

## PREVALENCE AND PATTERN OF SUBSTANCE MISUSE IN FIRST-EPIISODE PSYCHOSIS AND ITS ASSOCIATED FACTORS

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**ABSTRACT**

**Background:** A number of studies suggest a high level of comorbidity between substance abuse and schizophrenia. A high incidence of substance abuse is also observed in first-episode patients, among whom the rates of substance abuse have been found to range from 20% to 30%. The objective is the present study was being undertaken to estimate the prevalence of substance misuse in first-episode psychosis and identify the pattern of substance misuse and relationships with diagnosis, mode of presentation and other demographic variables. **Material & methods:** A cross-sectional study was conducted in the Department of Psychiatry, Regional Institute of Medical Sciences (RIMS), Lamphelpat, during the period of April 2009 – March 2010. All consecutive patients aged  $\geq 18$  years of both sexes presenting for the first time with psychotic symptoms admitted in the Psychiatric ward of RIMS Hospital and who fulfill the criteria of first episode psychosis. The Brief psychiatric rating Scale (BPRS) was used to measure major psychotic and non-psychotic symptoms in individuals with a major psychiatric disorder. The 18 item BPRS is perhaps the most researched instrument in psychiatry.<sup>[23]</sup> The Alcohol Use Disorders Identification Test (AUDIT), which is a validated tool and the Drug Abuse Screening Test (DAST) was also used to score the substance misuse. Socio-demographic profile of the patient, substance use/abuse history was recorded by using a Semi-structured proforma. **Results:** Over a 12 months' period (2009-2010), 125 cases of psychosis met the inclusion criteria for first episode psychosis and were included in the study. The overall prevalence of substance misuse was found to be 32 (25.6%). The maximum numbers of First Episode Psychosis cases were found to be non-substance misusers (93; 74.4%). Among the 32 substance misusers, maximum number was found to be misusing alcohol (14; 43.8%) followed by polysubstance misuse (9; 28.1%), cannabis and opioids (4; 12.5% each) and others (1; 3.1%). Out of all the demographic variable, having a history of mental illness in the family was found to be significantly associated with higher Brief Psychiatric Scale reading. Age, sex, age at initiation of abuse and duration of untreated psychosis were not related with BPRS. The mean BPRS was found to be significantly different between the non-misusers and misusers. Logistic regression showed that, patients with the age at onset 25-35 years had 2.5 higher chance of misusing drugs as compared to patients of the age at onset 18-24 years. Similarly, patients with age at onset 36 years and above had 1.2 times higher chance of misusing drugs as compared to patients with lower ages. Regarding sex, the coefficient is highly significant (OR=0.95; p=0.03) implying that, as compared to male patients, females had less risk of increasing BPRS score. Further, as compared to patients without MIF, those who had MIF present had higher risk of increasing BPRS score (OR=1.095; p=0.003). **Conclusion:** This study shows that the prevalence of substance misuse in first episode is very high and almost exclusively associated with male gender and the younger age group. Alcohol was the most commonly misused substance followed by polysubstance abuse and then by cannabis, opioids and other substances. The most common diagnosis among those who presented with FEP was Psychosis NOS followed by Affective psychosis and others. Mental illness in the family and harmful or hazardous substance misuse was associated with increased psychotic symptoms at admission. Patients with early initiation to substance misuse were associated with earlier onset of psychosis.



## INTRODUCTION

Drugs have been part of human existence for thousands of years. For example, opium has been used for medicinal purposes for at least 3,500 years, references to cannabis (marijuana) as a medicinal can be found in ancient Chinese herbals, wine is mentioned frequently in the Bible, and the indigenous people of Western Hemisphere were smoking tobacco and chewing coca leaves generation before the arrival of the Spaniards. As new and more concentrated forms of drugs were discovered or invented or new routes of administering them were developed, new problems related to their use emerged. In 18<sup>th</sup> and 19<sup>th</sup> century England, for example, the alcohol-related problems seen after the introduction of cheap gin were considered more serious than those associated with beer and wine. Although in Asia, opium smoking was a major problem in the 18<sup>th</sup> and 19<sup>th</sup> centuries, new problems related to opium were seen there and in other parts of the world after morphine, its most active alkaloid was isolated in 1806. With the introduction of the hypodermic needle in the mid-19<sup>th</sup> century, morphine could be injected and became subject to misuse by that route. Intravenous morphine and heroin use began to spread in the early part of the 20<sup>th</sup> century.<sup>[1]</sup> A number of studies suggest a high level of comorbidity between substance abuse and schizophrenia.<sup>[2-4]</sup> and approximately half of the patients suffering from schizophrenia have also been substance abusers at some point during their illness.<sup>[5]</sup> The comorbidity of schizophrenia and substance abuse is associated with more frequent relapses, more positive symptoms and depression, cognitive impairment, and a poorer outcome and treatment response.<sup>[6-10]</sup> Several hypotheses have been put forward to explain the relationship between schizophrenia and substance abuse.<sup>[9-12]</sup> It has been hypothesized that substance abuse may increase the risk of schizophrenia, at least in vulnerable individuals.<sup>[13,14]</sup> The self-medication hypothesis suggests that patients abuse drugs to alleviate the symptoms of psychosis or the debilitating side effects caused by antipsychotic medications, such as extrapyramidal symptoms.<sup>[15]</sup> And, finally, it could be a merely coincidental association of two psychiatric disorders that have similar age peaks in the distribution of onset and prevalence but without any causal interrelation. A high incidence of substance abuse is also observed in first-episode patients, among whom the rates of substance abuse have been found to range from 20% to 30%.<sup>[9,15]</sup> Substance misuse in functional psychosis is common,<sup>[1,2]</sup> and may be increasing over time.<sup>[16]</sup> Use is associated with greater severity of symptoms and poorer prognosis.<sup>[17,18]</sup> Most existing studies draw subjects from populations with varying durations of illness. Those that focus on first-episode psychosis are almost exclusively North American.

Rates for substance misuse in these cohorts have ranged between 20 and 30%.<sup>[19,20]</sup>

The Indian overall main findings were summarized as thus: Alcohol, cannabis, opium and heroin are the major drugs of abuse. The number of persons requiring treatment is large. Drug abuse is seen in both rural and urban India which is against the previously held belief that it is mostly found in urban population. Several common variables associated with drug abuse were identified across various survey components and thematic studies. Congruence between treatment seeking and the extent of the problem in a given state was lacking.<sup>[21]</sup>

State scenario: Manipur is a small state in the North eastern India. It has a long border with Myanmar (Burma) on its eastern and southern side. The “Golden Triangle” where much of the world’s production of Heroin is produced, is just across Myanmar. The state has a population of about 22.9 lakhs as per the 2001 census, and is inhabited by many ethnic groups like, the Meitei, the Nagas, the Kukis and Mizos and other tribes besides immigrants like the Muslims and other groups from different parts of the country. Singh AD et al have reported that in the last two decades a state of permissiveness on the part of the elders and defiance on the part of the youth have crept into Manipur’s society.<sup>[22]</sup> There has been a visible increase in the consumption of alcohol. It has become a status symbol to take and serve alcoholic beverage in the social gathering. Heroin is believed to have been introduced in the late 70s and large-scale abuse started in the 80s and seems to have waned a little after the advent of HIV. At present there are reports of large-scale abuse of drugs like Spasmo-proxyvon, a pharmacological opioid. Inhalant abuse too is prevalent in the state.

This study was undertaken to identify the prevalence and pattern of substance use and misuse in first-episode psychosis and relationships with diagnosis, mode of presentation and other demographic variables.

**Objectives:** The present study was being undertaken to estimate the prevalence of substance misuse in first-episode psychosis and identify the pattern of substance misuse and relationships with diagnosis, mode of presentation and other demographic variables.

## MATERIALS AND METHODS

A cross-sectional study was conducted in the Department of Psychiatry, Regional Institute of Medical Sciences (RIMS), Lamphelpat, during the period of April 2009 – March 2010. All consecutive patients aged  $\geq 18$  years of both sexes presenting for the first time with psychotic symptoms admitted in the Psychiatric ward of RIMS Hospital and who fulfill the criteria of first episode psychosis. Patients with organic medical conditions, history of brain damage or epilepsy, mental retardation, acute intoxication states, more than six months of prior

treatment with antipsychotics and not willing to give consent were excluded.

The First Episode Psychosis includes any individual presenting with presence of psychotic features of at least one week and who has received less than six months of treatment for psychotic conditions at the time of initial assessment. Substance Misuse is defined as drug or alcohol taking which causes harm to the individuals, their significant others or the wider community. A broad working definition of drug use will be made as use of illicit substance at least once monthly in the preceding year. Drug misuse is defined as daily use for a period of at least 2 weeks in the preceding year associated with evidence of significant psychological harm or dependence. For the purpose of this study, we excluded acute withdrawal states. Substances included in this study are illegal drugs, alcohol, tobacco, prescribed medicines including painkillers, sleeping tablets, and cold remedies, plants and fungi e.g. magic mushrooms, glues, aerosols, gases and solvents.

The Brief psychiatric rating Scale (BPRS) was used to measure major psychotic and non-psychotic symptoms in individuals with a major psychiatric disorder. The 18 item BPRS is perhaps the most researched instrument in psychiatry.<sup>[23]</sup> The Alcohol Use Disorders Identification Test (AUDIT), which is a validated tool and the Drug Abuse Screening Test (DAST) was also used to score the substance misuse. Socio-demographic profile of the patient, substance use/abuse history was recorded by using a Semi-structured proforma.

The collected data was scrutinized for completeness and analyzed in SPSSv15 using appropriate statistical methods like proportion, mean, median, independent t-test, Pearson  $\chi^2$ -test and logistic regression, wherever found suitable and necessary interpretation was done accordingly. A p value of <0.05 was considered as statically significant.

Prior permission was taken from the Institute Ethical Committee, Regional Institute of Medical Sciences

(RIMS), Imphal, before this study was conducted. Informed consent of the participants of the study was taken from participants and attendants. All the data was kept confidential.

## RESULTS

Over a 12 months' period (2009-2010), 125 cases of psychosis met the inclusion criteria for first episode psychosis and were included in the study. Males outnumbered females (84:41). Almost half of them belonged to the age-group of 25-35 years (58; 46.4%). Yet among the females, Majority of them (16; 39%) belonged to the younger age-group of 18-24 years. The mean age (SD) of the patients was 29.34 (8.934) years. By religion, were the majority (73.6%). It was observed that, most of the patients (64%) who reported with first episode psychosis are from rural area. Also, most of them are unemployed. Only 15 patients were employed in the government sectors.

Out of 125 patients who have reported first episode psychosis 17 of them are illiterate, 43 have educated up-to matric, 50 have passed XII and only 15 have attained higher degree that graduate and above. Half of them (62; 49.6%) were married. Among the illiterates, 88% were married whereas among the patients with higher degree, only 33% are married.

The majority of them (38.4%) belonged to monthly family income of Rs. 5000-10,000. This was followed by the below Rs. 5000 group (25.6%) and Rs 10,000-15,000 (19.2%).

Out of 125 patients who have reported first episode psychosis, approximately 10% of them have mental illness in their families.

The overall prevalence of substance misuse was found to be 32 (25.6%) with the community wise distribution of Hindus – 71.9%, Christian – 12.5, Muslims – 9.4% and Others – 6.3%. [Table 1]

**Table 1: Main substance misused among the study-participants (n=125)**

Type of Drug	Frequency (%)
No drug	93 (74.4)
Alcohol	14 (11.2)
Cannabis	4 (3.2)
Opioids	4 (3.2)
Poly-substance	9 (7.2)
Others	1 (0.08)
Total	32 (25.6)

The maximum numbers of First Episode Psychosis (FEP) cases were found to be non-substance misusers (93; 74.4%). There were no cases of substance misuse among the 41 females with FEP. Among the 32 substance misusers, maximum number was found

to be misusing alcohol (14; 43.8%) followed by polysubstance misuse (9; 28.1%), cannabis and opioids (4; 12.5% each) and others (1; 3.1%). [Table 2]

**Table 2: Main substance of Misuse among the misusers (n=32)**

Substance of misuse	Frequency (%)
Alcohol	14 (43.8)
Cannabis	4 (12.5)
Opioids	4 (12.5)

Polysubstance	9 (28.1)
Others	1 (3.1)
Total	32

The mean (SD) duration of untreated psychosis was found to be 16.61 (24.866) weeks. It was highest in the range of 1-6 months (61; 48.8%) which was

followed by less than 1 month (40; 32%) and more than 6 months (24; 19.2%).

**Table 3: Association between Brief Psychiatric Rating Scale and demographic variables**

Demographic variables	BPRS			P value
	≤34	35-49	≥50	
Age group (in years)				0.222
• 18-24	14	23	4	
• 25-35	20	33	5	
• 36 & above	15	8	3	
Sex				0.069
• Male	27	48	9	
• Female	22	16	3	
Mental illness in family				0.025*
• Absent	48	55	9	
• Present	1	9	3	
Age at initiation of abuse				0.126
• <18 years	3	16	6	
• 25-35 years	-	1	2	
• >36 years	-	2	1	
Duration of untreated psychosis				0.86
• <1 month	14	21	5	
• 1-6 months	20	34	7	
• >6 months	15	9	-	

Out of all the demographic variable, having a history of mental illness in the family was found to be significantly associated with higher Brief Psychiatric

Scale reading. Age, sex, age at initiation of abuse and duration of untreated psychosis were not related with BPRS.

**Table 4: Comparison of attributes between non-misusers and misusers**

Attributes	Finding	P value
Category of patients	Mean BPRS reading	<0.001*
• Non-misuser	34.85	
• Misuser	43.59	
Patient type	Type of substance misused	0.564
• Alcohol only	42.62	
• Alcohol plus others	43.93	
Category of patients	Mean age	0.334
• Non-misuser	28.88	
• Misuser	30.66	

The mean BPRS was found to be significantly different between the non-misusers and misusers. [Table 4]

The diagnoses made for the study-participants reported with the first episode psychosis were

Schizophrenia (18; 14.4%), Psychosis NOS (43; 34.4%), Affective psychosis (26; 20.8%), Acute transient psychosis (14; 11.2%), Depression with psychotic features (9; 7.2%) and Substance-induced psychosis (15; 12%).

**Table 5: Comparison between BPRS and AUDIT & DAST**

AUDIT score	Brief Psychiatric Rating Scale score			P value
	Up-to 34	35-49	≥50	
• 1-7	• -	• 1	• 2	• 0.754
• 8-14	• 1	• 1	• 1	
• ≥15	• 3	• 15	• 4	
• DAST score				• 0.034
• <6	• 1	• -	• -	
• ≥6	• 1	• 6	• 7	

The AUDIT score did not any significant association with BPRS score. But, the relationship between DAST score and BPRS score was found to be statistically significant. [Table 5]

Logistic regression showed that, patients with the age at onset 25-35 years had 2.5 higher chance of misusing drugs as compared to patients of the age at onset 18-24 years. Similarly, patients with age at onset 36 years and above had 1.2 times higher chance

of misusing drugs as compared to patients with lower ages. Regarding sex, the coefficient is highly significant (OR=0.95; p=0.03) implying that, as compared to male patients, females had less risk of increasing BPRS score. Further, as compared to patients without MIF, those who had MIF present had higher risk of increasing BPRS score (OR=1.095; p=0.003).

## DISCUSSION

In the current study, the mean (SD) age of onset of first episode psychosis for the total sample was 29.34 (8.934) years. The mean age of non-users is 28.88 years whereas for those with substance misuse the mean age is 30.66 years, with no statistically significant difference, in general. But, when analyzed among males, there was a significant difference. In an Italian study, the mean age (SD) at the time of the onset of schizophrenic symptoms was 26.14 (6.58) years (range 15–43), and their mean (SD) age at first admission was 27.53 (6.44) years.<sup>[24]</sup>

In this study, males constituted the majority (67.2%). And in the group of patients with substance misuse males constituted 100% (n=32) with no females being in this group. The striking finding was that, those cases of FEP psychosis with substance misuse were exclusively males, this finding is consistent with other studies for substance misuse in FEP. Patients with SUD were more likely to be males.<sup>[13,25]</sup> When those using substances were compared with those not using, the substance users were significantly more likely to be male<sup>[26]</sup>

In a study of First-episode Psychosis in a Malaysian Chinese population JS Gill et al found 63.2% were never married, 34.2 % were married and 2.6% were divorced.<sup>[27]</sup> In the present study, in the substance misuse group among the 32 patients, 18 (56.25%) were married and 14(43.75%) were unmarried.

In this study, out of 125 patients who have reported first episode psychosis 17 (13.6%) of them are illiterate, 43 (34.4%) have educated up-to matric, 50 (40%) have passed XII and only 15(12%) have attained higher degree that graduate and above. An earlier study found that, among the illiterates, 88% are married whereas, among the patients with higher degree, only 33% are married. 23% have been educated at tertiary level, 52.6% were educated to secondary level, and 21.1% had primary education only.<sup>[27]</sup>

In this study, most of patients who reported first episode psychosis are from rural areas, that is about 64% out of a total of 125 patients. Also, most of them are unemployed. Among the unemployed patients, 64.2% are from rural areas and the remaining 35.8% are from urban areas. In the US, Mueser et al compared substance misuse in schizophrenia in a rural and an urban area and found the rural areas had higher rates of alcohol and cannabis misuse, and lower rates of cocaine misuse.<sup>[28]</sup> Weaver et al reported substance misuse in patients with psychotic

illnesses in a suburban area to be about as high as that for similar patients in inner city London.<sup>[29]</sup> The findings are thus, comparable with the present study-findings. In this study, among patients who reported first episode psychosis, approximately 10% of them have mental illness in their families. This is lower than what was found in a first episode study of Malaysian Chinese population (30%).<sup>[27]</sup>

In this study, the maximum numbers of First Episode Psychosis (FEP) cases were found to be non-substance misusers (74.4%) whereas the remaining 25.6% were found to be associated with substance misuse. Criteria for drug use, drug misuse or alcohol misuse were met by 37% of the sample, one year prevalence rates were 19.5% (drug misuse) and 11.7% (alcohol misuse).<sup>[26]</sup> At presentation 55.8% currently used illicit drugs (with or without alcohol) and 35.1% currently misused alcohol with or without drugs.<sup>[30]</sup> Sevy et al observed that, alcohol and cannabis were the main substances for most first-episode patients.<sup>[5]</sup> Strakowski et al found that, 37% had a lifetime diagnosis of substance use disorder; of these 28% had a lifetime diagnosis of cannabis use disorder and 21% had a lifetime diagnosis of alcohol use disorder.<sup>[19]</sup> Alcohol was the most common drug of choice followed by stimulants, cannabis and sedative hypnotics.<sup>[31]</sup> The high prevalence of substance use among people with first episode psychosis is in accordance with previously published data from the UK, Cantwell et al, Australia and North America.<sup>[29,32-33]</sup> This may reflect the pattern of substance misuse in the general population, though a bigger study is needed to confirm this.

We found no significant association between age at onset or sex of the patients and the BPRS. and found no significant association. Yet, there was a mild association between sex and BPRS are a significant level of 20%. We found a statistically significant association between mental illness in family and BPRS score. This is in contrast with the observation of Sevy· Mauri and Andreason who found no difference in the family histories of schizophrenic substance users or non-users.<sup>[5,24,33]</sup>

It was seen that, the duration of untreated psychosis (DUP) was not associated with BPRS score. In a study in Singapore, E Pek et al and coworkers also, found no correlation with the DUP.<sup>[34]</sup> In this study, the mean BPRS between the drug users and non-users are significantly different (p=0.001).

In this study, out of the 125 patients who reported with first episode psychosis, according to the ICD-10 criteria 43 (34.4%) were diagnosed with Psychosis NOS, 26 (20.8%) were diagnosed with Affective psychosis (BPAD), 18 (14.4%) with Schizophrenia, 14 (11.2%) with Acute transient Psychosis, 9 (7.2%) with depression with psychotic features and 15 (12%) with Substance induced psychosis. This finding is comparable to another study done in England.<sup>[26]</sup>

We found that, majority of the patients were in the groups with BPRS up-to 34-49. 'Mildly ill' according to the CGI approximately corresponded to a BPRS total score of 31, 'moderately ill' to a BPRS score of

41 and 'markedly ill' to a BPRS score of 53.<sup>[35]</sup> So majority of the patients in our study fell in the 'mildly ill' and moderately ill category.

In this study, it was observed that, 79% of patients had an AUDIT score of 15 or more. An AUDIT score of 8 or more is associated with harmful or hazardous drinking, a score of 13 or more in women, and 15 or more in men, is likely to indicate alcohol dependence.<sup>[36]</sup>

In this study we compared the BPRS scores with the AUDIT and DAST scores. The AUDIT score did not have significant association with BPRS score. The patients with higher DAST scores tended to have higher BPRS scores. There is no earlier study which is consistent with these findings.

In this study, the age at initiation of drugs was highly associated with age at onset. There is no earlier study which is consistent with these findings. Also, as compared to male patients, females had less risk of increasing BPRS score. Again, as compared to patients with MIF absent those who have MIF present has higher risk of increasing BPRS score.

## CONCLUSION

This study shows that the prevalence of substance misuse in first episode is very high and almost exclusively associated with male gender and the younger age group. Alcohol was the most commonly misused substance followed by polysubstance abuse and then by cannabis, opioids and other substances. Most of the subjects who misused substance fulfilled the criteria for harmful or hazardous use.

The duration of untreated psychosis tended to be shorter than other Asian studies with most of the first episode psychosis reporting within the first six months of onset of symptoms.

The most common diagnosis among those who presented with FEP was Psychosis NOS followed by Affective psychosis and others. Mental illness in the family and harmful or hazardous substance misuse was associated with increased psychotic symptoms at admission. Patients with early initiation to substance misuse were associated with earlier onset of psychosis.

High rates of substance misuse in people with first episode psychosis highlight the need for the development of effective interventions which address substance misuse in vulnerable groups. Substance misuse histories should be properly detailed by clinicians to help further case management and to enable further research.

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