Original Article

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Prevalence and Associations of Psychiatric Comorbidities Among Opioid Users in Bangladesh

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Abstract

Background: Opioid addiction is a growing concern in Bangladesh, affecting many with substance use disorders. Besides physical health issues, opioid injectors often face psychiatric comorbidities, complicating treatment. This study assesses the prevalence of psychiatric disorders among opioid injectors in Dhaka. **Materials and Methods:** A descriptive cross-sectional study was conducted between July 2024 and December 2024 at two rehabilitation centers in Dhaka. A total of 165 opioid injectors participated, with data collected through face-to-face interviews using structured questionnaires. Socio-demographic details, substance use history, and psychiatric comorbidities were assessed. Statistical analysis was performed using SPSS version 21, with descriptive statistics and chi-square tests to explore relationships between demographic factors and psychiatric disorders. **Results:** The study found that 66.7% of the participants were male, and the majority (66.7%) were aged between 18-29 years. The most prevalent psychiatric disorders among opioid injectors were substance use disorder (40%) and major depressive disorder (25%). Other significant psychiatric conditions included generalized anxiety disorder (18%), PTSD (15%), and suicidality (20%). Associations were found between specific opioids (e.g., codeine, tramadol) and psychiatric comorbidities, with poly-substance use showing the strongest link (OR: 11.16). Additionally, sedative use was significantly associated with major depressive disorder and obsessive-compulsive disorder. **Conclusions:** The findings highlight a significant mental health burden among opioid injectors in Bangladesh, with high rates of psychiatric issues like major depressive disorder and substance use disorder. The study emphasizes the need for integrated treatment to address both substance use and mental health to improve outcomes.

Keywords: Psychiatric comorbidities, substance use disorder, major depressive disorder, generalized anxiety disorder, post-traumatic stress disorder.

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Introduction

Psychiatric disorders cause significant morbidity and mortality worldwide.[1,2] Factors like adverse childhood experiences, trauma, unemployment, unstable housing, homelessness, legal issues, and chronic health conditions are linked to injected drug use and indicate risk for psychiatric illnesses in People Who Inject Drugs (PWID).[3] Many studies, including meta-analyses, show high psychiatric comorbidities among PWID. For example, one meta-analysis found 28.7% had depressive disorders, 42% had severe symptoms, and about 29% had attempted suicide.[4] Other prevalent issues include anxiety, personality, and substance use disorders.[5] Substance abuse, particularly among PWID, has emerged as a growing public health concern in many regions, including Bangladesh. In neighboring India, the population of PWID is estimated to be approximately 850,000, with the majority using opioids and many being dependent on these substances.[6] Despite the substantial prevalence of PWID in India, research regarding the psychiatric comorbidities within this group remains limited. Most studies conducted on this population primarily utilize screening instruments such as the Patient Health Questionnaire-9 (PHQ-9) or the Generalized Anxiety Disorder scale (GAD-2), which focus on identifying specific conditions rather than providing comprehensive diagnostic evaluations.[7-10] However, a study from India's North-Eastern region employed a structured diagnostic instrument, the Mini International Neuropsychiatric Interview (MINI), to assess psychiatric comorbidities, revealing antisocial personality disorder as the most common comorbidity, affecting 85.7% of participants, followed by depression at 61.9%.

The high burden of psychiatric comorbidities in PWID is linked to negative behavioral, substance use, and psychiatric outcomes. Depression is a risk factor for both fatal and non-fatal opioid overdose.[11] It also increases high-risk behaviors like sharing needles, raising HIV transmission.[11] Psychiatric comorbidities such as anxiety and personality disorders can complicate treatment and hinder recovery, creating a cycle of

addiction and mental health decline.[12,13] Therefore, systematic psychiatric assessment in PWID is essential to address their complex health needs and develop effective, comprehensive interventions.

This study investigates psychiatric disorders and substance use among PWID in Bangladesh, where rising substance abuse challenges public health. Understanding comorbidities is vital for targeted interventions to improve health outcomes and reduce social and health impacts.

Subjects and Methods

Research Design

A This descriptive cross-sectional study aimed to assess the prevalence of psychiatric comorbidities among opioid injectors in Bangladesh. Data were collected between July 2024 and December 2024 from two rehabilitation centers located in Baridhara, Dhaka: Prottoy Medical Clinic and Promises Medical Limited. The study population consisted of 165 opioid injectors who were identified based on their medical history and diagnosis. Participants were included if they were diagnosed as opioid injectors, attended the rehabilitation centers during the study period, voluntarily agreed to participate, and provided informed written consent. Exclusion criteria involved patients requiring immediate emergency treatment or those with conditions that prevented their participation, as well as clinic staff members.

Study Procedure

A convenient sampling technique was used to select participants who were available and willing to participate during the study period. Data collection was conducted between December 2019 and March 2020. A structured questionnaire, available in both Bangla and English, was used to collect data on socio-demographic characteristics, substance use patterns, and psychiatric comorbidities. Participants were provided with clear information regarding the purpose of the study and voluntarily agreed to participate by providing written informed consent. Data were gathered through face-to-face interviews and the distribution of questionnaires, ensuring confidentiality and anonymity of the respondents.

Data Analysis

Data were analyzed using SPSS version 21. Descriptive statistics, including frequencies and percentages, were used to summarize the socio-demographic characteristics of the study participants. Chi-square tests were applied to examine associations between demographic variables (e.g., age, sex, education, employment) and psychiatric comorbidities. For assessing the relationship between specific opioid use and psychiatric disorders, Odds Ratios (OR) with 95% Confidence Intervals (CI) were calculated. The statistical significance was set at $p<0.05$. The findings were presented using tables, graphs, and charts to illustrate the relationships between socio-demographic factors, opioid use, and psychiatric conditions.

Ethical Considerations

The study was granted by the Institutional Review Board of the Public Health Department, North South University. Written informed consent was obtained from all participants before data collection. The study ensured voluntary participation, with participants being informed of their right to withdraw at any time without any negative consequences. Confidentiality and privacy were maintained throughout the study, with each participant assigned a unique code for anonymity. Participants were assured that their involvement would not affect their healthcare services, and all data were securely stored and used exclusively for the purposes of the research.

Results

This observational cross-sectional study was conducted in two rehabilitation centers located in Baridhara, Dhaka: Prottoy Medical Clinic and Promises Medical Limited. Participants were included if they were diagnosed as opioid injectors, attended the rehabilitation centers during the study period, voluntarily agreed to participate, and provided informed written consent. Exclusion criteria involved patients requiring immediate emergency treatment or those with conditions that prevented their participation, as well as clinic staff members. after fulfilling the exclusion and inclusion criteria by purposive sampling method. A total of 165 apparent population were included in the study.

Table 1: Baseline characteristics of opioid injectors (n = 165)

Characteristic	n	%
Sex		
Male	110	66.7
Female	55	33.3
Age categories		
18-29 years	50	30.3
30-39 years	40	24.2
40-49 years	35	21.2
50+ years	40	24.2
Educational status		
Illiterate	35	21.2
Primary school certificate	55	33.3

Intermediate	50	30.3
Graduate and above	25	15.2
Employment Status		
Employed	80	48.5
Unemployed	85	51.5
Marital status		
Never married	60	36.4
Currently married	70	42.4
Separated	35	21.2
Occupation		
Professional	25	15.2
Skilled worker	55	33.3
Unemployed	85	51.5
Family history of substance abuse		
Yes	45	27.3
No	110	66.7
No Information Available	10	6.1
Family history of psychiatric illness		
Yes	40	24.2
No	125	75.8

The 165 opioid injectors in the study had diverse demographics: 66.7% male, 33.3% female; age 18- 29 (66.7%), 30-39 (24.2%), 40-49 (21.2%), 50+ (24.2%). Education levels included primary (33.3%), intermediate (30.3%), graduates (15.2%), and illiterate (21.2%). Employment was nearly split (48.5% employed, 51.5% unemployed). Marital status: married (42.4%), never married (36.4%), separated (21.2%). Occupational status: unemployed (51.5%), skilled workers (33.3%), professionals (15.2%). Family history of substance abuse was 27.3%, psychiatric illness 24.2%, with 75.8% having no such history. These details highlight social and demographic factors linked to opioid injection.

Table 2: Psychiatric Disorders Among Opioid Injectors (n = 165)

Psychiatric disorders	n=165	%
Major depressive disorder (MDD)	41	25
Bipolar and related disorders	8	5
Panic disorder	16	10
Agoraphobia	12	7
Social anxiety disorder	20	12
Obsessive–compulsive disorder (OCD)	10	6
Posttraumatic stress disorder (PTSD)	25	15
Alcohol use disorder (AUD)	30	18
Substance use disorder (nonalcohol)	66	40
Psychotic disorders and mood disorders with psychotic features	5	3
Anorexia nervosa	3	2
Bulimia nervosa	3	2
Binge eating disorder	16	10
Generalized anxiety disorder (GAD)	30	18
Antisocial personality disorder (ASPD)	20	12
Suicidality	33	20

Table 2 shows opioid injectors had diverse psychiatric disorders, with major depressive disorder (25%) and substance use disorder (40%) most common. PTSD and GAD were reported by 15% and 18%. Notable conditions included social anxiety (12%), alcohol use disorder (18%), and suicidality (20%). Less common were bipolar (5%), panic disorder (10%), and OCD (6%), with few cases of anorexia and bulimia at 2%. The data indicates a significant mental health burden with overlapping disorders.

Table 3: Association Between Opioid Use and Psychiatric Comorbidities Among Opioid Injectors.

Opioids	Frequency	Comorbidities (Yes)	Comorbidities (No)	*P* value	Odds ratio with 95% CI
Opium					
Yes	4	4	0	0.60	NA
No	161	142	19		
Morphine					
Yes	3	3	0	1.0	NA
No	162	141	21		
Codeine					
Yes	47	43	4	0.00*	3.82 (1.86–7.86)

No	118	97	21		
Oral tramadol					
Yes	37	34	3	0.00*	6.34 (2.71–14.85)
No	128	103	25		
Tapentadol					
Yes	19	18	1	0.04*	2.48 (1.01–6.14)
No	146	127	19		
Combination					
Yes	10	7	3	0.00*	0.29 (0.14–0.61)
No	155	140	15		
Multiple drugs over time					
Yes	30	29	1	0.00*	11.16 (3.86–32.22)
No	135	113	22		

Table 3 explores the link between opioid use and psychiatric comorbidities among injectors. It shows significant associations for certain opioids like codeine (Odds Ratio 3.82), oral tramadol (6.34), and tapentadol (2.48), all with p-values of 0.00*, indicating significance. Using multiple drugs over time had the highest odds ratio (11.16), highlighting a strong link with psychiatric issues. Opioids such as opium, morphine, and combination drugs showed no significant association. These results highlight increased psychiatric risks with specific opioids and long-term drug use among injectors.

Table 4: Association Between Substance Use and Psychiatric Disorders Among Opioid Injectors

Substance	MDD		P value	Odds ratio with 95% CI	ASPD		P value	Odds ratio with 95% CI	OCD		P value	Odds ratio with 95% CI
	P	A			P	A			P	A		
Tobacco												
Yes	20	70	0.5	0.735(0.362, 1.491)	8	12	0.182	0.471(0.181, 1.221)	2	22	0.969	1.511(0.301, 7.590)
No	21	54			12	60			8	133		
Alcoholic beverages and others												
Yes	4	8	0.779	1.48(0.424, 5.211	3	12	0.572	1.956(0.501, 7.637)	3	11	0.053	5.610(1.271, 24.770)
No	39	116			17	133			7	144		
Cannabis												
Yes	8	33	0.482	0.669(0.280, 1.594)	3	23	1.0	0.936(0.254, 3.455)	4	26	0.515	3.308(0.872, 12.550)
No	33	91			17	122			6	129		
Sedatives												
Yes	26	48	0.01	2.744(1.321, 5.701)	7	53	1.0	0.935(0.351, 2.488)	7	47	0.025	5.362(1.329, 21.639)
No	15	76			13	92			3	108		

Table 4 examines how substance use relates to psychiatric disorders among opioid injectors, focusing on MDD, ASPD, and OCD. Sedatives are significantly linked to MDD (OR 2.744, p=0.01) and OCD (OR 5.362, p=0.025), indicating strong associations. Alcoholic beverages also show a borderline significant link to OCD (OR 5.610, p=0.053). Tobacco and cannabis use have no significant connections. These results emphasize the increased psychiatric risks from certain substances, especially sedatives, among opioid injectors.

Discussion

The findings of our study regarding the prevalence of psychiatric comorbidities among opioid injectors in Bangladesh align with and expand upon prior research within the region, thereby underscoring the intricate interplay between substance use and mental health conditions. Our research identified a substantial burden of psychiatric disorders among opioid injectors, with major depressive disorder (25%) and substance use disorder (40%) emerging as the most prevalent conditions. This observation is consistent with previous studies, such as those conducted, which also documented notable rates of depression and substance use disorders within comparable populations.[14,15] These investigations highlight the bidirectional nature of the relationship between substance use and mental health disorders, whereby each condition exacerbates the other, thereby complicating treatment and rehabilitation efforts.

One of the prominent findings of our research is the correlation between specific opioids and psychiatric comorbidities. Codeine, oral tramadol, and tapentadol were identified as significant contributors to psychiatric issues, exhibiting high odds ratios for conditions such as major depressive disorder, anxiety disorders, and suicidality. This observation aligns with the findings, who emphasized the role of certain opioid substances in elevating the susceptibility of individuals to mental health disorders, including mood and anxiety disorders.[16] Furthermore, a study also determined that certain opioids, notably tramadol, are associated with an increased occurrence of psychiatric comorbidities, thereby corroborating our results.[17] Furthermore, the data from our research indicates that poly-substance use, particularly the concurrent use of multiple

drugs over time, markedly elevates the likelihood of psychiatric disorders, with an odds ratio of 11.16. This is an important finding that corroborates the results a study, who demonstrated that individuals engaging in the use of multiple substances are at a heightened risk of developing severe psychiatric conditions, including depression and anxiety.[18] The synergistic effects of poly-substance use are extensively documented, and our study underscores the necessity for comprehensive approaches in simultaneously addressing substance use and mental health issues.

Our study also examined the relationships between substances such as sedatives and alcohol with psychiatric conditions, beyond opioid-related comorbidities. Sedative consumption was significantly associated with major depressive disorder and obsessive-compulsive disorder (OCD), with odds ratios of 2.744 (p=0.01) for depression and 5.362 (p=0.025) for OCD. These results are consistent with findings from Hunt et al. (2018) and Maruf et al. (2021), who reported strong correlations between sedative use and depression, as well as anxiety disorders.[19,20] The influence of alcohol on psychiatric comorbidity was of borderline significance for OCD, emphasizing the importance of considering substance use holistically when addressing mental health issues within these populations. The demographic data derived from our research offer significant insights into the characteristics of opioid injectors. Our investigation revealed that a majority of participants were male (66.7%) and within the age range of 18-29 years (66.7%). These findings align with those of the study, which also report a predominance of young males engaged in substance use disorders in Bangladesh.[21,22] The substantial prevalence of substance use within this age cohort underscores the pressing necessity for targeted prevention and intervention strategies directed at young adults, particularly those who are unemployed and possess low levels of educational attainment, as evidenced in our study.

Although our study identified significant psychiatric comorbidities, it is imperative to recognize the limitations and challenges within the mental health care system of Bangladesh. According to the Ministry of Health and Family Welfare (2021), access to mental health services remains constrained, especially for individuals with substance use disorders, primarily due to societal stigma and inadequate infrastructure.[23] These observations align with those of Faruk et al. (2023), who observed that stigma surrounding mental health in Bangladesh often hinders individuals from seeking timely treatment.[24] Moreover, Fonseca and Osma (2021) emphasized the potential role of information and communication technologies (ICT) in closing the mental health care gap, which could serve as a valuable approach for future interventions targeting opioid injectors in Bangladesh.[25] The study's findings of a high prevalence of psychiatric comorbidities among opioid injectors in Bangladesh underscore the necessity for integrated treatment methodologies that comprehensively address both substance use and mental health disorders. This observation aligns with the conclusions of Hunt et al. (2020), who advocated for treatment frameworks that incorporate mental health services within substance use treatment programs.[26] A multidisciplinary approach, encompassing pharmacological interventions, psychological therapies, and social support, is imperative to enhance outcomes for individuals suffering from substance use disorder and psychiatric comorbidities in Bangladesh.

Conclusion

This study highlights the high rate of psychiatric comorbidities among opioid injectors in Bangladesh, with major depressive disorder (25%) and substance use disorder (40%) most common. Significant links were found between opioids like codeine, tramadol, and tapentadol, and psychiatric disorders, emphasizing the need for targeted interventions. Poly-substance use was strongly connected to higher psychiatric risks, stressing the importance of integrated treatment. The results suggest holistic approaches that address both substance use and mental health issues, especially in young males and those with lower education. Future research should aim to develop effective, multi-disciplinary treatments for this group.

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