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Analysis of psychological characteristics and criminal history of intravenous drug abusers in Iran

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Objectives: The main of this study was assess the psychological characteristics and criminal history of intravenous drug abusers, emphasizing the effects of various abused drugs and multidrug addiction. Materials and methods: A comparative study was performed in 2009 on intravenous drug abusers in Drop-In Centers (DIC) and a Hospital which only Distributed Methadone (HDM). The sample consisted of 261 subjects. Logistic Regression analyses in SPSS 16 were used for analyzing.
Results: Psychological disorders were highly prevalent among the drug abusers. However, DIC addicts had better overall psychological health compared to HDM group. Prevalence of criminal activity among drug abusers was 48.2% and about 70% of these subjects had a history of more than one crime. Multiple drug abuse and concomitant with alcohol had no relation with criminal history (OR= .84 and 1.7; 95% CI: (.48, 1.5and.7, 1.95). However, addiction to heroine, Psychological disorders and low education level were highly related with criminal activity.
Conclusion: Higher scores in mental health questionnaire of DIC addicts in comparison to HDM addicts, suggest the positive effects of psychological interventions for this Population. There is the possibility of the involvement of psychopharmacological factors of heroin in occurrence of psychological disorders and criminal activity. This needs more rigorous investigation by large cohort studies.

Key word: addiction, crime, DIC (Drop in center),Psychological disorders, General Health Questionnaire-28

INTRODUCTION

In human societies, psychotropic agents (alcohol, drugs, and illicit substances) have an important role in the occurrence or exacerbation of psychological and behavioral derangements (Gillet et al, 2001). In recent years, an increase in the use of psychotropic agents has been associated by an increase in the prevalence of behavioral disorders, such as criminal activity, multiple drug abuse, and psychological abnormalities

(Ahmad vand et al, 2006;De Alba, 2004;Poldrugo, 1998). Of course, the risk of violent behavior has been higher in people with both psychological disorder and alcohol abuse (Poldrugo, 1998).Some studies in Iran have also reported that drug abuse is associated with a high prevalence of psychiatric and behavioral disorders (Hassan shahi – ahmadian,2004; Lundgren et al, 2005;Sahebi et al,2010). Studies have revealed that drug abuse is a factor that drives people toward perpetration of crimes and there is a high correlation between these two variables (Kosten–Rounsaville, 1986; Poldrugo,1998; Tobin –Latkin, 2003; Gruenewald

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et al, 2010). Occurrence of these adverse outcomes has brought about concerns that necessitate more evaluation and analysis (Gillet–Polard, 2001).

An important issue which deserves more investigation is the effect of type of drug and different combinations of drugs on criminal activity and its severity (Poldrugo,1998). Bennett (2005) and Tobin (Tobin-Latkin, 2003) showed that there is a positive linear relationship between multiple drug use and type of abused drug with number of perpetrated crimes. Also, Ball (Ball – Shaffer, 1985) reported a significant relationship between heroin addiction and criminal activity. There have been very limited studies in Iran on the association of criminal activity and drug abuse and there is no study concerning relationship between the type of abused substances and criminal activity. The objectives of this study were comparison of physiological status between Intravenous Drug Abusers of DIC and Hospital(Razy hospital) which only Distributed Methadone (HDM) and analyzing effect of psychological factors and drug abuse type on criminal activity in present of probable confounding variables such as demographical variables and dependent to DIC group or not.

MATERIALS AND METHODS

This study was a comparative study (comparison between DIC and Hospital(Razy hospital) which only Distributed Methadone (HDM)) in 4 month period of time. The sampling method were as followings: Every intravenous drug abusers (with at least 4 months history) that had referred during the time (Between September and December 2009) and had the specific conditions of each group (DIC and HDM groups) was selected and if he/she was satisfied, was enrolled in study. Specific criteria for inclusion in DIC group was covered by DIC and using of services such as provision of counseling services; provision of free disposable syringes; education of the mode of use of provided syringes and injection method; counseling regarding substitution of methadone therapy for drug injections and its benefits; education of evidence of unsafe behaviors for prevention of diseases. Inclusion of specific conditions for injected drug abusers in Razi Hospital consisted of subjects who had been intravenous drug abusers at least during the last 4 months and who had not been subjected to interventions and treatments of DIC centers. During this 4 month period, 141 subjects in DIC group (East Azerbaijan) and 120 subjects in HDM group (Tabriz, center of East Azerbaijan)were eligible,So the analysis was performed on the same number. The tool for data collection included a questionnaire for the Scaled General Health Questionnaire-28 (GHQ-28), a checklist

for demographic variables and a structured and trained interview list for drug related variables. The 28-item General Health Questionnaire (GHQ–28) was used as a screening tool for the detection of mental disorders. This questionnaire was developed by Goldberg & Hillier (1979) for screening for somatic symptoms, anxiety and insomnia, social dysfunction and severe depression .Validity and reliability were approved in various study (Makowska et al,2002;Tait et al,2002;ebrahimi et al ,2007; Noorbala et al, 2009.The estimated intra-class correlation between the test–retest scores was .84, .85, .79,.88 and .91 for physical condition, anxiety, social dysfunction ;severe depression and total score respectively (Sahebi et al, 2010). For each item four answer possible items were available (1: Not all, 2: No more than usual, 3: Rather more than usual, 4: Much more than usual). The score for subscales and total score were computed by summing over ranks in related items. for each item including physical condition, anxiety, social dysfunction subscales there were 7questions hence would be the possible range of scores for them (0,21) and for total score would be the possible range (0, 84). Likert scoring method of GHQ showed a cutoff point of 23 and the sensitivity, specificity and the overall misclassification rate of 70.5%, 92.3% and 12.3% respectively (Noorbala et al,2004;Sahebiet al 2008). Data collection was performed by face-to-face interviewing with the help of a psychologist and each center's head, who was a rehabilitated ex-addict (in order to have a good communication potential with the drug abusers). The interviewers had been totally trained by a physician and an epidemiologist. Also, a gift was offered to each drug abuser in order to motivate the addict for cooperation.

All analyses were performed using SPSS 11.5 statistical software (SPSS Inc. Chicago, IL). The mean score of the GHQ-28 subscales and its total score was compared between DIC and HDM centers using Independent samples t-tests. Univariate and Multiple logistic regression analyses were performed to assess of related variables with criminal history. In this approach significant variables in the univariate analyses were candidate to enter in the multivariate analysis. Some variables have been deleted due to low number of the observations in some of their categories. Odds Ratios (OR's) and their 95% Confidence Intervals (CI's) were presented as the effect size of the relationships. P-values <0.05 were considered as significant.

RESULTS

Average age of intravenous drug abusers was 27.9 years (SD=8.07) in DIC centers and 28.1 years (SD=8.76) in HDM group. Women constituted a very small percentage of the studied cases: only 4 (2.8%)

Table 1: Summary statistics and the results of the comparison of GHQ components between DIC and HDM groups

Mental health Items	Mean (SD**)				p-value
	DIC group		HDM group		
Body	10.01	5.43	10.82	4.72	0.023
Anxiety	11.35	5.53	12.37	4.86	0.001
Social	9.37	6.05	12.26	4.04	0.0001
Depressing	10.84	6.90	13.38	5.17	0.0001
Total mental disorders	42.06	20.78	49.14	14.57	0.001

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* GHQ : general health question, DIC: Drop-In Centers, HDM: Hospital which only Distributed Methadone
**SD: standard deviation

and 2 (1.6%) of the sample in DIC centers and HDM group respectively. The most common occupation groups in both groups were unskilled (Workers without any skill and profession are unskilled worker) and semi-skilled workers(semi-skilled worker is a worker that a worker's ability be more easily and less of a skilled worker).(Minooei M,1992), who constituted 78 (55.3%) and 58 (48.3%) of the drug abusers, respectively. It is noteworthy that 24 (17.0%) and 34 (28.3%) of the drug abusers were unemployed in DIC centers and HDM groups, respectively. Forty (28.3%) of the addicts in the DIC group and 44 (36.7%) of the HDM group had education levels of primary school or lower. As for the marital status, 90 (63.6%) drug abusers in DIC group and 80 (66.7%) drug abusers in HDM group were single. Unprotected and extramarital sexual relationship among single drug abusers occurred in 39 people (22.9%) and the average number of intercourses in the last 30 days was 4.8 times (SD 5.6). It is noteworthy that 35 (20.5%) of the single drug abusers declined to answer this question. Self-reported alcohol consumption was 78 (55.3%) in DIC group which was higher than HDM group (15 subjects; 12.5%) (χ^2=55.6, P<.0001). The average amount of alcohol consumption among alcoholic cases was 4.3 (SD 4.9) glasses per day. In DIC and HDM groups, this average was 4.5 (SD 4.8) and 3.3 (SD 5.4) respectively (t=4.6, P<.0001).

One sample t- test was used to compare the status of drug abusers regarding mental health variables. Drug abusers in DIC centers group and HDM group were different in all 4 aspects of psychological health in a statistically significant manner (P<0.05). (Table 1).

Based on the cut-off point of score 23for identifying subjects with mental illness, 68.2% (96) of DIC subjects and 89.0% (107) of HDM subjects had evidence of psychological disorder(P<.0001)

In this study, the self-reported rate of criminal activity in intravenous drug abusers was 48.3% (126

cases).The average count of criminal activity in DIC and HDM groups was 8.2 (SD 5.9) and 2.3 (SD 1.8) respectively. The most frequent crime types associated with other crimes were sale of illicit drugs (44 subjects,40%) theft(30 subjects,27.4%) and violence (24 subjects, 21.8%), else, counterfeiting, forgery, and check fraud, murder, sale and possession of firearms and rape were consisted 10.8% (12 subjects).Frequency distribution of the type of addiction (Heroin, Benzodiazepine, Codeine , Hashish and Opium according to the committed crimes among intravenous drug abusers is available in Table 2.

In order to investigate variables related with criminal activity, a univariate multiple regression test was performed initially. Illiterate or low-educated drug abusers had a higher chance of crime perpetration than drugusers with an education level   of graduated university (OR = 4.76, p = 0.036). Also, heroin abusers and drug abusers with mental disorders had a higher chance for committing crimes (OR = 2.5, p = 0.002) & (OR = 5.0, p = 0.017) Test results are shown in Table 3. For studying the factors involved in criminal history in the presence of possibly confounding variables, multiple regression test was used. In this model, chance of criminal activity was higher in lower educated abusers, in heroin abusers and abusers with mental disorders (OR = 5.8, p = 0.036; OR = 2.1, p =0.049 and , (OR = 1.16, p = 0.026respectively). Multiple drug abuse at the beginning of addiction had no impact on criminal history using univariate and multiple analysis (OR = 1.56, p = 0.21; OR = 2.1, p = 0.094) (Table 4).

DISCUSSION

In this study 78.6% of the drug abusers had psychological disorders (68.2% of DIC subjects and 89.0% of HDM subjects). This rate was 72% in USA

Table2: Frequency distribution of the type of addiction according to the committed crime among intravenous drug abusers.

Abused drug	Crime type			
	Sale of illicit drugs Frequency (%)	Theft and forgery Frequency (%)	Violence Frequency (%)	Sale of drugs, theft, or violence Frequency (%)
Heroin	7 (31.8)	7 (31.8)	5 (22.7)	3 (13.6)
Benzodiazepine	10 (50.0)	4 (20.0)	3 (15.0)	3 (15.0)
Codeine	—	—	—	—
Hashish	15 (38.5)	12 (30.8)	6 (15.4)	6 (15.4)
Opium	17 (53.1)	3 (9.4)	8 (25)	4 (12.5)

Table3: Relationship among some demographic and drug related variables with criminal history based on univariate regression logistic analysis

variables	Cofactor: N** (%)	P**	OR**	CI**	variables	Cofactor: N(%)	P	OR	CI
Group	DIC*:141(54) HDM*:120(46)	.82	1 .94	.58-1.5	opoid	No:166(64.3) Yes:92(35.7)	.28	1 .72	.43-1.2
Age		.88	–	–	Benzodiazp amine	No:213(82.6) Yes:45(17.4)	.25	1 1.5	.77-2.8
Married status	Married:170(65.6) Single:89(34.4)	.23	1 .73	.43-1.2	Heroine	No:175(67.8) Yes:83(32.2)	.91	1 1.0	.67-1.7
Education status	≤Primary:84(32.9) Middle:83(32.9) High school:73(28.6) graduated University:15(5.9)	.14 .61 .021	1 .63 .85 .21	.34-1.17 .45-1.6 .54-.79	Type of addiction (now):				
Job	Unskilled worker:136(55.5) Skilled worker:52(21.5) Unemployed:58(23.7)	.19 .16	1 1.5 1.6	.79-2.8 .85-2.9	Hashish	No:221(87.7) Yes:31(12.3)	.13	1 .29	.6-1.6
GHQ		.017	1.05	1.01-1.09	Opoid	No:242(96.4) Yes:9(3.6)	.28	1 .4	.18-.1.0
Use alcohol	No:161)63.4 Yes:93(36.6)	.54	1.7	.7-1.95	ecstasy	No: 207(82.1) Yes: 12(4.8)	.91	1 1.1	.34-3.5
Rate use of alcohol		.065	1.08	.98-1.19	Benzodiazp amine	No:207(82.1) Yes:45(17.9)	.89	1 1.0 4	.55-1.9
Left drug by methadone	No:110(42.8) Yes:147(57.2)	.46	1 1.4	.84-2.3	Heroine	No:69(27.4) Yes:183(72.6)	.00 2	1 2.5	1.4-4.5
Name of addiction (before) :					*Type Of Addiction (Before)*	*Unit drug:196(76.3) Multiple drug:61(23.7)*	.37	1 1.3	.73-2.3
Hashish	No:153(59.3) Yes:105(40.7)	.81	1 1.06	.65-1.75	*Type Of Addiction (Know)*	*Unit drug:185(73.4) multipledrug:67(26.6)*	.54	.84	.48-1.5

DIC: Drop-In Centers, HDM: Hospital which only Distributed Methadone
**N: frequency P: P-Value, OR: Odds Ratio, CI: Confidence interval

intravenous drug abusers and 61.29% in Australian intravenous abusers (De Alba et al, 2004; Hickie – Koscchera, 2001). Overall, the high prevalence of mental disorders was compatible with other similar studies (Poldrugo, 1998;Nunes –Levin, 2004–;De Alba et al, 2004;Ahmad vand et al, 2006). According to the

Table4: Relationship among some demographic and drug related variables with criminal history based on univariate and multiple analyses

variables	Cofactor: N(%)	P	OR	CI	variables	Cofactor :N(%)	P	OR	CI
Group	DIC*:141(54) HDM*:120(46)	_	_	_	opoid	No:166(64.3) Yes:92(35.7)	_	_	_
Age		_	_	_	Benzodiazpamine	No:213(82.6) Yes:45(17.4)	_	_	_
Married status	Married:170(65.6) Single:89(34.4)	_	_	_	Heroine	No:175(67.8) Yes:83(32.2)	_	_	_
Education status	≤Primary:84(32.9) Middle:83(32.9) High school:73(28.6) graduated University:15(5.9)	.069 .57 .036	1 .49 .8 .17	.24-1.1 .37-1.7 .031-.89	Type of addiction (now):				
Job	Unskilled worker:136(55.5) Skilled worker:52(21.5) Unemployed:58(23.7)	.16 .8	1 1.8 .94	.79-3.9 .43-1.9	Hashish	No:221(87.7) Yes:31(12.3)	.21	1 .34	.061-1.9
GHQ		.026	1.16	1.1-1.12	Opoid	No:242(96.4) Yes:9(3.6)	.33	1 .58	.19-1.7
Use alcohol	No:161)63.4 Yes:93(36.6)	_	_	_	ecstasy	No: 207(82.1) Yes: 12(4.8)	_	_	_
Rate use of alcohol		.23	1.07	.9-1.2	Benzodiazpamine	No:207(82.1) Yes:45(17.9)	_	_	_
Left drug by methadone	No:110(42.8) Yes:147(57.2)	_	_	_	Heroine	No:69(27.4) Yes:183(72.6)	.05	1 2.1	1.1-4.2
Name of addiction (before) :					*Type Of Addiction (Before)*	*Unit drug:196(76.3) Multiple drug:61(23.7)*	_	_	_
Hashish	No:153(59.3) Yes:105(40.7)	_	_	_	*Type Of Addiction (Know)*	*Unit drug:185(73.4) multipledrug:67(26.6)*	_	_	_

+Using Codeine and Ecstasy have been deleted automatically by software from the model due to low number of the observation.
*** (DIC):Drop-In Centers, HDM: Hospital which only Distributed Methadone*

results of some other studies, about 50% of USA population had comorbid mental disorder and drug abuse (Grant- Stinson, 2004) and about 43% had comorbid anxiety and drug abuse (Içli- Seydioğullari, 2010). DIC addicts obtained significantly lower scores in general health questionnaire (P<0.05) than HDM addicts, showing higher quality of mental health.

The prevalence of criminal history was 48.3% among intravenous drug abusers and almost 70% of these cases had a history of more than one crime. This is a very high rate for criminal history Of course, this rate is based on self-reported data, and there is no doubt that the actual rate will be higher than this. Chaikens (1990) reported that the rate of criminal activity in multiple drug users in USA was 10 to 20 times higher than the rest of drug abusers (National Survey on Drug Use and Health, 2009). In the current study, multiple drug use in the presence of confounding variables was not related to the history of criminal activity. Furthermore, concomitant addiction to both narcotics and alcohol did not increase the chance of criminal activity. On the other hand, some studies, such as, National Survey on Drug Use and Health, 2009; Bennett, 2005 and Smith- Polsenberg (1992) have reported that the probability of criminal activity is higher in the case of multiple drug use. The findings of available studies show that the particular drug type combinations are also influential in criminal activity (National Survey on Drug Use and Health, 2009, Bennett, 2005). Also in our study, after controlling for confounding variables, heroin addiction always increased the chance for criminal activity. Various research reports show that investigation of the relationship between crime and particular drug type combinations provides valuable information for anti-drugs strategies and treatment services (National Survey on Drug Use and Health, 2009). Penning *et al.* (2002) reported that various pharmaceutical combinations may cause higher levels of violence due

to their chemical nature. In this study, in the presence of confounding variables, symptoms of mental disorders affect the chances of committing crimes. Drug abusers with the lowest level of education had higher chances of committing crimes than drug abusers with higher levels of education. According to the study by Içli *et al.*, low education, lack of occupational skills, and drug abuse have a direct correlation with criminal activity (Içli-Seydioğullari ,2010).

This study due to strength of interviewer's good communication (Cooperation with psychologists and rehabilitated ex-addict) had a high accuracy. Modeling and control of confounding variables was of strength but low number of addicts and restriction in generalizability was of limitations of this study, also it is necessary, designing of cohort studies to access the causal conclusions. Higher scores in mental health questionnaire of DIC addicts in comparison to HDM addicts, suggest the Positive effects of psychological interventions for this population.

CONCLUSION

This study depicted heroin as a dangerous abuse substance that has a strong relationship with the chance of criminal activity. This implies a probable psychopharmacological effect of heroin in the occurrence of mental disorders and the likelihood of criminal activity .In the present study, multidrug addiction had no relationship with criminal activity. Furthermore, it seems that low literacy is an influential factor, in the presence of various variables like occupation and age.

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