
Curiosity	0.5	0	-	0
Peer group	0.5	0	0	-

After transforming the completed matrix by the students into the fuzzy number matrix, these matrices were combined and the complete fuzzy matrix was obtained. This matrix was then analyzed by the FCM mapper software. It is very difficult to analyze complex cognitive maps, but graph theory provides some ways to analyze their structure. By testing the map structures, we can identify how the experts view the system. To analyze the cognitive map, we can count the number of variables and the number of connections between them. However, the graph theory provides other indicators in addition to the number of connections and variables. The density of a fuzzy cognitive map is its connection index that shows how much the map is connected or separated (Özesmi & Özesmi, 2004). Density and the network size are inversely associated

with each other. Therefore, as the variables increase, the number of possible paths significantly increases. Due to this network-size dependency, the network density is not a useful tool for interpretation (De Nooy, Mrvar, & Batagelj, 2005). But the degree of centrality is a very useful tool for comparing variables in a map or network. The contribution of a variable in a cognitive map can be examined by computing its centrality, which indicates how a variable is connected to other variables. It can also show how strong the density of this connection is. In the fuzzy cognitive maps, unlike the cognitive maps, due to the fact that the weight of the paths is considered in calculating the centrality, one variable can have the centrality, even if it has little connection with the other variables. It is due to the fact that it may have much weight with the connected variables.

The centrality is the sum of the inner degree and the outer degree. The inner degree is the number of orientated arrows pointing to a node or a variable, and the outer degree is the number of vertices or causal paths that exit from a node or a variable. In addition, if the inner degree of a variable is positive and its outer degree is zero, it is called the transmitter, which represents that the variant is effective. If the inner degree of the variable is positive and its outer degree is zero, it is called the receiver and it shows that the variable is affected. Ordinary variables have also the positive inner and outer degree, indicating the capability of the variable to affect and to be affected (Özesmi & Özesmi, 2004). According to these explanations, the complete fuzzy numbers matrix of the participants is illustrated in table 3 and the subsequent analyses are performed based on this matrix. Table 4 represents the results of the cognitive maps analysis for this matrix.

Table 3: the final fuzzy numbers matrix for students

Variables	*addiction*	*Hope for future*	*Failure in life*	*curiosity*	*Feeling of isolation*	*The unsatisfaction of emotional needs*	*Deviant peers*	*Unemployment*
Hope for future	0.33	-	-	-	-	-	-	-
Difficult-to-treat disease	-	0.35	-	-	-	-	-	-
Conformity with others	0.2	-	-	-	-	-	-	-
Social and economic status	0.01	-	0.01	-	-	-	-	-
Failure in life	0.57	-	-	-	-	-	-	-
curiosity	0.2	-	-	-	-	-	-	-
Living in dormitory	-	-	-	۰/۳۶	-	-	-	-
Drug availability	0.52	-	-	-	-	-	-	-
Feeling maturity	0.19	-	-	-	-	-	-	-
Defects in the rules	0.1	-	-	-	-	-	-	-
Religious beliefs	0.03	-	-	-	-	-	-	-
Discrimination in the society	0.43	-	-	-	-	-	-	-
Genetic characteristics	0.19	-	-	-	-	-	-	-
place of living	0.55	-	-	-	-	-	-	-
Pleasure seeking	0.6	-	-	-	-	-	-	-
Feeling of isolation	0.53	-	-	-	-	-	-	-
Lack of tolerance for problems	-	-	-	-	0.49	-	-	-
mental problems	0.57	-	-	-	-	-	-	-
Death of close relatives	0.21	-	-	-	-	0.07	-	-
Deviant peers	0.7	-	-	-	-	-	-	-
Lack of recreational facilities	-	-	-	-	-	-	0.28	-
Parent's divorce	-	-	-	-	-	0.2	-	-
Parent's inappropriate relationship with children	-	-	-	-	-	۰/۰۹	-	-
Family members' addiction	0.52	-	-	-	-	0.05	0.51	-
Unemployment addiction	0.58	0.37	-	-	-	-	0.58	0.22

The graph indexes of the entire fuzzy cognitive map for students are presented in Table 4.

Table 4: The graph indexes of the entire fuzzy cognitive map for students

density	*factors*	*connections*	*transmitter*	*receiver*	*normal*
0.044	27	32	19	1	7

According to Table 4, the density of the students' cognitive map is 0.044, which indicates that 4.4% of all possible paths is available on the map. The total number of the variables in the model is 27. There are 32 connections between variables. That is, 32 causal paths cause the variables affect each other. The total number of transmitter variables or variables that only affects other variables is 19. In the student model, there is only one receiver variable or the variable that is just influenced by other variables. The number of variables that affect and are

affected by other variables is 7. In Table 5, the results of the analysis of fuzzy cognitive maps for each individual variable have been reported.

Table 5: Graph Indices for each of the variables for students

variables	*Inner degree*	*Outer degree*	*centrality*	*Variable type*
Hope for the future	0.33	0.72	1.05	normal
Difficult-to-treat disease	0.35	0	0.35	Sender
Conformity with others	0.20	0	0.20	Sender
Socioeconomic status	0.02	0	0.02	Sender
Failure in life	0.57	0.01	0.58	Normal
curiosity	0.20	0.36	0.56	Normal
Living in dormitory	0.36	0	0.36	Sender
Drug availability	0.52	0	0.52	Sender
Feeling of maturity	0.19	0	0.19	Sender
Defects in the rules	0.10	0	0.10	Sender
Religious beliefs	0.03	0	0.03	Sender
Discrimination in the society	0.43	0	0.43	Sender
Genetic characteristics	0.19	0	0.19	Sender
Place of living	0.55	0	0.55	Sender
Pleasure seeking	0.60	0	0.60	Sender
Feeling of isolation	0.53	0.49	1.02	normal
The unsatisfaction of emotional needs	0	0.41	0.41	Receiver
Deviant peers	0.70	1.37	2.07	Normal
Lack of tolerance for life problems	0.49	0	0.49	Sender
Mental problems	0.57	0	0.57	Sender
Loss of close relatives	0.28	0	0.28	Sender
Lack of recreational facilities	0.28	0	0.28	Sender
Parent's divorce	0.20	0	0.20	Sender
Parent's inappropriate relationship with children	0.09	0	0.09	Sender
Family member's addiction	1.08	0	1.08	Sender
unemployment	1.53	0.22	1.75	Normal
addiction	0.22	7.03	7.25	Normal

According to Table 5, the most important variable affecting other variables is the variable with the highest outer degree. With respect to this criterion, the unemployment variable with the outer degree of 1.53 is the main effective variable affecting on other variables. After that, the family members' addiction with an outer degree of 1.87 is the second effective variable in the model. The third effective variable is the deviant peer group with the outer degree of 0.70. Pleasure seeking with the outer degree of 0.60 is the fourth effective variable of the model. The least significant variables regarding effectiveness from the students' perspective are the socioeconomic status with the outer degree of 0.02 and religious beliefs with the outer degree of 0.03. In order to determine what variables in the cognitive map have received the most impact from the other variables, the inner degree index is used. According to Table 5, the most important affected variable is addiction with the inner degree of 7.03, indicating that this variable has received the most impact from the other factors in the map. The second affected variable is the deviant peers with the inner degree of 1.37.

The third affected variable is the hope for the future with an inner degree of 0.72. The centrality index, i.e., the sum of inner and outer degrees, is used to identify the important factors in the cognitive map. According to Table 5, the most important variable of students' cognitive map is addiction with centrality of 7.25. The second most important variable is deviant peers with the centrality of 2.07. The third most important variable of students' cognitive maps is unemployment with a centrality of 1.75. The fourth most important variable is the addiction of family members with a centrality of 1.08. The least important variables of students' cognitive maps are socioeconomic status with the centrality of 0.02 and religious beliefs with the centrality of 0.03. The students' fuzzy cognitive map is shown in Fig. 2.

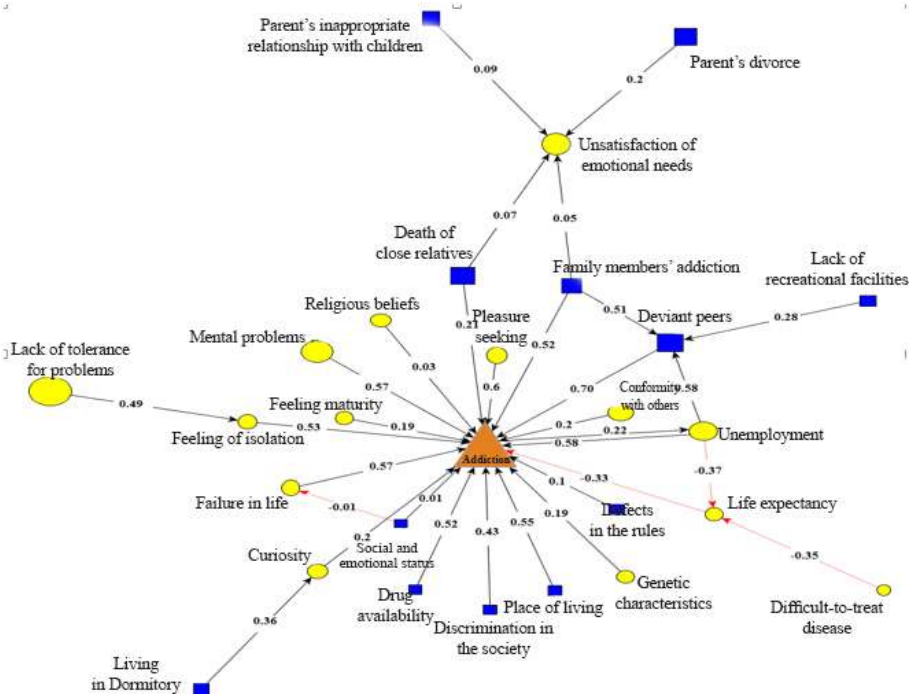

Fig. 2: Fuzzy Cognitive Map of Students

In Figure 2, a square is used to identify factors that are outside the individual. The circle is also used to illustrate the inner factors. Addiction as the main variable is shown by a triangle. According to this figure, from the students' perspective, three paths intensify the addiction. The first is the cycle between unemployment and addiction, so that the unemployment leads to drug abuse. Addiction also causes a person to lose his job, and as a result, the tendency to drug abuse intensifies. The second cycle that intensifies addiction is the cycle of unemployment, hope for the future, and addiction. In the way that the unemployment negatively affects the person's hope for the future. Decreasing hope for the future can also increase the likelihood of a person's drug abuse,

which also causes unemployed. This cycle continues and increases the person's addiction. The third cycle that is effective in intensifying students' addiction is made by the variables of addiction, unemployment, and deviant peers. In the way that the unemployment absorbs the individual into offender and deviant groups and membership in these groups also leads to the tendency toward drug use. Drug use also leads to job loss and unemployment, and the cycle continues.

Discussion and Conclusion

With regard to the findings of the study, the first and the most important variable affecting addiction from the students' attitude is unemployment with the outer degree of 1.53. The second variable is the family members' addiction with the outer degree of 1.08. Variables of deviant peers, pleasure seeking, mental and psychological problems, and failure with the outer degrees of 0.70, 0.66, and 0.57 were evaluated as the next factors influencing addition from the students' perspective. Effects of factors influencing addiction were evaluated from the students' point of view. In explaining this finding, it can be said that from the perspective of young people, unemployment and non-involvement in occupations are the most important factors influencing addiction. It should be pointed out that when young people are unemployed and have no occupation to be engaged in, their tendency towards deviant peers for spending time and seek pleasure is high. Consequently, they are more likely to be engaged in drug use.

The fact is that unemployment is a very devastating phenomenon and has severe and negative social consequences. One of its consequences is the development of addiction in society. As time goes on, the life expectancy of the unemployed person decreases. Every human being has an innate desire to the independent living and progress, but the unemployed person has missed all these expectations. As time passes, the happiness and hopes turn into more pessimism and disappointment, and ultimately the collapse. The person may experience mental misunderstanding, be placed on the path of being nervous, and ultimately to save himself from the current situation and to end the current miserable situation, may turn to addiction. He knows that addiction is not the way to save him, but finds addiction as a shelter that can conceal his defects and pains. With the start of addiction, the condition of the first days intensifies and the person feels that with a permanent link to addiction he can escape from the realities of life and take refuge in the unknown and artificial world of addiction. Turning to artificial joy and addiction among the young generation is due to their weak spirit about the current situation, which is one of the requirements of unemployment.

Another important factor influencing addiction from the perspective of students is addiction of family members. The results of this study are consistent with those of Javanmard (2015), Moayedfar & Zamani Sabzi (2014) and Mahmoudi et al. (2012). Moayedfar and Zamani Sabzi (2014) concluded that the greater the affinity of the individual to the family, the more likely he would be to quit addiction. Furthermore, Javanmard (2015) in a study, on investigating the

effective factors in the tendency toward industrial drug use among male students of the Department of Humanities at Islamic Azad University of Kerman, concluded that the more conflicts and contradictions between parents, the higher the probability of using industrial drugs. Mahmoudi et al. (2012) also revealed that there is a relationship between family background and the tendency toward drug use. Unfortunately, majority of people who are born and raised in addicted families have no fear of experiencing drug use and their family members' drug leads them to be accustomed to drug use. There is no direct genetic connection between father's and child's addiction, but the father's drug use becomes an ordinary and normal action for children. However, if a pregnant woman becomes addicted, her child will be born addicted (Stone et al., 2012). Of course, this is curable, but what is important to us is that the social reactions of the addicted family members are confirmed by recurrence and become commonplace to other members of the family, and the normalization of drug use easily contributes to other members' tendency towards drugs. Of course, it should be noted that sometimes parents' drug use has negative impact on their children and may cause them to hate and escape from the drug use forever.

Deviant peers were an important factor influencing addiction from the perspective of students. In this regard, Oetting et al. found that the highest positive correlation was the encouragement of peers to drug use and the highest negative correlation was peer's inhibition from drug use. According to the friend group theory, small group of friends and peers determine where, how, and when the drugs are used. In fact, these small groups shape adolescents' attitudes and beliefs about drugs (Oetting & Beauvais, 1986). Moreover, Javanmard (2015) concluded that there is a relationship between having bad and addicted friends and the tendency toward industrial drug use, which is in line with the results of the current study. In other words, having bad friends and hanging out with them has a strong connection to tendency toward crime and industrial drug use. The lesser these friends, the less likely they are to be distorted.

This can be explained by Sutherland's differential association theory. Therefore, the studies have shown that communicating with addicts leads to the risky behaviors and drug use. Most teens are part of a group of friends and contribute to the group beliefs and how they use drug. From the perspective of the outside observer, this seems to be an adherence to the pressure of the group, but within the group it is perceived as a mutual agreement. In a group that the majority use drugs, there is much more pressure on the minority who does not use the substance. In fact, the first time familiarity with drugs is done through these groups. Therefore, it can be anticipated that if a person's friend, especially his closest friend, consumes narcotics, the person himself will also have the tendency to use such substances. Seeking external pleasure was another effective factor influencing addiction from the student's point of view. In this regard, it should be noted that since there are no facilities for recreation and spending leisure time, young people turn to other options such as drugs. According to

Figure 2, students stated that three pathways intensify addiction. First one is a cycle that exists between unemployment and addiction. The fact is that unemployment leads to drug use. Addiction also causes a person to lose his job, and as a result, the tendency to drug abuse will intensify.

The second cycle that intensifies addiction is the cycle of unemployment, hope for the future, and addiction. The results of this study are in line with the results of Bazgar (2014). In his research, Barzegar (2014) indicated that unemployment has played a major role among the surveyed factors in the tendency towards addiction. Friedman described unemployment as one of the factors influencing people's tendency towards drug use. He stated that by providing the contaminated communications, unemployment sets the groundwork for the tendency towards addiction and drug use (Milanifar, 2014). In this way, unemployment undermines the individual's hopes for the future. Loss of hope for the future can also increase the likelihood of a person's drug abuse, which in turn causes unemployment, so this cycle continues and intensifies addiction.

The variables of addiction, unemployment, and deviant peers are the third cycle that is effective in exacerbating students' addiction. Unemployment turns the individual to the offender and deviant groups and membership in these groups also leads to the individual's tendency toward drug use. Drug use also leads to job loss and unemployment, and the cycle continues.

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