

Substance Use among Patients with Schizophrenia Attending Tertiary Care Psychiatric Hospital: A Cross Sectional Study

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Abstract

Background: It is a well known fact that majority of patients with schizophrenia use substances. Interrelationship between schizophrenia and substance use is complex & multifactorial. Patients with both schizophrenia & substance abuse pose a major clinical challenge to mental health professionals as it is associated with higher frequency of relapse. *Aims:* To identify the pattern of substance use in patients with schizophrenia, to correlate substance use in schizophrenia with various socio-demographic variables and to assess the relationship between the duration of schizophrenia and pattern of substance use. *Method:* 104 schizophrenia preceded substance use subjects attending both outpatient and inpatient department of Masina Hospital, Mumbai were included in the study. Demographic data was collected in a semi-structured proforma and substance use is assessed using Schedules for Clinical Assessment in Neuropsychiatry (SCAN) version-2.1. Obtained data was subjected to statistical analysis. *Results:* In our study, mean age of the patients was 35.02±8.84 years, predominantly males (68%), majority of them had not completed their high school (70%) and 57% were unemployed. Two-third of the subjects were from urban area and 49% lived in nuclear family. The most common substance of abuse was found to be tobacco (67%), followed by Alcohol (39%) and 44% of them had harmful use, 38% had occasional use of substances and 18% had dependence syndrome. Belonging to age group of 50-60 years, being unemployed, living in nuclear family and being divorcee were associated with using more than one substance. The most common reason of substance were boredom related (51%), to decrease psychotic symptoms (33.6%) and to decrease medication related side effects (23%). 52% of the subjects had up to 2 hospitalizations, 21.15% had 3-5 hospitalizations, 23.1% had 5-10 hospitalizations and was significantly associated with pattern of substance use. *Conclusions:* Problem use of drugs and alcohol by people with schizophrenia is greater than in the general population and is known to worsen the prognosis. This warrants proper evaluation, diagnosis and integrated service to tackle dual diagnosis patients holistically to ensure favorable outcome of this dual diagnosis.

Keywords: Schizophrenia; Substance Use Disorders; Tobacco; Dual Diagnosis.

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Introduction

Since time immortal, substance abuse has been linked with insanity [1]. As most of the

substances would precipitate psychotic symptoms on their own, and hence it was difficult to distinguish between substances induced psychosis and independent psychosis who use substances. At one point, all people who were considered "abnormal,"

whether due to mental illness, addiction, mental retardation, were largely treated the same. In recent years the problems of diagnosing and treating patients with psychiatric and substance abuse co-morbidities has become a serious concern. Those with co-occurring disorders face complex challenges. They have increased rates of relapse, hospitalization, homelessness, and HIV and Hepatitis C infection compared to those with either mental or substance use disorders alone [2,3,4]. Although such patients have always been in both psychiatric and addictive disorders programme, they have been largely ignored. Confusion, ambiguity, uncertainty, & rejection remain the dominant feelings and attitudes among the psychiatric professionals that must diagnose, and treat these patients. The substances of abuse such as LSD, cannabis and amphetamine have been reported to produce symptoms that mimic those of schizophrenia, thus confounding the diagnosis [5]. Rates of co-morbid substance misuse in schizophrenia are up to five times higher than in the general population [6].

It reflects both a high risk for drug use in subjects with mental illness and a high frequency of psychopathology triggered by drug use [7]. Substance use may colour the diagnosis, management and prognosis of Schizophrenia. People with schizophrenia who abuse drugs and alcohol have poorer outcomes than both their non-substance using counterparts and substance users in the general population [8,9]. They are likely to pose a burden to their families as well as to the societies to a greater extent than either a patient of substance abuse or schizophrenia alone. Psychoactive substances can also interact with the psychopharmacological agents used for the treatment of schizophrenia by directly counteracting their desired effects, by worsening their side effects profile or by altering their pharmacokinetic properties. These patients are often on the margins of psychiatric services, alienated by their poor compliance, social instability, behavioral problems, and high relapse rates and by the inflexibility of service structures to accommodate them. The greatest impediment to care, however, is often the lack of awareness of substance misuse and it's under diagnosis [10]. All these variables in combination can alter the course of illness in both acute and chronic frames [5]. There is paucity of Indian studies which necessitates the need for a study to explore the nature and extent of problem. Such information may be clinically useful and help in the formulation of multimodal treatment plans.

Materials & Methods

The sample size was calculated by using the formula $(1.96 \times p \times (1-q)) / (0.05)$ [2]. Considering the prevalence of substance use in Schizophrenia as 50% and 95% confidence, the target sample size was 96.104. Consecutive patients in whom schizophrenia preceded substance use attending outpatient and inpatient service at Masina Hospital, Mumbai were recruited and included in the study after taking informed consent to participate in the study. The socio-demographic, clinical details regarding substance use & schizophrenia were recorded in the semi structured proforma designed for study. The assessment of schizophrenia was done by initial clinical interview with the patient. ICD-10 and a schedule for Clinical Assessment in Neuropsychiatry (SCAN) 2.1 was applied to establish diagnosis of schizophrenia and substance use in patients enrolled for the study respectively. The data thus generated was coded and tabulated on the master sheet and the Statistical software SPSS 20.0 is used for the analysis of the data. Microsoft word and Excel have been used to generate graphs, tables etc.

Results

As shown in Table 1, In the present study of 104 subjects, 68% of them were males and 32% were females. Mean age of the study population is 35.02 ± 8.84 years. Majority of them were in the age group of 30-40 years (43%), followed by 20-30 years age group (32%). Among the study subjects 44% of them were married, 30% were unmarried and 16% were separated. Majority of them had not completed high school (70%), were unemployed (57%) and from urban area (67%). 49% live in nuclear family and 41% belong to 5000-10000 income group.

As shown in Table 2, The mean age of onset of schizophrenia was 26.09 years and the mean duration was 8.83 years. Mean age of onset of substance use was 29.79 years and the most commonly used substance was tobacco (67%) followed by alcohol (39%), beetle nut and cannabis (21%) respectively. The most common reason of substance use was found to be boredom (51%), to reduce psychotic symptoms (33.6%), and to alleviate medication related side effects (23%), to socialize (19.2%) and consumed due to craving/withdrawal symptoms (14.4%). The reason to relapse were mainly due to craving (35.5%), to reduce psychotic symptoms (33.6%), due to easy availability (27.8%), due to peer pressure (26%), to reduce withdrawal

symptoms (14.4%), and due to poor support (9.6%). 32.7% of subjects had family history of Schizophrenia and 39.4% had family history of substance use. Among the subjects 44% had harmful use, 38% had occasional use and 18% had dependence pattern (Table 3). 18.2% of the subjects use both alcohol and tobacco, 14.4% used both tobacco and betel nut and 10.5% used both tobacco and cannabis. Alcohol was significantly more used by males (Table 4). A stepwise logistic regression was applied to predict prevalence of substance use using gender, age, marital status, education, family type, occupation, income, habitat and age of onset of schizophrenia of the study subjects (Table 5). It was found that divorced subjects had 1.18 times

more chance of having more than one substance use compared to subjects who were married (aOR 1.188, p value 0.906). Female subjects had 1.688 times chance of having more than one substance use compared to males (aOR 1.688, p value 0.491). Being unemployed has 8 times more chance of having more than one substance use compared to employed subjects (aOR 8.028, p value 0.009). Those subjects belonging to nuclear family and residing in boarding home had significantly higher chances of having more than one substance use. Subjects aged 50-60 years have 10 times more chance of having more than one substance use compared to subjects aged between 10-20 years.

Table 1:

Variables	Male	Female
Age		
10-20	4.23	00.00
20-30	30.80	30.30
30-40	43.66	42.42
40-50	7.69	5.77
50-60	4.80	9.09
Total	68.3	31.7
Marital status		
Married	40.85	44.23
Never married	36.61	29.81
Divorced	8.45	6.73
Separated	12.68	16.35
Widow/widower	1.41	2.88
Educational status		
Illiterate	9.86	18.18
Primary school	28.16	15.15
Middle school	35.21	42.42
Higher secondary	14.08	12.12
Graduation	12.69	12.12
Occupation		
Employed	33.8	15.15
Presently unemployed	63.38	42.42
Student	2.82	3.03
Home maker	0.00	39.39
Living status		
Joint family	35.21	51..53
Nuclear family	52.11	42.42
Boarding home	12.68	6.05
Socio-economic status		
>10000	26.76	42.42
5000-100000	45.07	33.33
<5000	28.17	24.24
Habitat		
Rural	29.58	39.39
Urban	70.42	60.61

Table 2:

Variables	Percentage	Mean+SD
Age of onset		
10-20	14.42	26.09+5.04
21-30	70.19	
31-40	15.38	
Duration of illness		
1-5	39.42	8.83+7.07
6-10	29.80	
11-15	18.26	
16-20	6.73	
>20	5.76	
Age of onset of substance use		
10-20	0.76	29.79+6.15
21-30	50.96	
31-40	38.46	
41-50	4.80	
Duration of substance use		
1-5	69.26	5.28+5.47
6-10	21.45	
11-15	5.76	
>15	5.76	
Type of substance use		
Alcohol	39.4	
Tobacco	67.31	
Cannabis	21.15	
Betel nut	22.12	
Benzodiazepine	7.69	
Substance use pattern		
Occasional use	38	
Harmful use	44	
Dependence	18	
Reasons for substance intake		
Boredom	51	
Social reasons	19.2	
Psychotic symptoms	33.6	
Craving/Withdrawal symptoms	14.4	
Medication side effects	23	
Reason for relapse		
Craving	35.5	
To decrease psychotic symptom	33.6	
Easy availability	27.8	
Peer pressure	26	
Reduce withdrawal symptom	14.4	
Poor support	9.6	
Family history		
Schizophrenia	32.7	
Substance use	39.4	
No. of hospitalization		
0-2	51.92	
3-5	21.15	
5-10	23.08	
>10	3.80	

Table 3:

	Harmful use	Dependence	Occasional use	Total	P value
Alcohol	15	9	17	41	0.493
Tobacco	33	16	21	70	
Cannabis	10	2	10	22	
Betel nut	13	3	7	23	
Benzodiazepines	2	-	6	8	
others	1	-	2	3	
Female	17	4	12	33	0.45
Male	29	15	27	71	
No. of hospitalization					
0-2	31	9	14	54	0.023
3-5	6	3	13	22	
5-10	7	5	12	24	
>10	2	2	-	4	
Duration of schizophrenia					
1-5	18	6	17	41	0.407
6-10	15	6	10	31	
11-15	7	3	9	19	
16-20	4	2	1	7	
>20	2	3	1	6	

Table 4:

	Alcohol	Tobacco	Cannabis	Betel nut	Benzodiazepines	Others	P value
Female	6	19	4	17	4	2	0.187
Male	35	51	18	6	4	1	
P value	0.003	0.149	0.124	0.181	0.248	0.187	
Duration							
1-5	17	27	13	3	3	-	0.279
6-10	15	18	3	8	2	1	
11-15	5	15	5	8	2	2	
16-20	1	6	1	2	1	-	
>20	3	4	-	2	-	-	

Table 5:

Variables	Adjusted Odd Ratio	Confidence Interval	P-value
Marital status (Married)	Reference		
Marital status (Divorced)	1.188	0.069-20.546	0.906
Marital status (Never Married)	0.474	0.68-3.306	0.451
Marital status (Separated)	0.796	0.130-4.867	0.805
Gender (Male)	Reference		
Gender (Female)	1.688	0.380-7.506	0.491
Education (Illiterate)	Reference		
Education (Primary)	0.238	0.019-3.005	0.2670
Occupation (Employed)	Reference		
Occupation (Unemployed)	8.028	1.689-38.150	0.009*
Occupation (Student)	2.604	0.008-861.315	0.746
Living status (Joint family)	Reference		
Living status (Nuclear family)	4.120	1.038-16.351	0.044*
Living status (Boarding home)	29.732	2.319-381.254	0.009*
Income (More than 10000)	Reference		
Income (5-10 thousand)	0.291	0.056-1.593	0.142
Habitat (Rural)	Reference		
Habitat (Urban)	0.927	0.2742-3.14	0.903
Age (10-20years)	Reference		
Age (30-40 years)	7.541	0.021-2717.463	0.501
Age (50-60 years)	10.309	0.021-5109.205	0.461
Age of onset of Schizophrenia (10-20 years)	Reference		
Age of onset of Schizophrenia (30-40 years)	0.106	0.004-0.571	0.016*

The result is significant at $p < 0.05^*$

Discussion

In Chakraborty et al. majority of the subjects belonged to mean age group of 31.01 ± 8.16 and mean age at the time of the onset of schizophrenic symptoms was 25.08 ± 7.95 years which is similar in our study where mean age of the patients is 35.02 ± 8.84 years and mean age at the time of onset of schizophrenia was 26.09 which is also in line with those of previous studies [11,12,13,14,15]. In our study the mean age of the patients at the time of onset of substance use was 29.79 years, 68% were males, majority of them were unemployed (57%) and did not complete their high school (70%). This is in agreement to the general trend that people with schizophrenia who also have substance use disorders are more likely to be male, younger, less educated & from lower socioeconomic status [2,6,11,16-22]. 44% of the patients in the were married which is parallel to the previous studies reported by Aich K.T et al. 2004 & 2005 [20,23]. Whereas in most Western literature majority of substance abusing population were unmarried or separated/ divorced [8]. In our study we found 30% were unmarried and 16% were separated. Fowler L.I et al. 1998, found 73.2% of their study population belonged to urban background which is similar to our finding where 67% of subjects are from urban area [24].

Whereas some studies showed that most Schizophrenic patients with SUD belong to rural background [20,23]. Most of our study patients (57%) were unemployed similar to study conducted by Robin G. Mccreadie 2002 [25]. Majority of the study subjects were living in with family (89%) whereas in Robin G. Mccreadie 2002 study 45% stayed alone [25]. This can be due to the fact that this study was conducted in Indian setting. In the study most commonly used substance was tobacco (67%) which is similar to the findings by Ziedonis et al. 1994 and Patkar et al 2002 [26,27]. Alcohol was used by 39% of subjects which is parallel to the older studies [24,28,29,30]. Multiple studies showed the prevalence of cannabis among schizophrenics to be 20-30%, which is similar to our study (21%) [31,32, 33,34,35]. According to Addington et al. 2007, substance misuse in schizophrenics was significantly associated with male gender, young age and 33% had cannabis misuse which correlated with our study [36]. Sullivan J.R et al. 2000, (74.3%) indicated that beetle nut chewing is associated with less severe symptoms of schizophrenia and in our study 21% chewed beetle nut and 74% of them were females [37].

Available literature reveals no consistent pattern of drug/alcohol abuse amongst patients of schizophrenia. Such variability probably indicates that availability, rather than the specific CNS effects of the drug, determine the choice of drugs in schizophrenia patients ('environmental determinants' of substance abuse) [20]. The most common reason of substance use was found to be boredom (51%), to reduce psychotic symptoms (33.6%), and to alleviate medication related side effects (23%), to socialize (19.2%) and consumed due to craving/withdrawal symptoms (14.4%). Some subjects had multiple reasons for the substance use. In Fowler et al. study 1998, patients reported dysphoria relief as the most common reason of substance use whereas relief of antipsychotic drug side effects were reported by 9% of users [24]. An Indian study has indicated 3 main motives for substance use maintenance in patients with schizophrenia were to cope with negative moods, "decrease depression," or "relax", to feel energetic, improve low self-esteem, or "feel good" and to reduce withdrawal, "get high," or achieve intoxication [38]. Whereas in the study population the reason to relapse were mainly due to craving (35.5%), to reduce psychotic symptoms (33.6%), due to easy availability (27.8%), due to peer pressure (26%), to reduce withdrawal symptoms (14.4%), and due to poor support (9.6%). Family history of substance use predict SUD in patients with schizophrenia [3,17,19,22,39].

Our values are quite high (39.4%) compared to Aich K.T et al. study which showed 8.6% with positive family history [20]. On application of SCAN 44% patients had harmful use, 38% had occasional use of substances and 18% had dependence syndrome. Robin G. Mccreadie 2002 reported problem use of substances is more than dependence & harmful use which is contrary to our finding [25]. Our study showed more betel nut use among females (74%) and more alcohol use among males (85%). This can be due to the changing trend which is reflected in National Family Health Survey (NFHS-3) which reported increase in alcohol use among males since the NFHS- 2 and an increase in tobacco and betel nut use among women [40]. High prevalence of alcohol use by males is also supported by a study Miles H et al. 2003 study [41]. Drake and Wallach reported that 78% were poly substance abusers whereas here 53% used more than one substance [8]. In our study 52% had up to 2 hospitalizations, 21.15% had 3-5 hospitalizations & 23.1% had 5-10 hospitalizations. Our study showed significant

association between the pattern of substance use and number of hospitalizations which is consistent with Menezes et al study 1996 which reported that inpatient admission rates among dually diagnosed patients were almost double those of patients with psychosis alone [3]. Although no significant association between the durations of schizophrenia and pattern of substance use was found in our study, 59.1% of subjects who used cannabis belong to 5-10 years (duration of schizophrenia) group and mean age of onset of schizophrenia among cannabis users found to be 23.3 and 82% were males. Barnes et al. 2006, proposed that there is a strong association between cannabis use and schizophrenia & provides further evidence that the early onset of symptoms is a risk factor for cannabis use [19,42,43].

Conclusions

The present study was designed to study patterns of substance use and correlate various sociodemographic variables in patients with schizophrenia preceding substance use. A sample of 104 consecutive cases in the age group of 15-60 years of either sex with diagnosis of Schizophrenia (as per ICD-10) preceding substance use were included in the study.

Following are the main findings from our study

- Tobacco was the commonly used substance followed by alcohol, beetle nut, cannabis and others. Most commonly used substance among males was alcohol and tobacco & in females was tobacco and beetle nut.
- Younger age, predominantly males, low education, being unemployed, being a divorcee, living in nuclear family with family history of substance use, and living in an urban area are important sociodemographic variables influencing substance use in patients with schizophrenia.
- There was increased number of hospitalizations in the study group which indicates increased relapses due to substance use. This warrants integrated service to tackle dual diagnosis patients effectively.
- Evaluation & diagnosis of SUD in patients with schizophrenia is of paramount importance to treat holistically with integrated services to ensure favorable outcome of this dual diagnosis.

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