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Prevalence of Depression and Its Affecting Factors in Patients Referred to Substance Abuse Treatment Centers in Guilan Province, Iran, During Year 2013

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Abstract

Background: Substance use disorder is a multidimensional phenomenon, which is becoming increasingly prevalent and important. It is the result of psychological, biological, social, and familial factors, and it seems that psychological factors play a very important role in its process.
Objectives: The purpose of this study was to determine the prevalence of depression among patients visiting substance abuse treatment centers and to evaluate influential factors.
Methods: A descriptive analytic research was conducted on 241 patients, who were selected randomly from visitors of the maintenance methadone therapy centers in Guilan province, Iran (January to May 2013). Based on population, Guilan was divided to three regions, east, west, and center. In each region, three or four substance abuse treatment centers were chosen randomly. To collect the data, two questionnaires were used, including demographic characteristics and abused substance characteristics, and Beck's depression inventory. The data were analyzed using the SPSS software.
Results: According to this study, the mean age of visitors was 38.29 years old. Prevalence of depression among patients was 48.96%. There was a significant negative relationship between the degree of depression and age (Pearson coefficient -0.17, P value 0.01). Logistic regression indicated that the factors affecting depression included type of abused drugs, income, duration of treatment, and place of residence. There was no significant relationship between depression and education level, physical diseases, and duration of drug use.
Conclusions: Concerning the abovementioned points, it seems that depression is one of the common problems of substance use disorder. Considering the mental problems of substance abusers, appropriate therapies have an essential role in their treatment.

Keywords: Substance Abuse, Depression, Maintenance, Methadone

1. Background

Drug use disorders can cause many harms to substance user as well as to the society. Drugs are a major source of harm to addicts in various ways, including physical (death and drug damages), psychological (addiction and other psychical diseases), and social (losing communications and properties). Meanwhile, damages affecting others can be considered as physical and psychological damages (injury), and damages to the society (crime, financial cost, and family problem) (1). The disability weight of various substance abuse disorders was measured in 2013. This figure was 0.54 for severe alcohol consumption disorder, 0.64 for heroin and other opioid use disorder, 0.32 for cannabinoids abuse, 0.35 for amphetamine use, and 0.37 for cocaine use disorder. In comparison to the disability weight of severe disorders, such as severe schizophrenia, which was 0.75 or severe depression, which was 0.65, importance of substance abuse and related disorders is more apparent (2).

In the recent three decades, comorbidity of substance use disorders and psychological disorders have been widely noticed. There is extensive evidence showing that substance use disorders are more prevalent in psycho-

logical patients than normal individuals (3). This comorbidity occurs in different forms. Psychological disorders can directly influence each other. For instance, severe alcohol abuse can lead to depression. However, comorbidity can occur indirectly, such as through abusing a substance to treat a psychological disorder. Finally, it can be the result of various causes, such as genetic, social and financial factors (4). Late diagnosis of depression and bipolar disorders in patients, who abuse substances can increase the relapse of mood disorders and even, the possibility of suicide (5).

A number of researches from Iran have shown that mood disorders are prevalent among substance abusers.

According to a research from Hamedan, 80% of visitors, who were receiving maintenance treatment (MMT), were depressed, however this value decreased to 60% during one month after beginning the treatment (6). Poorolajal et al. showed that 41.1% of adolescents had psychiatric distress and this Psychiatric distress was significantly associated with substance abuse (OR = 5.03) (7). Meanwhile, anxiety/depression are important factors that can increase the chance of concurrent drug use in patients under MMT treatment (8). Since there are no valid clinical biomarkers to diagnose depression and bipolar disorders, it is difficult to differentiate depression and bipolar as a result of substance abuse or as an initial disorder (5).

2. Objectives

The purpose of this research was to study depression in patients, who visited substance abuse treatment centers. Also, this study did not include separation of primary and secondary disorders and only evaluated comorbidity of depression in addicts. This research investigated the relationship amongst factors, such as demographic, social, and financial characterization with depression, which has been less commonly considered in previous studies and can be used in prevention, diagnosis, and treatment of substance use disorder.

3. Materials and Methods

This study was a descriptive analysis research and was designed to evaluate depression and it's associated factors, in patients, who visited substance abuse treatment centers in Guilan province. To acquire the data, two questionnaires were used. The questionnaires included demographic characterization and Beck's depression inventory.

Based on the population, Guilan was divided to three regions: east, west, and center. In each region, three or four substance abuse treatment centers were chosen randomly (Lahijan, Roodsar, Rasht, Fooman, Sowme'eh Sara, and Langrood). The neighboring center was considered if a chosen center did not cooperate. According to the agreement, in every center, 20 to 40 questionnaires were distributed. Psychologists, who were willing to cooperate, were educated so that they could communicate with patients and gain their trust for completion of questionnaires. At other centers, the psychologists of Guilan Health Center cooperated to help patients complete the questionnaires. Based on sample size, which was 282, 300 questionnaires or in every region, 100 questionnaires were distributed. At the end, 241 questionnaires were completed by patients, who visited the centers in order to receive services.

Collected data were entered in the SPSS software (version 16) to be evaluated by descriptive statistics (frequency-mean) and analytical statistics, including Chi-squared, logistic regression and Pearson correlation tests. Because of the high prevalence of mild depression in the Iranian society, moderate to severe depression was considered as depression disorder. This study was approved by Tehran University of Medical Sciences (no.3849.240). Participation was voluntary, and questionnaires were completed anonymously.

4. Results

In this research, approximately 3% of visitors were females and 97% were males. In terms of education, 32% of patients had secondary education, 30.3% had a high school degree, 24.5% had primary school education, 6.6% had a university degree, and 6.6% were illiterate. Furthermore, 69.7% of visitors were employed, 23.7% were unemployed, and 5.4% were unemployed yet had an income. Overall, 39% of visitors earned about 2,000,000 to 5,000,000 Rails (65$ to 165$) monthly, 28.2% of them earned lower than 2,000,000 Rails (65$), 19.5% of them earned more than 5,000,000 Rails (165$)/month and 13.3% did not answer this question. Furthermore, 63.1% of visitors were living in cities, 29.9% were rustic and 5.4% lived in the margin of a city. Regarding physical health, 21.6% of the visitors had physical illnesses, 71.8% of them were physically healthy, and 6.6% did not answer this question. Before beginning the treatment, 40.2% of visitors had opium use disorder, 34% of them were poly drug users, 8.3% of them had methamphetamine use disorder, 6.2% of them used shireh (opium residue with high concentration of morphine), 5.8% of them had heroin dependency, and 4.6% of them used crack (heroin crack).

As Table 1 shows, 51.03% of visitors were not depressed, and 48.96% had moderate to severe depression.

Table 2 shows that there was a significant negative relationship between the degree of patients' depression and

Table 1. Absolute and Relative Frequency of Depression Among Patients Who Visited Substance Abuse Treatment Centers

Depression Level	No. (%)
Healthy to mild	123 (51.03)
Moderate to severe	118 (48.96)
Total	241 (100)

their age (Pearson coefficient: -0.17 and P value was 0.01). With increased age of addicts, the level of depression decreased, though this relationship seems to be weak.

Table 2. The Correlation Between Depression and Age of Patients

		Age
Measure of depression	Pearson coefficient	-0.17
	P value	0.01

In Table 3, Chi-square values indicate that the prevalence of depression was significantly associated with employment status, income, living place, type of drugs, and duration of treatment (Chi-square test, $P < 0.05$), whereas, there was no significant relationship between depression and educational level, physical diseases, and duration of drug use.

After adjusting for confounding effects in logistic regression analysis (Table 4), income ($P = 0.001$), place of residence ($P = 0.04$), type of drugs ($P = 0.000$), and duration of treatment ($P = 0.000$) remained important determinants of depression among patients, who were treated at MMT centers. In other words, the chance of having depression among participants, who had income levels of less than US$65/month was 3.9 times more than patients with more than US$165/month income, and the chance of depression among patients, who were living in rural areas was 0.25 compared to those living in suburbs. In comparison, the chance of opium abusers having depression was less than poly-drug users (OR = 0.19). In addition, the chance of having depression among patients with less than two months of treatment or between two to five months, was less than patients with more than five months of treatment (OR = 0.2 and 0.4, respectively).

5. Discussion

Based on the data, 3% of participants were female and 97% were male. This is probably due to lower rate of addiction among females or cultural barriers dissuading females from visiting treatment centers. In the west, males were twice more likely to develop drug problems than females. One study in Iran reported that females addicted to heroin seeking treatment, had high levels of depression and had poor social functioning (9).

In the current research, in total, 48.96% of participants had depression and opium was the most prevalent substance used among clients (40.2%).

Abbasi et al. found that opium was the most abused substance among self-introduced addicts with a rate of 66.7% (10). Parvizi Fard et al. reported that 66% of studied substance users had severe depression and 12% had anxiety (11). Based on a research which was conducted by Ahmadvand et al. in Kashan, in 2008, the prevalence of psychological disorders in general population was 20% (35.5% female and 21.2% male). The prevalence of mood disorders was 9.3% (12).

Depression was the most frequent symptom among opium users in Shiraz, Iran (13). Sixty-seven patients from 200 patients (35.5%) on MMT referring to clinics in Sari, Iran, were depressed (14). Mortazavi et al. conducted a cross-sectional study on elderly substance users. They showed that 28.1% of drug abusers had at least one psychiatric disease, among which major depression was the most common disorder (15).

Also, in another research on patients with methamphetamine induced psychosis, depression (47.9%) was the most prevalent psychiatric disorder (16). Current prevalence rates of depression among patients on agonist therapy were between 10% and 30%, which had negative effects on treatment outcome (17).

Bryan K. Tolliver et al. reported that, the possibilities of having major depressive disorder for 12 months and entire life were 5.28% and 13.28%, respectively. Furthermore, 19.7% of substance users had at least one mood disorder during the last year (5).

According to the acquired data of National Epidemiology Survey of America NESARC that the prevalence of major depressive disorder among substance users was 14.5%, while 19.2% of patients, who had major depressive disorder were substance users (18). Peles et al. reported that half of their 90 participants (15 new patients and 75 on MMT) were depressed (19). Prevalent psychological disorders (affective, anxiety and substance use disorders) usually occur simultaneously. In total, 25.4% of the patients, who had one of the mentioned disorders, had at least one disorder from another classification. Furthermore, 3.5% of them had three classifications of disorders, simultaneously (20).

In a systematic review conducted in 2015, a strong relationship was recognized between substance abuse and major depressive disorder (OR = 3.8) (4). In one research, it was shown that the prevalence of substance abuse disorder among those, who had psychical disorders was about 10.4% (3). The current research found a significant negative relationship between depression level of addicts visit-

Table 3. Prevalence of Depression According to patients' Characteristics

Patients Characteristic	Depression, No.		Depression %	Test	P Value
	Yes	No			
Employment status				Chi-square	0.013
Having a business	73	95	43		
Unemployment	36	21	63		
Unemployment with income	9	4	69		
Income situation				Chi-square	0.001
< $65/month	44	24	64		
Between $ 65 - 165/month	39	55	41		
> $165/month	15	32	31		
Place of residence				Chi-square	0.034
Cities	80	72	52		
Rural area	27	45	37		
Margin of cities	9	4	69		
Substance type				Chi-square	0.000
Opium	29	68	29		
Heroin	6	8	42		
Methamphetamine	9	11	45		
Crack (heroin)	6	5	54		
Shireh	10	5	66		
Poly drug use	56	26	68		
Duration of treatment				Chi-square	0.000
Beginning	12	11	52		
< 2 mo	16	39	29		
Between 2 , 5 mo	28	38	42		
> 5 mo	60	33	64		

ing self-presentation clinics and their age P = 0.1, so that by increasing age, depression level decreased.

In the current study, employment status and income were effective factors on depression among patients. Also, after logistic regression, patients' income was a predictor of depression. In one research, depression, phobia, and anxiety were the most frequent disorders among patients treated by maintenance methadone. Furthermore, psychological disorders had significant correlations with simultaneous abuse of substances, family, and employment problems (21).

Kosten et al. realized that addicts, supported by employment or criminal activities before seeking MMT, had better prognosis than patients supported by public assistance. Among them, the welfare group had the greatest improvement in substance abuse and psychological problems (22). This research found that there was a significant relationship between depression and substance type. Logistic regression revealed that being a poly drug user might determine the possibility of having depression among patients. Todadze et al. showed that among opioid drug users undergoing OST, poly-drug users manifested the highest scores of depression and anxiety while buprenorphine users had the lowest rate (23). Regarding the treatment period in the current study, longer treatment periods could increase the chance of depression among patients treated at the studied centers.

Peles et al. reported that depression scores of new patients were significantly lower than continuous treatment patients, independent of treatment duration (19). In a research conducted in China, during year 2007, patients, who used methadone for treatment were monitored for three and six months. This research showed that dependence level and depression level had decreased signifi-

Table 4. Determinants of Depression Among Patients Visiting Substance Abuse Treatment Centers

Variables	Odd Ratio	P Value
Income situation		0.001
More than $165	1	
Less than $65	3.9	
Living place		0.04
Suburbs	1	
Rural area	0.25	
Type of drugs		0.000
Poly drug users	1	
Opium users	0.19	
Duration of treatment, mo		0.000
More than 5	1	
Less than 2	0.2	
Between 2- 5	0.4	

cantly (24). In a case-control study, methadone maintenance treatment stabilized the patients' moods. The Difference between the two groups (MMT versus control) was significant (25). In the current research, it seems that patients' awareness of their lost past was probably the reason for being depressed during the treatment period.

To compare the depression of patients from two areas of residence (rural and margin of cities), living in margin of a city might be a determinant for patient's depression (OR = 4). In one study, MMT patients at a rural district health center reported very high proportions of anxiety/depression (43.1%) compared to urban areas (8). Wenyuan Yin et al. reported on factors associated with depression and anxiety among patients under MMT treatment. The prevalence of depression (SDS score $\geq$ 53) was 38.3% and only employment status ($P < 0.001$) was associated with depression. In this study, education level, marital status, method of drug use, and length of time in treatment were not significantly associated with depression (26).

5.1. Conclusions

According to what has been mentioned, it can be concluded that depression is a highly prevalent disorder among addicts. Meanwhile, depression is related to factors such as age, job, income, area of residence, and treatment period. Therefore, special attention to mood disorders of patients in substance abuse treatment centers is highly recommended. To achieve this, training courses of technical assistance should necessarily include information about psychological disorders. Hence, considering mood changes during treatment helps therapists manage treatment. Special consideration of patients' job status and income can lead to a faster recovery and treatment of mood disorders.

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Footnotes

Authors' Contribution: Mohammad Hassan Novin and Hassan Eftekhar Ardebili designed the study concept. Mohammad Hassan Novin and Nahid Bazarganian Langeroodi gathered the data. Mohammad Hassan Novin, Hassan Eftekhar Ardebili and Zahra Mohtasham Amiri analysed and interpretated the data. Mohammad Hassan Novin drafted the manuscript. Zahra Mohtasham Amiri critically revised the manuscript for intellectual content. Mohammad Hassan Novin and Zahra Mohtasham Amiri have done statistical analysis. Azizollah Batebi supported administratively, technically, and materially. Hassan Eftekhar Ardebili supervised the study. All authors studied and confirmed the study.

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References

1. Nutt DJ, King LA, Phillips LD, Independent Scientific Committee on D. Drug harms in the UK: A multicriteria decision analysis. *Lancet*. 2010;**376**(9752):1558–65. doi: 10.1016/S0140-6736(10)61462-6. [PubMed: 21036393].
2. Salomon JA, Vos T, Hogan DR, Gagnon M, Naghavi M, Mokdad A, et al. Common values in assessing health outcomes from disease and injury: Disability weights measurement study for the global burden of disease study 2010. *Lancet*. 2012;**380**(9859):2129–43. doi: 10.1016/S0140-6736(12)61680-8. [PubMed: 23245605].
3. Rossi Menezes P, Ratto LR. Prevalence of substance misuse among individuals with severe mental illness in Sao Paulo. *Soc Psychiatry Psychiatr Epidemiol*. 2004;**39**(3):212–7. doi: 10.1007/s00127-004-0730-z. [PubMed: 14999454].

4. Lai HM, Cleary M, Sitharthan T, Hunt GE. Prevalence of comorbid substance use, anxiety and mood disorders in epidemiological surveys, 1990-2014: A systematic review and meta-analysis. *Drug Alcohol Depend*. 2015;**154**:1–13. doi: 10.1016/j.drugalcdep.2015.05.031. [PubMed: 26072219].
5. Tolliver BK, Anton RF. Assessment and treatment of mood disorders in the context of substance abuse. *Dialogues Clin Neurosci*. 2015;**17**(2):181–90. [PubMed: 26246792]. [PubMed Central: PMC4518701].
6. Farhadi Nasab AA, Manikashani KH. [Substitution therapy with Methadone and evaluation of depression in drug users in Hamadan]. *SJIMU*. 2008;**16**(2):44–50. Persian.
7. Poorolajal J, Ghaleiha A, Darvishi N, Daryaei S, Panahi S. The prevalence of psychiatric distress and associated risk factors among college students using GHQ-28 questionnaire. *Iran J Public Health*. 2017;**46**(7):957–63. [PubMed: 28845407]. [PubMed Central: PMC5563878].
8. Tran BX, Nguyen LH, Nong VM, Nguyen CT, Phan HT, Latkin CA. Behavioral and quality-of-life outcomes in different service models for methadone maintenance treatment in Vietnam. *Harm Reduct J*. 2016;**13**:4. doi: 10.1186/s12954-016-0091-4. [PubMed: 26837193]. [PubMed Central: PMC4736621].
9. Dolan K, Salimi S, Nassirimanesh B, Mohsenifar S, Allsop D, Mokri A. Characteristics of Iranian women seeking drug treatment. *J Womens Health (Larchmt)*. 2011;**20**(11):1687–91. doi: 10.1089/jwh.2010.2694. [PubMed: 21905877].
10. Abbasi A, Taziki SA, Moradi M. [The prototype of drug mis.abused of opioids in the self-introduced addicts in Gorgan (North-East of Iran)]. *J Gorgan Unci Med*. 2006;**1**:22–7. Persian.
11. Parvizi Fard A, Birashk B, Atefvahid MK, Shakeri J. [Comorbidity of and substance abuse among treatment-seeking addicts and normal individuals]. *IJPCP*. 2001;**7**(1 and 2):45–55. Persian.
12. Ahmadvand A, Sepehrmanesh Z, Ghoreyshi F, Assarian F, Moosavi G, Saee R, et al. Prevalence of mental disorders in general population of Kashan City. *Iran J Epidemiol*. 2010;**6**(2):16–24. Persian.
13. Gharagozlou H, Behin MT. Frequency of psychiatric symptoms among 150 opium addicts in Shiraz, Iran. *Int J Addict*. 1979;**14**(8):1145–9. [PubMed: 536060].
14. Hosseini S, Taghipour M, Tavakkoli M, Hamta A. Demographic features of patients in methadone maintenance treatment, referred to private Mmt clinic, Sari-Iran (2009-2010). *Shiraz E Med J*. 2012;**13**(3):128–34.
15. Mortazavi SS, Shati M, Malakouti SK, Mohammad K. Psychiatric comorbidities among Iranian elderly patients on methadone maintenance treatment. *Arch Iran Med*. 2015;**18**(11):740–6. [PubMed: 26497370].
16. Eslami-Shahrbabaki M, Fekrat A, Mazhari S. A Study of the prevalence of psychiatric disorders in patients with methamphetamine-induced psychosis. *Addict Health*. 2015;**7**(1-2):37–46. [PubMed: 26322209]. [PubMed Central: PMC4530192].
17. Pani PP, Vacca R, Trogu E, Amato L, Davoli M. Pharmacological treatment for depression during opioid agonist treatment for opioid dependence. *Cochrane Database Syst Rev*. 2010;(9). CD008373. doi: 10.1002/14651858.CD008373.pub2. [PubMed: 20824876].
18. Grant BF, Stinson FS, Dawson DA, Chou SP, Dufour MC, Compton W, et al. Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: Results from the National epidemiologic survey on alcohol and related conditions. *Arch Gen Psychiatry*. 2004;**61**(8):807–16. doi: 10.1001/archpsyc.61.8.807. [PubMed: 15289279].
19. Peles E, Schreiber S, Naumovsky Y, Adelson M. Depression in methadone maintenance treatment patients: Rate and risk factors. *J Affect Disord*. 2007;**99**(1-3):213–20. doi: 10.1016/j.jad.2006.09.017. [PubMed: 17055063].
20. Teesson M, Slade T, Mills K. Comorbidity in Australia: Findings of the 2007 national survey of mental health and wellbeing. *Aust N Z J Psychiatry*. 2009;**43**(7):606–14. doi: 10.1080/00048670902970908. [PubMed: 19530017].
21. Mason BJ, Kocsis JH, Melia D, Khuri ET, Sweeney J, Wells A, et al. Psychiatric comorbidity in methadone maintained patients. *J Addict Dis*. 1998;**17**(3):75–89. doi: 10.1300/J069v17n03_07. [PubMed: 9789161].
22. Kosten TR, Rounsaville BJ, Kleber HD. Predictors of 2.5-year outcome in opioid addicts: Pretreatment source of income. *Am J Drug Alcohol Abuse*. 1987;**13**(1-2):19–32. [PubMed: 3687883].
23. Todadze K, Mosia S. Dynamics of opioid substitution treatmentin different initial substance user opioid dependent patients. *Georgian Med News*. 2016;(254):56–61. [PubMed: 27348169].
24. Shi J, Zhao LY, Epstein DH, Zhao C, Shuai Y, Yan B, et al. The effect of methadone maintenance on illicit opioid use, human immunodeficiency virus and hepatitis C virus infection, health status, employment, and criminal activity among heroin abusers during 6 months of treatment in china. *J Addict Med*. 2007;**1**(4):186–90. doi: 10.1097/ADM.0b013e318156cc19. [PubMed: 21768956].
25. Momtaz A, Hatami H, Noorzadeh M, Saiah Bargard M, Saki S, Shirazi Beheshti ST. The effectiveness of methadone maintenance treatment in the reduction of anxiety and depression among drug-related prisoners. *Jundishapur J Health Sci*. 2014.
26. Yin W, Pang L, Cao X, McGoogan JM, Liu M, Zhang C, et al. Factors associated with depression and anxiety among patients attending community-based methadone maintenance treatment in China. *Addiction*. 2015;**110 Suppl 1**:51–60. doi: 10.1111/add.12780. [PubMed: 25533864].