

# Psychiatric Co-morbidity and Patterns of Different Substance use among Individuals with Substance Dependence in Pakistan

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## Abstract

**Objective:** The study was designed to look at the prevalence of psychiatric co-morbidity in individuals with substance dependence presenting at a tertiary care hospital in Pakistan. It also highlighted patterns of different drug use and contributing factors.

**Methods:** This was a descriptive study including 589 subjects with a DSM IV TR diagnosis of substance dependence from the inpatient facility of Department of Psychiatry and Behavioral Sciences, DHQ Hospital, Faisalabad, Pakistan. Demographic and clinical information was obtained from direct interview. The data obtained was entered in IBM SPSS 20 and analyzed by using appropriate statistical techniques.

**Results:** The most common drugs used in this sample were Heroin: ~70% (409/589) and Cannabis: 44% (259/589). 28% (162/589) of the subjects used more than one drug. Data regarding psychiatric co-morbidity was available for 409 patients. More than half (219/409) of the subjects with substance dependence met the criteria for a psychiatric disorder. The most common psychiatric diagnosis was depression followed by personality disorders. Peer group pressure was found to be the most prevalent reason for addiction. Heroin was the most abused drug among individuals with depression while benzodiazepine abuse was most prevalent in individuals with personality disorders.

**Conclusions:** Depression and personality disorders are frequently seen co-morbid with substance dependence. Peer group pressure may be considered as one of the most important contributing factor for addiction. Individuals with heroin dependence have significantly higher prevalence of depression while individuals with benzodiazepines dependence had significantly higher rates of personality disorders.

**Keywords:** Psychiatric co-morbidity; Drug dependence; Addiction; Substance abuse

## Introduction

Substance dependence poses as one of the major problems threatening the well-being of our population. The periodic survey of National Institute of Drug Abuse (NIDA) about the use of illicit drugs in the United States reported that 22.5 million persons over the age of 12 years were estimated to be suffering from a substance related disorder which becomes 10% of the total US population in the year 2004 [1].

According to the United Nations Office on Drug and Crime, County office for Pakistan (2007) [2], estimated prevalence of Opioid use in Pakistan to be around 0.7% of the adult population. Numerous studies hint at an association of substance dependence with certain psychiatric disorders. A Swedish cohort sample reported high rates of co-morbid disorders among individuals with substance use including: anti-social personality disorder 20%, psychosis 14.4% (6.5% was drug induced psychosis), depression 12% and 8 % with co-morbid anxiety [3].

One study concluded that 47% of the diagnosed patients with schizophrenia also had a life time diagnosis of co morbid substance abuse [4]. Another study reported that most common psychiatric conditions among youth who abused drugs were conduct disorder, attention deficit hyperactivity disorder and depression [5]. A study conducted in Nigeria compared psychiatric co-morbidity overtime period; psychiatric co-morbidity was higher (67.65%) in seven years period from 2000 to 2007 as

compared with previous seven years from 1992 to 1999 (38.5%). In both periods co-morbidity was associated more with cannabis use as compared with other drugs of abuse [6].

Most of the above mentioned research conducted in developed and developing countries shows that the psychiatric co-morbidity can complicate the substance abuse treatment. It is clear that patients with substance abuse often have co-morbid psychiatric disorders but local literature available on this topic is scarce. According to the United Nations Office on Drugs and crime, Pakistan has 6.7 million drug users. Treatment and interventions for substance abuse are not available readily. Most of the treatment available is hospital based. This study was designed to look at the prevalence of psychiatric co-morbidity in subjects with substance dependence presenting to a tertiary care hospital in Pakistan.

## Methodology

This was a descriptive study including 589 patients with diagnosis of drug dependence. After approval from Ethical Review Committee of the Punjab Medical College Faisalabad, raters were recruited who were Psychology interns. They were trained in the administration of instruments. After taking written informed consent, study subjects were recruited by convenience sampling technique from the inpatient facility of Drug Abuse Treatment Center of Department of Psychiatry and Behavioral Sciences, DHQ Hospital, Punjab Medical College, Faisalabad.

Raters interviewed the patients and data was collected. The patients who were reported to have a psychiatric disorder by the psychology interns were assessed by a psychiatrist to confirm the diagnosis. The data was entered and analyzed using IBM SPSS Statistics 20. Pearson's chi square test was used to determine associations. A p-value of <0.05 was considered statistically significant for all purposes.

## Results

The present study included 589 subjects with substance abuse of various addictive drugs such as heroin, opium, cannabis, alcohol, benzodiazepines and others. Almost all the study participants were males (99.2%, n=584 out of 588) with median age of 30 years. Majority of the study subjects were illiterate (41, n=242 out of 589) and more than half (63%, n=374 out of 589) belonged to poor socioeconomic class. Substantial proportion of study sample was married (61%, n=360 out of 589) and majority were laborers by profession (48%, n=283 out of 589).

In our sample, majority of the subjects ~70% were having heroin dependence followed by cannabis dependence (44%) (Table 1). Data regarding psychiatric co-morbidity was available for 409 subjects. More than half of these subjects 53.5% (219) met criteria for diagnosis of psychiatric disorder. Nearly a quarter (22.5%) of these subjects had depression followed by personality disorders (9.8%) (Figure 1 & Table 2). Peer

Drugs	Yes (%)	No (%)	Total
Heroin	410 (70)	179 (30)	589
Heroin Injectable	49 (8)	540 (92)	589
Opium	60 (10)	529 (90)	589
Cannabis	259 (44)	312 (56)	589
Alcohol	105 (18)	484 (82)	589
Benzodiazepines	49 (8)	540 (92)	589
Poly Drugs	162 (28)	427 (72)	589
Injectable	95 (16)	494 (84)	589

Table 1: Frequency distribution of various drugs used for substance abuse.

group pressure was found to be the most prevalent factor contributing to addiction (67%, n=394 out of 589). Other factors included social problems, unknowingly started, for recreational use, family history of substance dependence, medical reasons and romantic relationship involvements (Table 3).

A significant association was seen between co-morbid psychiatric diagnosis and reason for addiction,  $X^2 (247, N=404)=726.99, p<0.001$ . There were 18.6% (n=49) subjects who had peer group pressure as a major factor for addiction. A significant association was also seen between co-morbid psychiatric diagnosis and heroin dependence,  $X^2 (13, N=408)=22.02, p=0.038$ , with depression being the commonest psychiatric co-morbidity among heroin abusers (23.1%, n=65). Similarly there was also a significant association between co-morbid psychiatric diagnosis and benzodiazepines abuse,  $X^2 (13, N=390)=41.44, p=0.001$  with maximum number of benzodiazepine abusers having personality disorders (26.8%, n=11) (Table 2). When the subjects with various drug dependences were studied separately, the following reasons for addiction were found to be significantly associated with heroin abuse,  $X^2 (20, N=569)=437.08, p=0.005$ , with peer group pressure being the most common factor for addiction among individuals with heroin abuser (70.3%, n=282). Use of injectables was also found to be significantly associated with education,  $X^2 (6, N=543)=22.34, p=0.002$ , with maximum number of individuals who were illiterate, using injections for administration of drugs (28.0%, n=26).

## Discussion

Results showed that the rate of psychiatric co-morbidity reached up to 53.5% in the current sample of patients with substance dependence. There is evidence from other research which suggest that psychiatric co-morbidity in patients with drug addiction is increasing with time [6]. Substance use disorder and co-morbid psychiatric disorder are widespread in general population and can impact day to day functioning [7].

From an etiological perspective, our study doesn't shed light into the causal mechanisms underlying substance use and co-morbid psychiatric conditions but following are some of the proposed possibilities. One is that the substance dependence makes a person vulnerable to mental illnesses, the second option is vice versa, and other possibility is that

Psychiatric Comorbidity	Heroin Abuse			Benzodiazepine Abuse		
	Yes Observed count (% age)	No Observed count (% age)	Total Count (% age)	Yes Observed count (% age)	No Observed count (% age)	Total Count (% age)
Anxiety	12 (4.3)	3 (2.4)	15 (3.7)	1 (2.4)	13 (3.7)	14 (3.6)
Bipolar Affective Disorder	0 (0.0)	5 (3.9)	5 (1.2)	0 (0.0)	5 (1.4)	5 (1.3)
Schizophrenia	1 (0.4)	0 (0.0)	1 (0.2)	1 (2.4)	0 (0.0)	1 (0.3)
Phobic Anxiety	3 (1.1)	2 (1.6)	5 (1.2)	0 (0.0)	5 (1.4)	5 (1.3)
OCD	0 (0.0)	1 (0.8)	1 (0.2)	1 (2.4)	0 (0.0)	1 (0.3)
Psychosis	6 (2.1)	5 (3.9)	11 (2.7)	0 (0.0)	8 (2.3)	8 (2.1)
Depression	65 (23.1)	27 (21.3)	92 (22.5)	7 (17.1)	74 (21.2)	81 (20.8)
Other	17 (6.0)	12 (9.4)	29 (7.1)	5 (12.2)	23 (6.6)	28 (7.2)
Depressive	7 (2.5)	4 (3.1)	11 (2.7)	0 (0.0)	11 (3.2)	11 (2.8)
Personality Disorder + Bipolar Affective Disorder	2 (0.7)	0 (0.0)	2 (0.5)	1 (2.4)	1 (0.3)	2 (0.5)
Passive	0 (0.0)	1 (0.8)	1 (0.2)	0 (0.0)	1 (0.3)	1 (0.3)
Personality Disorders	29 (10.3)	10 (7.9)	39 (9.6)	11 (26.8)	28 (8.0)	39 (10.0)
Aggressive	5 (1.8)	1 (0.8)	6 (1.5)	0 (0.0)	5 (1.4)	5 (1.3)
None	134 (47.7)	56 (44.1)	190 (46.6)	14 (34.1)	175 (50.1)	189 (48.5)
Total Count (%age)	281 (100.0)	127 (100.0)	408 (100)	41 (100.00)	349 (100.0)	390 (100.0)
p-value	0.038			0.001		

Table 2: Contingency table showing observed counts of various Psychiatric comorbidities in subjects with and without heroin abuse and benzodiazepine abuse.

Reason for Addiction	Heroin Abuse		
	Yes Observed count (% age)	No Observed count (% age)	Total Count (% age)
Peer Group	282 (70.3)	106 (63.1)	388 (68.2)
Social Problems	18 (4.5)	12 (7.1)	30 (5.3)
Unknowingness	7 (1.7)	3 (1.8)	10 (1.8)
Psychotic Illness	2 (0.5)	7 (4.2)	9 (1.6)
for Fun	12 (3.0)	4 (2.4)	16 (2.8)
History of Drug use in Family	10 (2.5)	2 (1.2)	12 (2.1)
Other	1 (0.2)	4 (2.4)	5 (0.9)
Peer Group + Social Problem	9 (2.2)	1 (0.6)	10 (1.8)
Peer Group + Unknowingness	7 (1.7)	5 (3.0)	12 (2.1)
Peer Group + For Fun	32 (8.0)	10 (6.0)	42 (7.4)
Peer Group + Family History	4 (1.0)	3 (1.8)	7 (1.2)
Social Problem + For Fun	0 (0.0)	1 (0.6)	1 (0.2)
Social Problem + Family History	2 (0.5)	0 (0.0)	2 (0.4)
Unknowingness + Family History	1 (0.2)	0 (0.0)	1 (0.2)
For Fun + Family History	2 (0.5)	0 (0.0)	2 (0.4)
Medical Reason	0 (0.0)	1 (0.6)	1 (0.2)
Peer Group + For Fun + Family History	1 (0.2)	1 (0.6)	2 (0.4)
For Love	2 (0.5)	0 (0.0)	2 (0.4)
bad company	3 (0.7)	1 (0.6)	4 (0.7)
Family Problem	1 (0.2)	0 (0.0)	1 (0.2)
None	5 (1.2)	7 (1.2)	12 (2.1)
<b>Total Count (%)</b>	<b>401 (100.0)</b>	<b>168 (100)</b>	<b>569 (100.0)</b>
p-value	0.005		

Table 3: Contingency table showing observed counts of various reasons for addiction in subjects with and without heroin abuse.

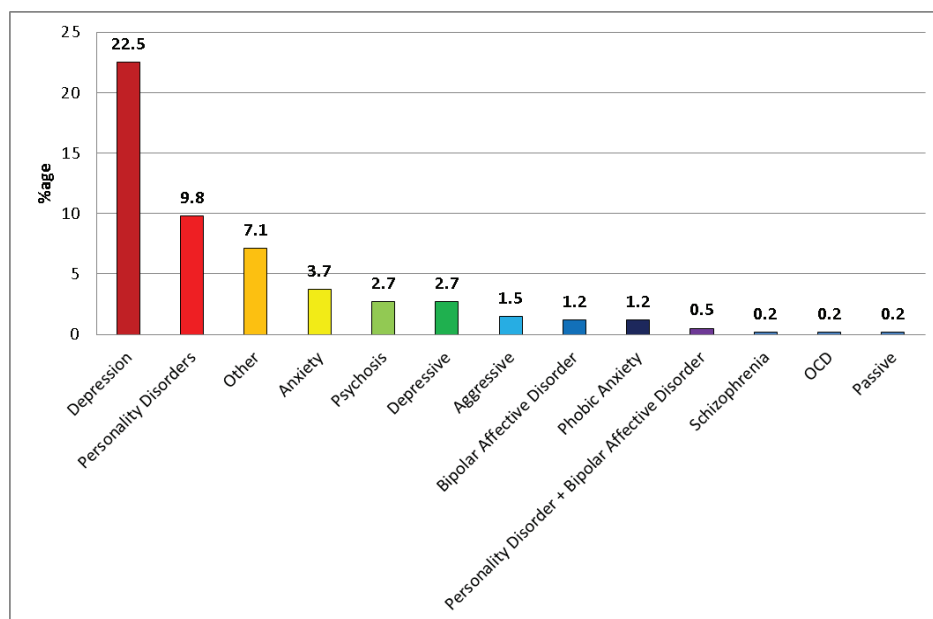


Figure 1: Percentage distribution of various comorbid psychiatric disorders in study sample.

there may be additional factors responsible for the co-occurrence. It may be the presence of a specific common gene that produces the biological vulnerability in the individual for both disorders. It is also possible that there might be similar chemical compounds that act on the brain that then contributes to the co-occurrence of both addiction and other psychiatric symptoms, for example similar dopaminergic pathways setting the stage for both [8]. This explanation seems possible because depression is found out to be the biggest co morbidity in the sample.

Age of onset for both of these co-morbidities is late adolescence or early adulthood. This is a vulnerable age due to brain maturation

occurring which can increase the risk for both conditions due to potential neurobiological vulnerability. The factors that play a key role in mediating this process are brain circuits involved in learning, memory, reward, decision making, and behavioral control. These circuits start maturing in adolescence and continue to mature into early adulthood [9].

A study done in Mexican adolescent population indicated that social problems like inappropriate sexual behavior, and dropping out from school, are socio demographic correlates of mental illnesses in youth in developing world [10].

Our results showed that depression is the biggest co-morbidity making up almost half of the proportion of co-morbid sample [11]. National Institute of Drug Abuse, co-morbid drug abuse and mental illness: a research update, 2007, reported similar findings regarding other mood disorders. Patients diagnosed with bipolar and anxiety disorders were estimated to be suffering from a substance abuse disorder twice more likely than the patients suffering from other psychiatric disorders.

Second largest co morbidity in our sample was with personality disorders. Another study reported depression and anti-social personality disorder co-morbidity of 12% and 20% in a sample of patients with addiction problems [3].

Study done by Davies, 2009 [5], also suggested that conduct disorder is among the most common co-morbidities of patients with substance abuse in adolescence. Study done by Nyhlen et al. [3] reported that of the total patients with substance abuse, 20% of the cohort also received the diagnosis of anti-social personality disorder. Miller et al. [12] estimated that 5.4 million violent crimes and 8 million property crimes involved alcohol and other drug use in USA in 1999. Fridell et al. [13] reported higher number of registered crimes with individuals with substance use and co-morbid diagnosis of antisocial personality disorder.

In this study almost all the subjects were males, which might be because of social stigma especially among females as well as study was conducted in a city with higher rate of surrounding rural areas where this stigma might be even higher among female population.

Additional research is needed to examine the course and prognosis of substance use disorders and co-morbid psychiatric disorders. Psychiatric co-morbid disorders must be assessed and addressed by treating primary care physician and mental health clinician to improve prognosis.

## Conclusion

Findings showed that depression and personality disorders are frequently seen co-morbid with substance dependence. Peer group pressure may be considered as the most important factor for addiction. Subjects with heroin dependence have significantly higher prevalence of depression while subjects with benzodiazepines dependence had significantly higher prevalence of personality disorders. The healthcare providers should be trained in a way that psychiatric co-morbidities should be assessed earlier and treated well to decrease the rate of relapse in substance dependence. On the other hand, state officials, policy makers, and concerned government officials should pay special attention to minimize social problems in the society so that the segment of population that is introduced to the substances because of these can be protected.

Limitations of this study include, that data regarding co-morbidity was not available for 180 subjects which can have impact on the various co-morbidities. Another limitation was that study was done in one city, with almost all the subjects being males, which could be due to high stigma associated with seeking mental health care in females especially if substance dependence is a problem. The future studies should be done at various centers around the country including both in rural and urban settings with a diverse population.

## Disclosures

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## Informed Cons

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all the patients for being included in the study.

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