

Methods and patterns of drug abuse among young addict women

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Abstract

Although we do not know the exact number of addict women in our country, but Ministry of Health reports show that we have a ratio of one woman per eight addict men. Our data show that, different factors are playing role at the beginning of drug abuse between women and men. This case-control study have been done on 160 randomized samples of addict women in two groups, vulnerable addict women (in prison) and addict women (without history of being in prison), in Mashhad between 2011 and 2012, respectively, in order to investigate methods and patterns of substance abuse in young addict women. The results showed that the most common methods in vulnerable addicts were inhalation and oral methods, respectively. Of them, up to 6%`s used drugs by injecting method. Considering the substances they used, the most common drug (with regards to multi-addict groups), were Cristal and methamphetamine, respectively. The less common substance was tablets, which have been abused in combination with all other drugs in all cases. The most drugs abused simultaneously, were Cristal and methamphetamine together. Also, heroin, cannabis and psychotropic tablets were far more abused in vulnerable group. The results of this study showed that a history of imprisonment was associated with a change in the method of abusing to the intra venous drug abuse. The result showed that Cristal and methamphetamine co- abuse is more common and they were the most drug abused in women.

Keywords: Addictive, Behavior, Pattern

Introduction

Historical documents reveal that from the dawn of mankind, humans have always used drugs to alleviate their pain and suffering. [1] In Iran, scientists and physicians such as Muhammad ibn Zakariya Razi and Avicenna were the first scientists who discovered the medical effects of opium. [1] In general, the

consumption of opium in Iran dates back to the time of invasion of Arabs, Genghis Khan of Mongolia, or souvenirs brought back in the aftermath of military expeditions to India by Nader Shah of Iran. In the early years of the 1950's, the government of Iran estimated that the number of drug users in the country to be at about one and half

million users, of whom about 98% were addicted to opium or shireh. Given that the population of the country at that time was about 21 million people, the overall percentage of drug users in the country was estimated to be at 7% of the total population. Based on the published reports by United Nations Office on Drugs and Crime in 1999, prior to the Islamic Revolution in Iran there were about 2 million drug users (4% of the total population) [2]. During the years of 1978 and 1979, as a result of reduction in supervision, the production and distribution levels of drugs in the country increased, and based on the officially published information, 5% of the entire population were addicted to drugs. During the years of 1973 to 1977 the drug use was increased by 166%, and at later years until 1987 it showed a steep decline; however, in the subsequent years from 1988 to 1992 again the usage increased to reach the growth rate of 59% [2]. In a 2001 published report, the estimated number of drug user in the country had reached the levels between 1.2 to 3.3 million users. Among this group, there were 2 to 3 hundred thousand intravenous drug users. Among the most popular drugs were opium, shireh, heroin, hashish, and codeine, and most intravenous drug users used heroin and opium [3]. Based on the available statistics such as data from the United Nations Office on Drugs and Crime (UNODC) in 2003, it was estimated that between 4 and 7 million Iranians were tainted with illicit addictive substances such as opiate substances, hashish, and stimulants. Based on these reports, the change in usage pattern of the traditional opiate substances (such as opium), move toward synthetic substances (heroin) was on the increase [4,5]. Although there is no accurate statistics available on the number of female drug users in the country, based on some studies, women comprise 9.6% of the drug users in the country. Ministry of Health reported one female drug user for 8 male users [6]. Furthermore, according to prison authorities, currently 50% of the

female prison population is incarcerated because of drug addictions or related illicit drug matters [5]. Regarding prevalence of addiction, in a national study from the U.S.A. in 2000, it was estimated that 7.7% of men in comparison to 5% of women used drugs (gender difference of less than 3%). Approximately, 4.5 million women used alcohol, 3.5 million used prescription psychoactive drugs, and more than 3 million women used illicit drugs regularly. The nicotine and alcohol consumption by women were nearing the same levels as in men [7]. In Karimpour et al. study with the aim to study the socioeconomic factors in addicted women in the city of Tabriz, the results show that 35% of addicted women are in the age group of 18 to 29 years old, of whom one third experience drugs for the first time at the ages between 20 to 25 years old. Of these users, 94% were housewives but unemployed, 85% lacked higher education, 58% were married, and the rest were single, divorced, separated, or widowed, and 36% had close relatives who were also addicted to drugs [8]. Despite numerous studies in regard to patterns of drug abuse, in general the differences and similarities of drug abuse between men and women are not clearly defined. There is even less data available on the younger than 20-year-old age group [14,9]. In our country in particular, data show that the influential factors in starting drug use among men and women are different. A higher portion of women in our country are introduced to drugs via their family members, especially by their spouses. Also drug use among women, especially intravenous use is associated with other social harms such as escaping from home and sexual promiscuity, which should necessitate different preventative measures for women compared to men. Although addiction itself is a harm, among the population of drug users, there are people who commit crimes because of their unfavorable social conditions, and transgression as a result of

addition, and are sentenced to imprisonment. The presence of an addicted individual in prison, and their special circumstances in dealing with other prisoners, and the presence of risk factors in such environments result in more vulnerability of the addict in that they will succumb to numerous problems such as economical, social, family, and work environment, psychological, family abandonment, etc. ensuing extreme levels of vulnerabilities. For this reason, the methods and patterns of substance abuse of the two groups must separately be analyzed and compared. Studying models and methods of substance abuse, as well as tendency toward drug abuse, is considered as one of the research priorities of the organizations combating narcotics. Therefore, this study focused on the models of drug abuse including methods of usage, type of substances used in two groups of female addicts. By understanding these models and methods of substance abuse, and identifying the demographics and social characteristics of addicts, we will be able to design prevention and intervention programs considering the appropriate obtained information.

Method

This case-control study was conducted on a population of addicted young girls and women aged between 16 and 25 years old in Mashhad, Iran, during 2011-2012. The sample size was calculated as 68 people in each group based on the difference of ratio between the two populations from previous studies (ratio of usage methods; $p_1=0.25$, $p_2=0.8$, $\alpha=0.05$, and $\beta=0.2$). Finally, 80 people were enrolled considering a possible 10% loss. The stratified random sampling method was used. The study groups were set in two age categories of 16 to 20 year olds, and 21 to 25 year olds. Creating these two age groups for sampling was to ensure access to the samples younger than 20 years old. (Given the lack of existing studies on this age group of female addicts which is among the priorities of the Iran Drug Control

Headquarters an also lack of access to samples in this age group). Then from each group of addict prisoners, 40 random samples were selected from the list of addict prisoners in the prison. (40 samples were selected in the age group of 16 to 20 year olds and 40 samples in the age group of 21 to 25 year olds). For the addicts groups with no history of prison terms, also 40 random individuals who had visited the welfare addiction detoxification centers and did not have any prior history of prison terms were selected in each group. Both study groups were matched for gender based on the study methods, and were matched for age using group matching. The vulnerable addict group: Women who were drug addicts, aged 16 to 25 years with prison terms. The non-vulnerable addict group: Women who were drug addicts, aged 16 to 25 years who did not have any prior history of prison terms. All samples for the study gave their informed consent to attend the study, and those who refused were eliminated from the sample. Then a checklist including demographic characteristics and method of drug abuse was created. The SPSS (version 11.5) statistical software was utilized for data analysis. The characteristics of each group were expressed using the descriptive statistics including central tendency, dispersion and distribution indices. Chi-square test was used to compare qualitative variables, and Mann-Whitney test was used to compare qualitative categorical variables. Also, Mann-Whitney and t-tests were used to compare quantitative variables. P-value<0.05 was considered as the significance level in all calculations.

Results

The demographic properties in both groups are presented in Table 1. As can be seen, the educational, individual incomes, family income, place of residence, marital status, and alcohol consumption in both groups showed significant differences.

Table 1 Demographic Properties of the Two Studied Groups

Variable	Vulnerable addict n = 80	n (%) n = 80	P
Age	21.10(3.33)*	21.21(2.39)	0.80
Education			
Uneducated	13(16.25)	3(3.75)	<0.001
Primary	26(32.5)	18(22.5)	
Middle School	30(37.5)	19(23.75)	
Diploma	9(11.5)	36(45)	
Associate Degree	2(2.5)	4(5)	
Graduate and Higher	0	0	
Employment			
Housewife	33(41.25)	31(38.75)	0.61
Unemployed	24(30)	20(25)	
Employed	23(28.75)	29(36.25)	
Individual Income**	209.11(163.73)	67.79(82.85)	<0.001
Family Income	340.15(214.03)	616.66(177.76)	<0.001
Residence			
City Downtown	65(81.3)	55(68.8)	<0.001
City Suburbs	3(8.3)	20(25)	
Town	11(8.13)	4(5)	
Village	1 (1.3)	1(1.3)	
Religion			
Shia	77(96.3)	76(95.3)	0.99
Sunni	3(8.3)	4(5)	
Marital status			
Single	19(23.8)	38(47.5)	<0.001
Married	28(35)	31(38.8)	
Divorced	31(38.8)	9(11.3)	
Widowed	2(2.5)	2(2.5)	
Smoker (Tobacco)	61(76.3)	68(86.1)	
Alcohol Consumption	34(42.5)	13(17.9)	<0.001

* Mean and standard deviation or absolute and relative frequency depending on the variable

** Income is presented in IRR($\times 10,000$)

The mean age of onset of drug abuse in vulnerable addicts was 17.52 ± 3.75 years old, while in the non-vulnerable group, it was 17.11 ± 2.36 years old. These means in both groups do not have a significant difference ($p=0.4$). Variety and simultaneous abuse of various drugs in both groups are listed in Table 2. As can be seen, 97 people (60.62%) abuse one type of drug, 51 people (32.27%) abuse

two types of drugs simultaneously, 6 people (3.79%) abuse three different drugs, 3 people (1.89%) abuse four different kinds, 1 person (0.63%) abuses five different kinds of drugs, and 2 people (1.26%) abuse six different types of drugs simultaneously. The variety and number of used substances of more than two types of substances simultaneously are observed only in the vulnerable addicts group.

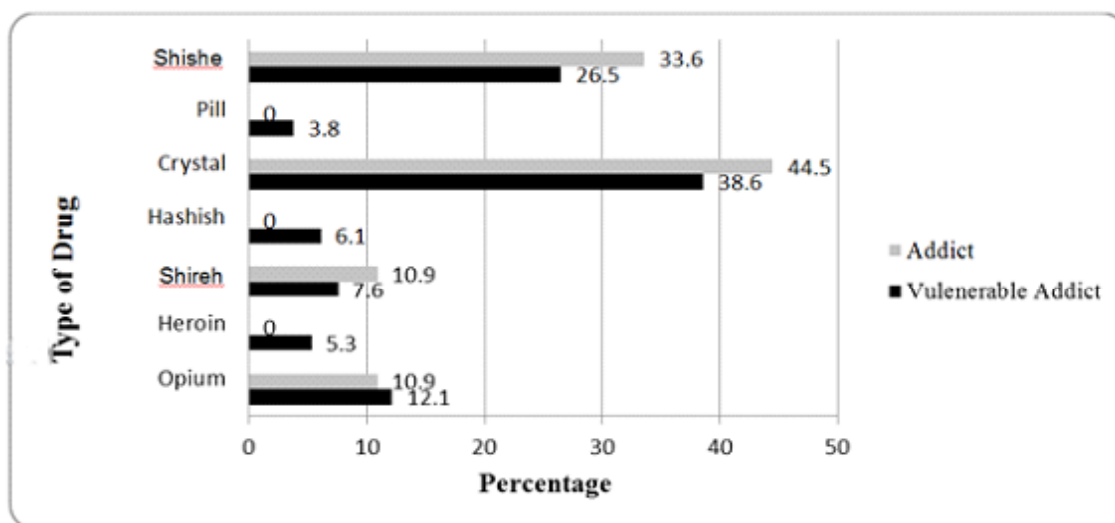
Table 2 *Methods of drug abuse among the two groups*

Type of drug	Vulnerable addict n = 80 n(%)	Addict n = 80 n(%)	Total n = 160 n(%)
One substance			
Opium	80(10.3)	12(15)	20(12.7)
Heroin	0	0	0
Shireh	0	11(13.8)	11(7)
Crystal	26(32.5)	19(23.8)	45(28.12)
Pill	0	0	0
Shishe(Metamphetamin)	12(16.25)	8(10)	21(13.12)
Two substances			
Opium, Heroin	1(1.3)	0	1(0.6)
Opium, Shireh	1(1.3)	0	1(0.6)
Opium, Shishe(Metamphetamin)	1(1.3)	0	1(0.6)
Heroin, Crystal	1(1.3)	0	1(0.6)
Shireh, Crystal	1(1.3)	1(1.3)	2(1.3)
Shireh, Pill	0	0	0
Hashish, Crystal	1(1.3)	0	1(0.6)
Hashish, Pill	1(1.3)	0	1(0.6)
Crystal, Shishe(Metamphetamin)	12(15.4)	29(36.3)	41(25.9)
Pill, Shishe(Metamphetamin)	2(2.6)	0	2(1.3)
Three substances			
Opium, Crystal, Shishe(Metamphetamin)	1(1.3)	0	1(0.6)
Shireh, Crystal, Shishe(Metamphetamin)	3(3.8)	0	3(1.9)
Hashish, Crystal, Shishe(Metamphetamin)	1(1.3)	0	1(0.6)
Hashish, Pill, Shishe(Metamphetamin)	1(1.3)	0	1(0.6)
Four substances			
Opium, Heroin, Shireh, Crystal	1(1.3)	0	1(0.6)
Opium, Heroin, Hashish, Crystal	1(1.3)	0	1(0.6)
Shireh, Hashish, Crystal, Pill	1(1.3)	0	1(0.6)
Five substances			
Opium, Heroin, Shireh, Hashish, Crystal	1(1.3)	0	1(0.6)
Six substances			
Opium, Heroin, Shireh, Hashish, Crystal, Shishe (Metamphetamin)	2(2.6)	0	2(1.3)

Prevalence of substance abuse among the two groups is listed in Figure 1. As is shown, the combination of the synthetic substances (Crystal and Shishe (Metamphetamin)) is of high usage

percentage among both groups. Consumption of heroin, hashish, and psychoactive pills among the vulnerable addicts is much higher than that in the non-vulnerable addicts.

Figure 1 Substance abuse in the two groups



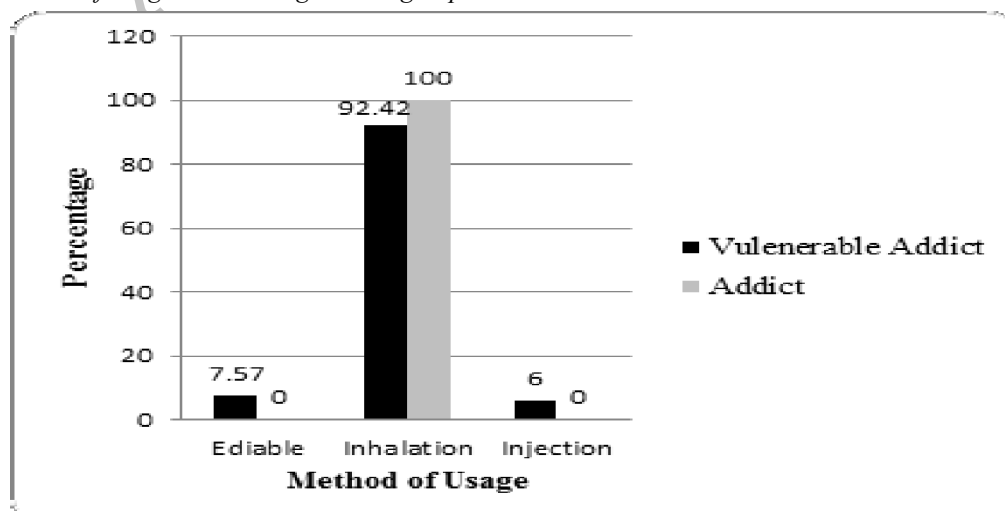
Various approaches of substance abuse in both groups are listed in Table 3, and prevalence of three consumption methods in each group is presented in Figure 2. Inhalation is the only method used by the non-vulnerable group; however, all three substance abuse methods are present in the vulnerable group, with 6% of them

using the injection method. Given the number of samples per method of consumption, statistical analysis was not possible, but if we divided the two groups to injection and non-injection methods, then there was a significant difference between the two groups. ($p=0.04$) ($OR=2.25$, $CI=2.72- 1.87$)

Table 3 Various methods for substance abuse in the two groups

Method of drug abuse	Vulnerable addict n = 80 n(%)	Addict n = 80 n(%)	Total n = 160 n(%)
Oral	8(6.1)	0	8(5)
Inhalation	69(86.4)	80(100)	149(93.12)
Injection	1(1.5)	0	1(0.7)
Oral and inhalation	1(1.5)	0	1(0.7)
Inhalation and injection	4(4.5)	0	4(2.5)

Figure 2 Methods of drug abuse among the two groups



Discussion

In this study, the predominant substance abuse in both vulnerable and non-vulnerable drug users was the synthetic drug compounds (crystal and shishe (Metamphetamin) that comprise a high percentage of drug use. Kazemi et al. and Saleh Kargari et al. studies also have shown the same situation [15,16]. But in a review study conducted by Rahimi Movaghar with the goal of determining the models of substance abuse among Iranian women in 2008, the results showed a high percentage of heroin abuse among the female addicts. He also reported considerable substance abuse among female prisoners [17]. Given that the Rahimi's study was just a review study, the difference in the results might be of the difference in the used substances between the two population of addicts, or because of changes in substance abuse pattern, where the substance use in the recent years is shifted from of a combination of natural substances to the synthetic ones. Published reports confirm this situation [4,5]. Another interesting point in this study is the simultaneous use of varieties of drugs (two to six different drugs) by study population. This simultaneous use of many drugs among the vulnerable addict population is more prevalent than among the non-vulnerable addicts. In review of published studies in the country, there was not much attention given to the pattern of simultaneous use. Back, S.E et al. conducted a multicenter trial in South Carolina, among 892 male and female addicts with the aim of comparing demographic characteristics and the severity of substance abuse, and test results showed positive for oxycodone and morphine in majority of men and women in the study. The test results on women for amphetamines, methamphetamine, and phencyclidine also showed more positive as compared to men. In contrast, the test results for methadone and marijuana were more positive in men than in women. The desire to return to use among women was significantly higher than that in men [18]. As for method of substance abuse, inhalation was the preferred method in both groups, but 6% of the vulnerable addicts used

injection method. Although further analytical studies are required to determine the sequence in which drug use method and imprisonment occurred, it seems that imprisonment can lay the grounds for injecting drug use among the addicts. Moayemi et al. and Godarzi et al. studies also show the same results [19,20]. Motazaker et al. conducted a study with the aim to review frequency of risky behavior factors among the addicts who were under methadone therapy, by studying 384 individuals who visited the Urmia's Psychiatric Hospital Addiction Treatment Center. The results showed the methods of drug use as injection in 58 individuals (15.1%), inhalation in 235 individuals (61.4%), and oral in 91 individuals (23.6%). History of alcohol consumption of more than 5 years in 102 individuals (26.6%), body tattooing among 88 individuals (22.91%), shared use of syringes in 6 individuals (1.6%), shared use of razor blade in 19 individuals (5%), history of intimacy in 62 individuals (16.14%), heroin use in 127 individuals (33.1%), opium use in 194 individuals (50.5%), crystal use in 2 individuals (0.5%), shishe (Metamphetamin) use in 26 individuals (6.8%), and hashish use in 2 individuals (0.5%) [21]. Also, approximately 32% of the study population was either uneducated or did not have more than elementary education. Furthermore, 30% were unemployed, and the mean individual income and family income did not have a favorable condition in this population. Although these three factors of education, employment and income are interrelated, these three components are the main determinants of social health, and are the influential factors in behavioral and social diseases. In a study by Jamshidi Manesh et al. with the aim of studying individual, family, social and economical characteristics of female prisoner addicts, 108 addicted female prisoners at the Evin Prison were studied. The results show that their mean age was 33.92 years old, and 25.5% had high school education while 6.6% had university degrees. Their family size was 2 to 22 people, and the mean family income

was 100,000 IRR to 20,000,000 IRR. Some 50.5% of the sample population earned their family income [22]. Approximately 35% of these women were already divorced or widowed despite the age range of 16 to 25 years old. This situation was significantly higher among the vulnerable addicts (41.3 compared to 13.8). Although addiction is a major influential factor causing family crisis, family breakdown and divorces, imprisonment of an addict, especially as a wife or mother would certainly influence creating this complication. Also it must be noted that the mean age at onset of drug use by the addicts in this study population was 17 years in both groups.

Conclusion

The results of this study showed synthetic narcotics were highly prevalent among young female addicts. Given the special economical and cultural issues in recent years, the change in the use pattern in women is toward substances such as shishe (Metamphetamin) which in many cases may be used as a result of their desire to lose weight. It seems it is necessary to increase public awareness of dangerous side effects of such substances and supervise this matter more accurately. Given the increase in the number of intravenous drug use among the vulnerable addicts, perhaps the issued prison terms for these individuals is a risk factor for the change in the drug use method among female addicts. Given that it is impossible to make a direct correlation between imprisonment and the change in use pattern in this study, an analytical study is suggested in order to determine the sequence in which drug use method and imprisonment occurred. If confirmed, these results demand supervision, control and the necessary interventions in prison environment.

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Contributions

Study design: KHM,DMM

Data collection and analysis: KHM,DMM

Manuscript preparation: KHM,DMM

Conflict of interest

"The authors declare that they have no competing interests."

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