



Psychiatric Comorbidity, Psychosocial Problems, and Functioning of People Who Inject Opioids: An Observational Study

Azhar Mahmood Farooqui¹, Amit Arya^{2*}, Amit Singh², Pronob Kumar Dalal²

¹Department of Psychiatry, Integral Institute of Medical Science and Research, Lucknow, Uttar Pradesh, India

²Department of Psychiatry, King George's Medical University, Lucknow, Uttar Pradesh, India

Abstract

Background: Injecting drug use (IDU) is a growing concern in India. This problem may coexist with other psychiatric disorders. The psychiatric comorbidity in IDUs affects the psychosocial functioning of this population. This study aimed to assess psychiatric comorbidities, psychosocial problems, and global functioning of people who inject opioids.

Methods: This cross-sectional study included opioid-dependent individuals with a history of injecting opioids who visited an outpatient clinic for buprenorphine maintenance treatment. The patients were assessed by SCID-I and SCID-II for Axis-I and Axis-II psychiatric disorders, respectively. The diagnosis was confirmed according to DSM-IV-TR. Moreover, the assessment of psychosocial and environmental problems was done according to Axis-IV of DSM-IV. Functioning was assessed using the Global Assessment of Functioning Scale (GAF). Substance use severity was also assessed using Addiction Severity Index (ASI).

Findings: A total of 100 participants were included in the study. All participants were male, and the majority (63%) were in the age range of 18-40 years with the mean age of 36.96 (SD=10.12). Moreover, 76% of the participants had psychiatric comorbidity. Mood disorder (28.95%), anxiety disorder (13.16%), any personality disorder (27.63%) were the most common comorbidities. The results also revealed psychosocial and environmental problems were significantly higher in participants with comorbidity and their global functioning was poor.

Conclusion: Psychiatric comorbidities are quite common and are associated with various psychosocial and environmental problems. Early identification and interventions for comorbid conditions along with community-based psychosocial rehabilitation should be considered for better outcomes.

Keywords: Opioid-related disorders; Psychosocial functioning; Comorbidity; Heroin dependence

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Introduction

Psychoactive substance use has a long history. Many of the substances that present major challenges to society today have been in use for thousands of years. However, the advent of hypodermic needles and the availability of potent substances meant drug users could find a new and effective way to use drugs. Injecting drug use (IDU) is a modern-day challenge. It is associated with a variety of physical and mental health problems as well as social problems.¹ Opioids are the most common injecting illicit drugs. Opioid injection causes considerable harm to the users and is a driver of HIV and hepatitis C in the vulnerable population.² Besides, co-occurring mental disorders are common and add to the overall burden of injecting opioid use.

According to the United States National Survey on Drug Use and Health (2019) conducted on 67,625 participants, the past year prevalence of opioid use among adults aged 18 or older in 2019 was significantly higher in those with

past-year serious mental illness (SMI) (13.8%) or any mental illness (AMI) (8.8%) compared to those without mental illness (2.5%). Irrespective of causality, this data indicates the opioid users (including those who inject opioids) are a group with a higher overall illness burden.³ Similarly, higher rates of Axis I disorders (lifetime and current) and Axis II disorders have been reported in several other studies on participants using opioids.^{4,5}

Several studies reported high rates of psychiatric comorbidity in people who inject opioids. Kidorf et al, in a study on 422 people who inject opioids, reported current and lifetime Axis I disorder in 20% and 35% of the participants, respectively. Current mood and anxiety disorders were present in 13.4% and 10.3% of the sample, respectively. The disorders with lifetime prevalence rates above 5% were major depression (21%), dysthymia (6%), post-traumatic stress disorder (5.9%), and specific phobia (5.2%). Other substance use disorders were also common among the participants. Three-fourths of the sample had



*Corresponding Author: Amit Arya, MD; Department of Psychiatry, King George's Medical University, Lucknow, Uttar Pradesh, India-226003. Mobile- 9415766243, Email: amitaria.11kgmu@gmail.com

lifetime cocaine dependence and more than half had cannabis and alcohol dependence. Apart from opioid dependence, on average the participants had over one current and over three lifetime substance use disorders.⁶ Similarly, a recent study in India on 105 people who inject opioids reported antisocial personality disorder in 85.7%, depression in 61.9%, polysubstance dependence in 52.4%, anxiety disorder in 41%, psychosis in 23.8%, suicide in 11.4%, panic disorder in 4.8%, and specific phobia in 4.8% of the individuals.⁷ A study on 1769 young persons who inject drugs (PWID) (aged 18–29 years) from 20 US cities assessed probable serious mental illness (PSMI) using the Kessler-6 screening scale. Opioid users constituted more than two-thirds of the sample. About 45% of the participants had PSMI. Moreover, PWID with PSMI were more likely to report higher injection, sharing of injection equipment, and unmet healthcare needs, compared to those without PSMI.⁸ Thus, the presence of comorbidity negatively influences substance use behavior.

Internationally, a large proportion of the PWID population has been found to be suffering from psychiatric comorbidities. It constitutes an area where interventions can be targeted to reduce the overall burden from opioid injection and improve the outcomes. Only a few studies have assessed the comorbid psychiatric illnesses in India. Thus, this study sought to assess comorbid psychiatric illnesses in people who inject drugs and compare the severity of substance use, psychosocial functioning, and global functioning in PWIDs with and without comorbidities.

Methods

Study design, setting, and participants

The present study was a cross-sectional observational one. The study participants were individuals visiting an outpatient clinic of a tertiary care psychiatry hospital in North India for buprenorphine maintenance treatment. All the participants included in the study had injected opioids during the past three months and were diagnosed with mental and behavioral disorders due to use of opioids, currently using the substance (active dependence) (according to WHO International Classification of Diseases, ICD-10). Only those aged 18–60 years, with a positive urine drug screen for opioids, and accompanied by a family member or community outreach worker (who knew the participant for at least last one year) were included in the study. The exclusion criteria were 1) having any physical illness that hindered participation in the study; 2) requiring management of a medical condition; 3) suffering from acute intoxication; and 4) refusing to provide written informed consent. The purposive sampling method was used to select the participants. Data were collected from August 2013 to July 2014. The study was approved by the ethics committee of the authors' institute.

Psychiatric assessment

The individuals who met the inclusion criteria were enrolled in the study for further assessment. The information obtained from the participants was corroborated by the accompanying family member/outreach worker. If assessment could not be completed on the same day, the participants were called again on a mutually convenient day. Three attempts at weekly intervals were made to contact patients who did not make it on the pre-fixed date for detailed assessment. After three unsuccessful attempts, the patient was considered a dropout from the study. A semi-structured proforma was used to collect sociodemographic and clinical information (including the history of opioid use and use of other psychoactive substances). The participants were further assessed using the Structured Clinical Interview for DSM-IV-TR (SCID). SCID-I and SCID-II were used to assess Axis-I psychiatric disorders (except tobacco use disorder) and Axis-II personality disorders, respectively.⁹ The diagnosis was confirmed according to DSM-IV-TR criteria. Assessment of psychosocial problems was done according to Axis-IV of DSM-IV-TR.¹⁰ Besides, the severity of addiction was assessed using Addiction Severity Index (ASI).¹¹ The psychological, social, and occupational functioning was also assessed using the Global Assessment of Functioning Scale (GAF).¹⁰

Statistical analysis

The data were analyzed using SPSS software (version 15.0).¹² Descriptive statistics were expressed as mean (standard deviation, SD) and frequency (percentage) for the continuous variables and categorical variables, respectively. For normally distributed continuous variables, the independent samples *t* test was employed, while the Mann-Whitney *U* test was used for nonparametric data. The chi-square test or Fisher's exact test was utilized to compare categorical variables. In all analyses, two-sided $P < 0.05$ was deemed statistically significant.

Results

A total of 113 individuals were screened for inclusion in the study of whom 5 did not meet the inclusion criteria and 8 others did not turn up for detailed assessment. Thus, 100 participants were included in the study (Figure 1).

Sociodemographic profile

Descriptive information on participants' demographic characteristics and drug use history is presented in Table 1. The mean age of the participants was 36.96 ± 10.12 years. The mean age at onset of opioid use was 23.51 ± 5.72 years. Moreover, 58% of the participants started using opioids between the ages of 21 to 30. The mean duration of opioid dependence was 13.45 ± 8.17 years and that of IDU was 4.54 ± 4.83 years.

Table 1. Sociodemographic and clinical characteristics of the participants

Variable	Total (n=100) Mean (SD) or No. (%)	With comorbidity (n=76) Mean (SD) or No. (%)	Without comorbidity (n=24) Mean (SD) or No. (%)	Fisher/ χ^2 / t	P
Mean Age (y)	36.96 (10.06)	36.51 (10.29)	38.37 (9.16)	t=-.78	0.34
Age group					
18-40	63 (63)	49 (64.47)	13 (54.16)	$\chi^2=0.82$	0.36
41-60	37 (37)	27 (35.53)	11 (45.83)		
Education					
Illiterate	23 (23)	21 (27.63)	2 (8.33)	$\chi^2=7.92$	0.01
Up to high school	60 (60)	46 (60.52)	14 (58.33)		
Above high school	17 (17)	9 (11.84)	8 (33.33)		
Place of residence					
Rural	11 (11)	11 (14.47)	0 (0)		0.06
Urban	89 (89)	65 (85.52)	24 (100)		
Employment status					
Unemployed/others	55 (55)	49 (64.47)	6 (25.0)	$\chi^2=11.56$	< 0.01
Employed full time	24 (24)	14 (18.42)	10 (41.7)		
Employed part time	21 (21)	13 (17.1)	8 (33.33)		
Current living arrangement					
Joint family	40 (40)	27 (35.52)	13 (54.16)	$\chi^2=3.46$;	0.17
Nuclear familyliving alone	48 (48)	38 (64.48)	10 (41.7)		
Homeless	12 (12)	11 (14.47)	1 (4.16)		
Mean age at ODS (y)	23.51(5.72)	22.89 (5.55)	24.36(6.67)	t=-1.08	0.28
Age at ODS					
Less than 30	58 (58)	64 (84.2)	19 (79.16)	$\chi^2=0.32$	0.57
More than 30	17 (17)	12 (15.79)	5 (20.84)		
Mean duration of dependence (y)	13.45(8.17)	13.42(8.41)	13.54(7.48)	t=-.063	0.95
Total duration of dependence (y)					
≤10	41 (41)	32 (42.1)	9 (37.5)	$\chi^2=0.65$	0.72
>10 to ≤20	39 (39)	28 (36.84)	11 (45.83)		
>20	20 (20)	16 (21.05)	4 (16.66)		
Mean IDU duration (y)	4.54(4.83)	5.30(5.02)	3.50(2.12)	t=1.66	0.1
Duration of IDU (y)					
≤5	66 (66)	47 (61.84)	19 (79.16)	$\chi^2=2.43$	0.12
>5	34 (34)	29 (38.16)	5 (20.84)		
Global Assessment Functioning					
21-30	13 (13)	13 (17.1)	0 (0)	n.a.	
31-40	30 (30)	30 (39.47)	0 (0)		
41-50	31 (31)	27 (35.52)	4 (16.66)		
51-60	23 (23)	6 (7.89)	17 (70.83)		
61-70	3 (03)	0 (0)	03 (7.89)		
Psychological and environmental problems					
Problems with social environment	94 (94)	72 (94.74)	22 (91.7)		0.63
Problems with primary support group	72 (72)	56 (73.68)	16 (66.7)		0.60
Educational problems	57 (57)	47 (61.84)	10 (41.7)		0.10
Occupational problems	70 (70)	62 (81.58)	08 (33.33)		<0.01
Housing problems	14 (14)	10 (13.15)	04 (16.67)		0.74
Economic problems	76 (76)	64 (84.21)	12 (50.00)		<0.01
Problems with access to health care	18 (18)	16 (21.04)	02 (8.33)		0.22
Problems related to legal system/ crime	16 (16)	14 (8.41)	02 (8.33)		0.34
Mean ASI composite scores					
Medical composite score	0.27 (0.24)	0.31 (0.26)	0.15 (0.12)	t=2.89	<0.01
Employment composite score	0.58 (0.32)	0.64 (0.31)	0.41 (0.30)	t=3.21	<0.01
Alcohol composite score	0.07 (0.14)	0.08 (0.16)	0.04 (0.06)	t=1.28	0.20
Drug composite score	0.45 (0.07)	0.45 (0.08)	0.44 (0.01)	t=0.24	0.81
Legal composite score	0.07 (0.18)	0.08 (0.19)	0.02 (0.09)	t=1.40	0.16
Family composite score	0.32 (0.13)	0.31 (0.14)	0.32 (0.11)	t=0.17	0.86
Psychiatric composite score	0.29 (0.39)	0.33 (0.42)	0.00 (0.00)	n.a.	n.a.

SD, standard deviation; χ^2 , χ^2 test statistic; t, independent t test statistic; IDU, injecting drug use; ODS, opioid dependence syndrome; ASI, Addiction Severity Index.

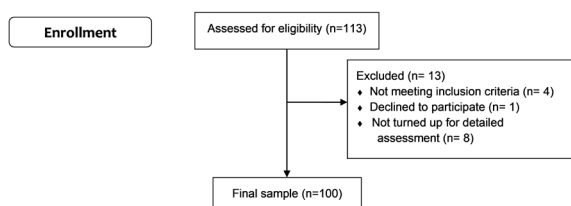


Figure 1. Flow diagram showing recruitment of participants

Psychiatric comorbidities among participants

In the present study, 76 PWIDs had comorbidities (Table 2). Moreover, 51.32% of the individuals had one comorbid diagnosis apart from opioid dependence, 38.16% had two comorbid diagnoses, and 10.53% of the individuals had more than two comorbid diagnoses. The results also showed 98.6% (n=75) of the individuals had Axis I disorders including other substance use disorders (78.94%, n=60) and non-substance use psychiatric disorders (53.94%, n=41). Cannabis use disorder (27.63%) and major depressive disorder (21.05%) were the most common Axis I disorders. Axis-II disorders were present in 27.63% of patients. Cluster B personality disorders, including antisocial personality disorder 13(17.11%) and borderline personality disorder 06 (7.89%) were the most common.

Comparison of patients with or without comorbidity

The groups with comorbidity and without comorbidity differed significantly in terms of education and employment. The patients with comorbidity had 58.33 (CI: 14.9827- 227.11; $P < 0.0001$) odds of having a GAF score of ≤ 50 than GAF score > 50 . The two groups differed significantly in the domains of occupational and economic problems. The severity of addiction on ASI showed there was a significant difference between the groups in the composite scores of medical and employment domains (Table 1).

Discussion

This cross-sectional observational study was designed to assess the comorbid psychiatric illnesses in PWIDs enrolled in the Opioid Substitution Treatment (OST) program using SCID-I and SCID-II for psychiatric disorders. Moreover, it evaluated the severity of substance use (using ASI), psychosocial functioning (using Axis IV of DSM IV), and global functioning (using GAF) between those with and without comorbidities. The results showed high rates of comorbidities in the PWID population. The presence of comorbidities was found to be associated with poor GAF, poor psychosocial functioning, and higher addiction severity scores. Limited research has been done in India on the impact of comorbidities on the global functioning of PWIDs. Thus, this study will add to the knowledge on this subject.

Consistent with other studies in India, the typical profile of the study participants was young male, educated

Table 2. Co-occurring Psychiatric disorders (Axis I and Axis II) among the participants^a

Diagnosis	Total (n=76) No. (%)
Mood disorders	22 (28.95)
Major depressive disorder	16 (21.05)
Bipolar I disorder	3 (3.95)
Dysthymia	3 (3.95)
Anxiety and stress-related disorders	10 (13.16)
Adjustment disorder	5 (6.58)
Generalized anxiety disorder	4 (5.26)
Agoraphobia with panic attack	1 (1.32)
Psychotic disorders	9 (11.84)
Substance-induced psychotic disorder	7 (9.21)
Schizophrenia	2 (2.63)
Other substance use disorders	60 (78.94)
Cannabis abuse disorder	21 (27.63)
Sedative/hypnotic/anxiolytic abuse	16 (21.05)
Alcohol abuse disorder	13 (17.11)
Alcohol dependence	5 (6.58)
Cannabis dependence	3 (3.95)
Sedative/hypnotic/anxiolytic dependence	2 (2.63)
Personality disorders	21 (27.63)
Antisocial personality disorder	13 (17.11)
Borderline personality disorder	6 (7.89)
Histrionic personality disorder	1 (1.32)
Paranoid personality disorder	1 (1.32)

^a Except tobacco use disorders.

up to high school, and from an urban background. There are gender differences in the opioid using population in India, with men vastly outnumbering women. Women have limited access to services, and due to stigma and discrimination, they hardly ever approach public healthcare facilities to avail treatment for their drug use problems.¹³ Homelessness is frequently reported among drug users. Kidorf et al and Rodríguez-Llera et al, in their studies, reported 10.4% and 13.6% homeless patients, respectively.^{6,14} In the present study, 12% of the PWIDs were homeless. The PWIDs live in financial hardship due to the vicious cycle created by IDU practices and its consequences. Often, they are expelled from their homes, or they leave homes voluntarily to continue using drugs without the interference of their family. Living away from the care and supervision of family, they become vulnerable to various psychiatric and physical illnesses. Compared to those without comorbidities, a significantly higher proportion of people with comorbidities were unemployed. The presence of comorbidities is known to reduce functionality, which could have resulted in a loss of

occupation. On average, it took around 5 years for PWIDs to go to agonist treatment clinics which leads to a delay in availing healthcare services. This is an area of service delivery with an enormous scope of improvement. An earlier receipt of opioid agonist treatment may improve outcomes by reducing the harms associated with IDU.

In the present study, about three-fourths of the participants had lifetime psychiatric comorbidity. Mohanty et al also found similar rates of psychiatric comorbidities in their study.^{15,16} Mood disorder and anxiety disorder are among the most common (non-substance use) Axis I comorbidities in PWIDs found in most studies. Studies have reported lifetime mood disorder ranging from 20% to around 60%.^{6,15,17-20} Anxiety disorders were present in 10% of the patients in this study. Previous studies reported the rates of anxiety disorder in a range of 8% to around 50%.¹⁶⁻¹⁹ A large proportion of the participants of the present study had multiple comorbid diagnoses. This illustrates the heterogeneity of the PWIDs population and implies that the clinicians should not limit themselves after making one or two diagnoses, but should rigorously evaluate the clients and rule out other medical and psychiatric disorders. In line with the findings of the present study, other studies from across the world have reported high rates of other substance use disorders. Darke and Ross reported past six-month use of cannabis in 83%, alcohol in 73%, and benzodiazepine in 59% of the PWIDs.¹⁸ Like in the present study, polydrug consumption is also a common phenomenon in PWIDs. Regarding personality disorders, cluster B personality disorders, especially antisocial personality disorder and borderline personality disorder were found in previous studies as well.^{5,6} The presence of personality disorder impairs the adaptive qualities of individuals. Impulsivity and risk-taking associated with cluster B personality disorders put the PWIDs at higher risk of HIV and other blood-borne infections. The behavior change required to practice safe sex and safe injecting is also affected. Thus, the clients should always be screened for personality disorders, and it should be kept in mind while planning interventions for them.

Assessment of psychosocial and environmental problems revealed problems related to the social environment in almost all participants. Drug use and related behavioral problems have a bidirectional relation with problems related to the social environment (such as inadequate social support, discrimination, living alone), each negatively impacting the other. More than two-thirds of the participants had problems related to primary support group (such as disruption of family by separation/divorce, removal from the home, physical abuse, inadequate discipline), finances, and occupation. The occupational and economic problems were significantly higher in patients with psychiatric comorbidity. The assessment on ASI also indicated the need for higher support of PWIDs with comorbidity for their medical

and economic problems compared to those who without comorbid illnesses. Loss of functionality is well known to occur in patients with comorbid psychiatric illnesses.¹⁹ The psychosocial and environmental problems, including social isolation and limited engagement in productive work, adversely impact the overall functioning and long-term outcomes.²¹ Thus, the public health interventions targeted towards this population should include strategies to address these issues in a focused manner and concentrate on total recovery by making the patients self-sustained.

The GAF assessment revealed that patients with comorbidity had significantly more impairment than patients without comorbid disorders. The increased load of psychopathology is highly likely to reduce an individual's functionality. Studies have demonstrated GAF to correlate with mental health scores in people on opioid agonist treatment.²² Several studies have demonstrated a reduction in quality of life with comorbid psychopathology.^{23,24} Meanwhile, a strong correlation has been noticed between the global functioning and overall quality of life.^{22,25} Thus, PWIDs with comorbid psychopathology should be provided additional mental health services to improve their functioning and quality of life.

The present study had some important limitations. An apparent limitation was that this study was a single-center one. Thus, the findings have limited generalizability. The comorbidity rates in PWIDs in community may be different from the current findings. In the future, multicenter studies conducted in community can provide valuable information and may be of help in designing effective intervention strategies for better service delivery to PWIDs. Furthermore, as the study participants were all adult males, the findings cannot be extrapolated to other populations, including adolescents, the elderly, and females. Besides, this study could not establish a causal relationship between IDU and various study parameters due to its cross-sectional nature. The world is rapidly evolving and so is the sociocultural milieu of the PWIDs; thus, a study pitfall worth remembering while interpreting the study findings is the duration of the study.

Conclusion

The PWIDs experience various drug use-related psychosocial and environmental problems. Moreover, the rates of psychiatric comorbidity in this group are very high and many of them often suffer from multiple comorbidities. The presence of co-occurring psychiatric disorders adversely affects the overall functioning of the individuals and may also impact the treatment outcomes. Thus, early identification of the disorders and appropriate interventions targeted towards addressing these illnesses should be integral to the services provided through the agonist maintenance treatment for improved outcomes and total recovery in this population. This study highlights

the need to develop holistic treatment programs to not only address the harm reduction but mental health component as well.

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Author Contributions

AMF: Conceptualization, data acquisition, drafting the article, approving the versions, taking public responsibility for the content. AA: Conceptualization, design, interpretation of data, critical revision, approving the versions, taking public responsibility for the content. AS: Data analysis and interpretation, drafting the article, approving the versions, taking public responsibility for the content. PKD: Conceptualization, design, critical revision, approving the versions, taking public responsibility for the content.

Conflict of Interests

The authors declare that they have no competing interests.

Ethical Approval

Approved by Institute Ethics Committee, King George's Medical University, India (Approval Code: 67th ECM II-B/P9).

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