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Substance use among outdoor treatment-seeking patients with mental illness: A case–control study from a tertiary care hospital of northern India

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Abstract:

BACKGROUND: Substance abuse and mental disorder often coexist and may cause several consequences in sociooccupational functioning and health care and management. Indian data are sparse in this area.

OBJECTIVES: The aim of the study was to examine the sociodemographic profile, pattern, and prevalence of alcohol and substance use among person suffering with mental illness and to compare with those without mental illness.

METHODS: A total of 80 treatment-seeking patients with mental illness and 80 nontreatment seeking healthy accompanying persons were assessed for current substance use. Mental illness was screened using Structured Clinical Interview for DSM-IV Axis I Disorders and the diagnosis was made as per DSM IV, semi-structured sociodemographic pro forma was also applied. The data collected were analyzed using the Chi-square and Student's *t*-test.

RESULTS: Substance use was found 2.5 times higher among cases (56.2%) than controls (22.5%). Substance-using participants comprised mainly males belonging to rural residence. The substance using cases were more unmarried, less educated, poorer economically, and more nuclear family structures than substance-using controls. When compared with non-substance using cases, cases with substance use had more males than females and lower education. Although both groups were almost similar in term of marital status, family structure, residence, and socioeconomic status. Among both groups, most common substance use was tobacco, followed by alcohol and cannabis. Although all the substances were more prevalent among cases than controls. The prevalence of any substance use was highest among cases with psychotic disorder (77.3%), followed by unipolar depression (62.5%), bipolar affective disorder (41.7%), and anxiety disorders (21.4%). Tobacco and cannabis use was most prevalent among cases suffering with psychotic disorders, whereas alcohol use was most prevalent among cases suffering with unipolar depression.

CONCLUSIONS: Mentally ill individuals are vulnerable to develop substance use, thus they are doubly jeopardized. The susceptibility of these individuals stem from lesser insight, need for stimulation, to decrease the anhedonia induced by psychoactive medicines and poor awareness hence this group of individuals has several health and social consequences; therefore, they require due attention. A better care, support, and education are needed for substance using patients with mental illness to improve their prognosis and also help in their appropriate rehabilitation.

Keywords:

Epidemiology, mental disorders, prevalence, substance-related disorders

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Introduction

The mental illness and addictive disorders are among most burdensome disorders (Global Burden of Disease study)^[1] and often coexist but go undetected.^[2,3] Substance use disorder (SUD) in people with mental illness is associated with poor treatment compliance, course and outcome, higher homelessness, more unemployment, criminal offences, suicide, and poorer overall functioning whereas a reduction in substance use is associated with a reduction in subsequent admissions and symptoms.^[4,5]

Large epidemiological studies are available from developed part of the world, which have investigated the prevalence of SUD among person with mental illness,^[6-11] however from India only one such study by Dubé and Handa has been reported from a city of Agra.^[12] Further, there are some recent research highlighting the comorbidity of substance dependence and mental illness, Saddichha *et al.* studied subjects with SUDs and comorbid schizophrenia and bipolar affective disorder (BPAD) with patients of only SUDs. The two groups were compared for age, sex, and nicotine use. They found that amount of substance used was higher in the group with comorbid diagnosis and the commonest substance used was cannabis and then alcohol. Hundred cannabis dependence and alcohol dependence. A review study by Srivastava *et al.* on dual diagnosis of substance use and psychiatric disorders was limited in comprehensiveness percentage patients of schizophrenia, and 80% of the patients of mood disorders (BPAD) were suffering and included only a limited number of Indian studies on the subject.^[13-15]

A couple of large epidemiological studies are available from India investigating prevalence and pattern SUDs and mental disorders among general population separately.^[16-18] Furthermore, a few small hospital-based Indian studies have assessed for prevalence and pattern of comorbid SUD and patients with mental illness.^[19-23]

The cultural differences across different locations play an important role and can influence the pattern and prevalence of substance abuse. Therefore, a proper comparison of comorbid SUD is required, among patients with mental illness and among persons without mental illness, belonging to similar community. To the best of our knowledge, very few such studies are available. Substance use and mental illness can lead to significant disability-adjusted life years and the awareness regarding mental illness is also poor in this part of the country; hence for proper management of these disorders, the extent and seriousness of the problem has to be assessed. Therefore, to provide comprehensive management, rehabilitation, prevention, and to frame a proper regional health policy such research is required,

and need to be conducted from time to time reported routinely from different regions of the country.

The aim of present study was to examine the sociodemographic profile, pattern, and prevalence of alcohol and substance use among person suffering with mental illness and to compare with those without mental illness.

Methods

The study was carried out at Institute of Medical Sciences, Banaras Hindu University, Varanasi, a premier tertiary care hospital situated at northern part of India, catering to the medical needs of an approximate 15 crores population belonging to five states. A total of 80 cases and 80 controls were recruited. The sample size was decided by reviewing the past record of attendance of patients and also the time available; as this study was a part of postgraduate doctoral thesis; hence, the data collection was limited to 18–20 months. Cases were persons currently suffering from mental illness and registered in outdoor patient service of our department, whereas controls were persons accompanying with patients, who were neither seeking any treatment nor had suffered from any mental illness, except SUDs, all mental disorders were considered in the assessment. Usually, the psychotic and mood disorders are frequently reported in the outpatient walk-in set up, and this is true to the literature reviewed. Individuals not willing for consent or suffering with other comorbid medical condition were excluded. The study was started after approval from Ethics Committee of our institute. After formal consent, all participants were administered sociodemographic pro forma, Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I). All participants were assessed for current substance use.

Instruments and tools

Sociodemographic pro forma was used by investigators which is a semi-structured interview of sociodemographic variables such as age, sex, religion, marital status, education, occupation, monthly income, and residence this interview schedule was specifically developed for his study. SCID-I (First *et al.*, 1995) is a highly reliable semi-structured interview used to assess lifetime or current (past 1 month) axis 1 psychiatric disorders. It is administered by a clinician or trained mental health professional and takes about 1 h.

Analysis

Data were analyzed using IBM SPSS Statistics version 20, United States. Sociodemographic variables were described. Frequencies and percentages were used to describe the data. Due to small sample size and the data being not uniformly distributed, nonparametric tests were used. We could not

attempt any further statistical methods as the data were neither uniformly distributed nor the data available was huge. Categorical data were analyzed using Chi-square analysis, whereas continuous variables using Student's *t*-test. A significance level of 5% was used ($P = 0.05$).

Results

Sociodemographic profile

A total of 80 cases and 80 controls were included, majority comprised of males (69% vs. 81%; $P = 0.07$), Hindu (90% vs. 96%; $P = 0.12$), married (73.8% vs. 76.2%, $P = 0.715$), nuclear family (60% vs. 56%; $P = 0.63$), and rural residence (73% vs. 69%; $P = 0.39$). Mean age for cases (32.02 years \pm 10.39) was similar to controls (32.36 years \pm 9.45; $t = 0.22$, $P = 0.83$). Cases were less educated (0–8 years: 35.0% vs. 13.8%; 8–12 years: 36.2% vs. 47.5%; >12 years: 28.8% vs. 38.8%; $\chi^2 = 9.8$, $P = 0.007$), more unemployed (41% vs. 29%; $P = 0.25$), and socioeconomically poor (74% vs. 40%; $\chi^2 = 18.76$, $P < 0.001$) than controls.

Illness profile

As mentioned in inclusion criteria, all controls were free from psychiatric illness. Whereas, the included cases were suffering from unipolar depression, namely, major depressive disorder and dysthymia (40%), psychosis, namely, schizophrenia, schizo-affective disorder, persistent delusional disorder, acute and transient psychotic disorder (21%), BPAD (15%), and the remaining 17.5% with anxiety disorders (*viz.*, obsessive-compulsive disorder, generalized anxiety disorder, somatization disorder, posttraumatic stress disorder, and panic disorder).

Substance use profile

Substance use was found significantly higher among cases (56.2%) than controls (22.5%; $\chi^2 = 19.08$, $P < 0.001$). Among substance using participants, both groups mainly comprised of males (86.7% vs. 88.9%) and rural residence (75.6% vs. 66.7%). The substance using cases were more unmarried (24.4% vs. 5.9%), nuclear family (62.2% vs. 27.8%), less educated (42.2% vs. 16.7%), and socioeconomically poor (68.9% vs. 38.9%), when compared with controls.

When compared with cases without substance use, cases with substance use mainly comprised of males (86.7% vs. 45.7%) and lower education (42.2% vs. 25.7%). Whereas both groups consisted mainly married (75.6% vs. 71.4%), nuclear family (62.2% vs. 57.1%), rural residence (75.6% vs. 68.6%), and poor socioeconomic status (68.9% vs. 80%).

Pattern of substance use

Tobacco was the most common substance used by cases (48.8%) and controls (18.8%). It was used

alone (31% cases vs. 9% controls), and along with other substances (17.5% cases vs. 10% controls). Alcohol was the second-most common used (25% cases vs. 13.8% controls), alone (7.5% cases vs. 3.8% controls) as well as along with other substances (17.5% cases vs. 10% controls). Whereas cannabis was only used along with other substances (7.5% cases vs. 5% controls).

Relation between substance use and illness profile

Cases with substance use ($n = 45$) constituted patients with unipolar depression (44.4%), psychotic disorder (37.8%), BPAD (11.1%), and anxiety disorders (6.7%), whereas cases without substance use ($n = 35$) constituted patients with unipolar depression (34.2%), anxiety-related disorders (31.4%), BPAD (20.0%), and psychotic disorder (14.3%). The prevalence of any substance use was highest among cases with psychotic disorder (77.3%), followed by unipolar depression (62.5%), BPAD (41.7%), and anxiety disorder (21.4%). Tobacco was most prevalent among cases suffering with psychotic disorders (73%), followed by unipolar depression (50%), BPAD (33%), and anxiety disorders (20%). Alcohol was most prevalent among cases suffering with unipolar depression (67%), followed by psychosis (27%), BPAD (25%), and anxiety disorders (7%). Whereas cannabis was most prevalent among cases suffering with psychotic disorders (18%) followed by unipolar depression (13%) and BPAD (8%).

Discussion

This is one of the few cross-sectional case-control studies of outpatients at psychiatry department tertiary care center of India, especially from the northern part of the country, which provides important data regarding substance abuse among psychiatry patients. The study revealed more than half of the patients with mental illness were currently using any substances. The prevalence of overall substance use was found about 2.5 times more than control group (*i.e.* person without mental illness belonging to same community), but almost similar to national survey of the general population^[16] and recent Indian study on person with mental illness.^[24] The prevalence was however reported lesser than other countries (particularly Africa).^[25,26] Since many studies did not assess for tobacco use, the prevalence of substance use excluding tobacco was although higher than control group but similar to previous Indian studies^[20,24] and the UK.^[6] Table 1 summarizes and compares the presentation of SUD in some studies based on the sample size and methodology used of substance use among cases, controls, national survey among general population, previous Indian studies, and studies reported from other countries. Among all cases, substance use was found more prevalent among patients suffering with psychosis and depression than with bipolar disorder and anxiety disorders as has been seen in another research by

Table 1: Prevalence of substance use among patients with mental illness

Substance use	Cases (%)	Controls (%)	National survey of general population in India	Indian studies among patients	Other studies among patients
Substance use including tobacco	56.2	22.5	61% ^[16]	51% ^[24]	68.5%-83% ^[25,26]
Substance use other than tobacco	25	14	-	16.4%-22% ^[20,24]	24% ^[6]
Tobacco use	49	19	19%-54% ^[16,18,27]	29%-36% ^[23,24]	38%-59% ^[25,26]
Alcohol use	25	14	15.5% ^[16]	15.4% ^[24]	59%-78% ^[25,26]
Cannabis use	7.5	5	3% ^[16]	2.5% ^[24]	29%-53% ^[25,26]
Among cases with psychosis (n=22)					
Substance use including tobacco	77	22.5	61% ^[16]	47%-54% ^[21,24]	40%-45% ^[28,29]
Substance use other than tobacco	27	14	-	14%-20% ^[19,20,22]	37%-52% ^[4,30]
Tobacco use	73	19	19%-54% ^[16,18,27]	33-37% ^[21,22]	57%-70% ^[28,29,31]
Alcohol use	27	14	15.5% ^[16]	22-23% ^[21,22]	22%-47% ^[4,28,29,32-34]
Cannabis use	18	5	3% ^[16]	4%-33% ^[21,22]	12%-23% ^[28,29,34]
Among cases with unipolar depression (n=32)					
Any substance use	62.5	22.5	61% ^[16]	36% ^[24]	-
Substance use other than tobacco	67	14	-	-	19% ^[7]
Tobacco use	50	19	19%-54% ^[16,18,27]	-	-
Alcohol use	67	14	15.5% ^[16]	-	5%-67% ^[35]
Cannabis use	13	5	3% ^[16]	-	-
Among cases with bipolar disorder (n=12)					
Any substance use	42	22.5	61% ^[16]	47% ^[24]	-
Substance use other than tobacco	25	14	-	52% ^[36]	34%-61% ^[37-40]
Tobacco use	33	19	19%-54% ^[16,18,27]	-	-
Alcohol use	25	14	15.5% ^[16]	-	26%-58% ^[37,39,40]
Cannabis use	8	5	3% ^[16]	-	-
Among cases with anxiety disorder (n=14)					
Any substance use	21.4	22.5	61% ^[16]	31% ^[24]	-
Substance use other than tobacco	7	14	-	-	16.5% ^[7]
Tobacco use	20	19	19%-54% ^[16,18,27]	-	-
Alcohol use	7	14	15.5% ^[16]	-	12.5% ^[7]
Cannabis use	0	5	3% ^[16]	-	-

Srivastava *et al.*^[14] Overall, the prevalence of substance use was highest among patients with psychosis, whereas and lowest among patients with anxiety disorder.

Tobacco use was the most common substance used overall, and it was found highest among patients with psychosis. Higher tobacco use among patients with psychosis has been suggested to reduce cognitive symptoms, negative symptoms, and some of the side effects of antipsychotic drugs. Its use has been attributed to self-medication for its beneficial effects on symptoms of psychosis. However, studies have failed to show consistent benefits of nicotine use on symptoms of psychosis. Recent meta-analysis has even established a causal relationship between higher nicotine use and development of psychosis, but not vice-versa.^[31] In addition, high tobacco use among patients with psychosis leads to treatment failure by increasing antipsychotic clearance, and in long-term poses several health hazards and shortens longevity.

Following tobacco, the current study revealed alcohol as the second-most common substance used, with the highest use among patients with depression. Previous

studies have also reported higher rates of alcohol use among person with depression.^[35] A meta-analysis has reported the causal relationship between higher alcohol use and development of depression, but not vice-versa.^[41] Possible explanation for such causal relation is attributed to socioeconomic consequences of alcohol use, genetic linkage, and alteration in circadian rhythm and metabolic changes.^[41] Further, alcohol use has been reported to increase risk of relapse, suicide, health-care utilization, and worsening of course and social functioning in patients with depression.^[35]

Cannabis use was third most prevalent substance used, with the highest use among patients with psychosis. Despite clear evidence of association of cannabis use and psychosis in previous studies, it is still unclear whether cannabis use has causal relation in development of psychosis. However, it is well established that greater use of cannabis may cause intoxication-related psychotic symptoms and exacerbation and relapse of preexisting psychosis.^[42,43]

When compared with substance using controls, the present study found association between substance

use among patients with mental illness and poor education, financial, and social support. Therefore, a better education which can, directly and indirectly, have an impact on the financial status of the individual can have a substantial effect on the illness also a proper psychoeducation and rehabilitation of these patients can help in improving the prognosis of these subjects. Family and social support is required for patients suffering with mental illness to promote abstinence, thus improving their symptoms, living conditions, and longevity.

The study had a few limitations such as small sample size, and recruitment of participants from a hospital-based setting; therefore, the results cannot be generalized. Since the study was based on self-report and did not test participants for presence of drugs, the actual prevalence might be higher than reported. Therefore, differences in prevalence rates in these studies might be due to many factors such as methodological differences, instruments used for assessment of substance abuse, the population and location of the study, and the cultural factors. The information was collected from the patients and their caregivers. The conclusions could only throw light on the type, extent, frequency, and comorbidity of mental illness along with substance use. A good sample could have facilitated the use of advanced statistical methods.

Despite these limitations, this is one of the first studies from India to compare substance use pattern among patients with mental illness and persons belonging to similar community without mental illness. Our study is clinic based where either the very sick or very motivated people come since the hospital set up is self-referred; this point can lead to biases in the data as the less informed, those without attendants, those less motivated and less sick or very sick will be left out. Furthermore, a longitudinal study can answer the queries regarding why the mentally ill are susceptible to substance use. A single center and hospital based studies have limitations in comparison to the multisite and community-based studies these factors have to be considered while interpreting the results as several confounding factors and cultural differences are also to be considered.

Conclusions

Substance use is more prevalent among patients with mental illness than general population, which could lead to various health hazards, greater workload on health-care system, and therefore requires due attention and routine assessment and treatment of co-morbid substance use. A better follow-up of the mentally ill is needed to be able to address the comorbidity as and when it arises; therefore, awareness regarding the significant comorbidity of substance should be enquired during routine follow-ups of the psychiatric patients. Hence,

the need of the hour is to give importance to the primary disorder, i.e. mental illness. Better education and social support are required for substance use problems among patients suffering with mental illness. Further studies are required to investigate causal relation of various substance used in the development of mental illness.

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Conflicts of interest

There are no conflicts of interest.

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