COMPARISON OF SOCIODEMOGRAPHIC AND CLINICAL VARIABLES IN SCHIZOPHRENICS WITH AND WITHOUT SUBSTANCE ABUSE

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ABSTRACT

BACKGROUND

Substance abuse is associated with poor outcome in schizophrenia patients. Alcohol and cannabis were reported to be most commonly abused substances in schizophrenics. Great care is needed to manage these patients. Sociodemographic and clinical data from India is sparse and therefore the need for this study.

MATERIALS AND METHODS

Patients who gave written informed consent and met inclusion and exclusion criteria were taken into study. They were administered sociodemographic proforma, clinical profile sheet, and substance abuse proforma. Data was subjected to statistical analysis.

RESULTS

Mean age of substance abusers was 27.96 yrs. and of non-abusers group was 32.68 yrs. Non-abusers group had a later age of onset of schizophrenia compared to the substance abusers group (mean age at onset: 25.56 vs. 22.88 yrs.). Duration of schizophrenia in substance abusers was shorter compared to non-abusers (mean duration in months: 65.00 vs. 89.88). Onset of schizophrenia was acute in 2 and insidious in 21 patients of non-abusers group. Commonest subtype of schizophrenia was paranoid in 18 and 20 among substance abusers and non-abusers respectively. Family history of substance abuse was present in 12 substance abusers as compared to only 3 of non-abusers. Among substance abusers 60% abused alcohol, 28% cannabis, 28% opioids, and 16% were polysubstance abusers. Alcohol abuse had a later age of onset than both cannabis and opioids.

CONCLUSION

Substance abusing schizophrenics were younger than non-abusing. 60% of patients had completed middle school and more than half had semiskilled jobs. Majority were married. Substance abusers had earlier onset and shorter duration of schizophrenia than non-abusers. Most patients had paranoid schizophrenia and insidious onset of illness. Alcohol was commonest abused substance. Age of onset for alcohol abuse was higher than that for cannabis.

KEYWORDS

Schizophrenia, Substance Abuse, Clinical Variable, Alcohol.

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INTRODUCTION

Substance of abuse can produce symptoms that resemble those of schizophrenia. They can jeopardise management by their pharmacokinetic interactions. This comorbidity is associated with poor treatment compliance, increased rates of relapse, disruption of role functioning and greater burden.^{1,2} Understanding the psychopathology of organic mental disorders like substance abuse will help understand the psychopathology of schizophrenia.^{3,4} Rate of substance abuse among schizophrenics is twice that of general population.⁵ They usually receive partial care in either a psychiatric clinic or a de-addiction centre.⁶ So, when a substance abusing schizophrenic patient is to be treated, great care is warranted in understanding antecedent causes and risk behaviour.² Research in this important subset of schizophrenic patients is, however, fraught with many methodological problems and difficulties and therefore remain inconclusive.⁷

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MATERIAL AND METHODS

AIMS AND OBJECTIVES

To compare substance-abusing schizophrenics with non-substance abusing schizophrenics on specified demographic and clinical variables.

The sample was drawn from patients attending the outpatient clinic of at Vijayawada Institute of Mental Health and Neurosciences Hospital, Vijayawada. The sample consists of

1. 25 schizophrenics who did not abuse psychoactive substances and
2. 25 schizophrenics who fulfilled criteria for psychoactive substance abuse.

The patients in the sample were consecutive and were subjected to the following inclusion and exclusion criteria.

Inclusion Criteria

- A definitive clinical diagnosis of schizophrenia as per ICD-10.
- Schizophrenic syndrome presented either preceding substance abuse or persisting for at least 2 weeks of substance-free state.
- The substance abusing group in addition fulfilled ICD-10 diagnostic criteria of substance abuse and dependence.
- The patients of both groups received equivalent doses of

neuroleptic therapy.

- The patients of age between 18-55 yrs. were taken.

Exclusion Criteria

- Patient who has substance-induced psychoses.
- Patients who in addition suffered from mental retardation.
- Uncooperative patients (e.g. mute, severe formal thought disorder preventing meaningful communication).

Instruments

1. **Sociodemographic Proforma:** This proforma recorded patient's information regarding age, marital status, occupation, education, income, religion, family type, and locality of residence.
2. **Clinical Profile Sheet:** It recorded clinical details of patients, viz. age at onset of schizophrenia, onset type, duration of total illness, type of schizophrenia, and family.
3. **Substance Abuse Proforma:** Used for collecting information regarding substance abuse. It consists of type of drug, age at onset, duration of abuse, current amount and frequency, last use and family history of substance abuse.

Procedure for Study

Patients who gave written informed consent and met the inclusion and exclusion criteria were taken into the study on consecutive basis without any deliberate matching for specified clinical and sociodemographic variables except that they were on equivalent doses of neuroleptics. The two groups of consecutive patients fulfilling the criteria for study were administered the above-mentioned instruments. The patients were examined over or two sittings along with at least one family member to ensure reliability of information. The data thus generated was subjected to appropriate statistical analysis to meet the aims and objectives of the study.

Ethical Considerations

Throughout the study, ethical considerations were observed by taking informed consent ensuring confidentiality. Ensuring that treatment was not compromised in anyway by the study and not carrying out any invasive investigations.

Review of Literature

The reported rates of prevalence of substance abuse among the psychiatric patients vary from 15-65% for schizophrenics and major depressives, 50% for bipolar patients, and 21-32% for anxiety disorder patients.^{8,9} The term 'dual diagnosis patient' and 'mentally ill chemical abusers or MICA' have been coined to describe patients with co-existent mental illness and substance abuse.

Prevalence of Substance Abuse in Schizophrenics

Substance abuse has been recorded in 52% of schizophrenics consecutively admitted to psychiatric hospital.¹⁰ Further a life time prevalence of drug dependence was found in 36.8% of schizophrenics.¹¹ In another recent study in a sample of 205 psychiatric inpatients 76% of men and 34% of women admitted use of substance. Of the current users, 61.8% were schizophrenics.¹² These studies involve people in treatment for schizophrenia. Epidemiological data from the Epidemiologic Catchment Area (ECA) study in the USA recorded a lifetime prevalence rate of 47% for substance

abuse in schizophrenia compared to 87% in antisocial personality disorder, 56% in bipolar disorder, and 32% in depressive disorder.¹³

Pattern of Substance Abuse in Schizophrenics

Alcohol is the most common substances of abuse among schizophrenics.^{8,14,15} Some studies found Cannabis as the predominantly abused substance.^{16,17} The most commonly used combination of drugs was alcohol and cannabis. Cocaine, opiates, and sedatives were the other substances. But, psychiatric diagnosis was not related to the abuse of different classes of substance. Substance abuse was much more prevalent in the more "chronic" patients.^{9,18}

As regards substance abuse in schizophrenia, the available literature from India is sparse. In a general population study, 13.69% of schizophrenics were found to use drugs as compared to 16.33% of manic depressive patients and 2.21% of normal population.¹⁹ Only 79 of 480 schizophrenics (16.5%) abused drugs, mainly alcohol or cannabis in another study.²⁰ No study in India has focused on reasons for drug abuse or perceived effect of substances in schizophrenia.

AETIOLOGY

Aetiology of Substance Abuse in Schizophrenia Revolves Mainly Around 4 'Models' as Follows

1. The Two stage model posits that schizophrenics with better premorbid adjustment are more sociable and, therefore, more exposed to opportunities of substance abuse. Subsequent onset of psychosis accelerates the use to a pathological level as the individual attempts to cope with the stress of the developing mental illness.²¹
2. The Vulnerability Model hypothesizes that drug abuse may cause schizophrenia or increase the likelihood of its expression in an already vulnerable individual.²² It is derived from early observations of the psychotogenic properties of many substances of abuse.^{18,23-26} Increased vulnerability to addictive behaviour may reflect the effect of pathogenesis of schizophrenia on the neural circuitry mediating drug reward and reinforcement. Thus, schizophrenic patients may have a predilection for addictive behaviour as a primary disease symptom in parallel to and in many cases independent from their other symptoms.²⁷
3. The Self-Medication Model postulates that drug abusing schizophrenic patients maybe self-medicating their symptoms.²⁸ Some stimulant drugs produce improved functioning and reduced symptoms in some patients and interestingly some schizophrenic patients may preferentially abuse stimulant.²⁹ They are taken as they counteract distressing negative symptoms or neuroleptic-induced akathisia.^{30,31} Cocaine has been reported to reduce negative symptoms while cannabis increased positive symptoms of schizophrenia.^{30,32}
4. The Independence Model suggests that determinants of substance abuse in schizophrenia may not differ from those in general population. Alcohol and cocaine abusers reported that their drug of choice induced aggravation of schizophrenic symptoms, but they still continued to take drugs. This is against self-medication. However, co-morbid heroin abusers reported heroin-induced improvement of schizophrenic symptoms. Hence for opiates, there is support for self-medication.³³ Another

study in schizophrenics did not find any link between specific substance use and specific symptoms.¹⁵ Also, the reasons for drug use reported by the schizophrenic and non-schizophrenic subjects are similar.³⁴

Comparison between substance abusing and substance non-abusing schizophrenics (substance abusers and non-abusers).

Age: Co-morbid patients have been reported to be younger in most studies. 68% of co-morbid patients were below 40 years as compared to 48% of non-abusers.³⁵ Other studies also reported a younger age in substance abuse schizophrenics as compared to substance non-abusing schizophrenics.^{9,16,36}

Marital Status: 70-71% of substance abusers were found to be single/unmarried as compared to 59% of non-abusers.^{35,37} Schizophrenic subjects with current or lifetime diagnosis of substance abuse/dependence to be predominantly single males with higher rates of criminal charges.³⁸

Age at onset of schizophrenia: Early age of onset for substance abusers have been reported.^{24,37} However, those patients who had a past history of substance misuse had a significantly earlier age of onset for schizophrenia than those with no substance use.^{39,40}

Education: Statistically significant lower educational achievement was seen in co-morbid patients.^{40,41,42}

Employment: Only 11% of substance abusers group were employed.³⁰

Premorbid Adjustment: Substance abusers have better pre-morbid adjustment prior to the onset of schizophrenia as described earlier.²¹

Duration of Schizophrenia: Mean duration of schizophrenia in substance abusers was shorter than non-abusers in an older study.⁴³

Family History of Substance Abuse: Families of substance abusers were found to have more prevalence of substance abuse than those of non-abusers.³⁷

Substance of Abuse: Alcohol was the most common substance abused and the most common combination of substances abused were alcohol and cannabis.^{8,14,38}

Age of Onset of Substance Abuse: Cannabis abuse was started at an earlier age than that of alcohol in previous studies.^{40,44}

RESULTS

Variables	Substance Abusers (N=25)	Non-Abusers (N=25)	t/X2 Value
Age Mean	27.96	32.68	t = 2.01
S.D.	7.72	8.85	N.S.
Marital Status			
Married	16	18	X2 = 1.14
Unmarried	7	4	N.S.
Others	2	3	
Education			
< 6 yrs.	5	6	X2 = 0.13
7-12 yrs.	15	14	N.S.
7-13 > yrs.	5	5	
Occupation			
Semiskilled/Unskilled	13	13	X2 = 0.75
Student	5	3	N.S.
Unemployed	7	9	
Family Type			
Nuclear	8	8	X2 = 0.15
Joint	5	4	N.S.
Three Generation	12	13	
Religion			
Hinduism	22	22	X2 = 0
Islam	3	3	N.S.
Residence			
Urban	15	13	X2 = 0.32
Rural	10	12	N.S.

Table 1: Comparison Between Substance Abusers and Non-Abusers in Schizophrenia Across Sociodemographic Variables

N.S. - Nonsignificant

As shown in the Table 1, mean age of substance abusers group at the time of interview was 27.96 yrs. and that of non-abusers group was 32.68 yrs. Overall, the sociodemographic profile of the two groups was similar and there was no significant difference between the two groups.

Variables		Substance Abusers (N=25)	Non-Abusers (N=25)	t/X2 value
Age at the Onset of Schizophrenia (in yrs.)	Mean	22.88	25.56	t = 1.59
	S.D.	6.00	5.87	N.S.
Duration of Schizophrenia (in months)	Mean	65.00	89.88	t = 1.52
	S.D.	42.32	70.09	N.S.
Onset	Abrupt	0	1	X2=1.29 N.S.
	Acute	2	3	
	Insidious	3	21	
Type of Schizophrenia	Paranoid	18	20	X2= 0.45 N.S.
	Undiffer-entiated	4	3	
	Others	3	2	
Family History of Schizophrenia	Present	9	8	X2= 0.09 N.S.
	Absent	16	17	
Family History of Substance Abuse	Present	12	3	X2= 7.71 p < 0.01 significant
	Absent	13	22	

Table 2: Comparison Between Substance Abusers and Non-Abusers in Schizophrenia Across Clinical Variables

As shown in Table 2, the non-abusers group had a later age of onset of schizophrenia compared to the substance abusers group (mean age at onset: 25.56 vs. 22.88 yrs.). The duration of schizophrenia in the substance abusers group was shorter compared to the non-abusers group (mean duration in months: 65.00 vs. 89.88). The onset of schizophrenia was acute in 2 and insidious in 21 patients of non-abusers group. The common subtype of schizophrenia was paranoid - 18 and 20 patients in substance abusers and non-abusers group respectively. The family history of substance abuse was present in 12 substance abusers patients as compared to only 3 of non-abusers group.

Thus, overall the substance abusers and non-abusers groups were comparable across clinical variables of schizophrenia except for the substance abusers group having significantly more positive family history of substance abuse.

Substances of Abuse	No.	%	Age at Onset Mean $\pm$ S.D.
Alcohol	15	60	20.14 $\pm$ 4.14
Cannabis	7	28	18.73 $\pm$ 4.81
Opioids	7	28	18.17 $\pm$ 4.89

Table 3: No. and Percentage of Substances Taken by Substance Abusing Schizophrenics (N=25) Along with the Age of Onset of Substance Abuse

- The percentage calculations are based on N=25, hence add up to more than 100%.
- Four patients (16%), abusing polysubstances (3 patients of alcohol + cannabis and 1 patient of alcohol + opioid) are included in the Table.

Table 3 shows that the substance abusers group was abusing alcohol, cannabis, and opioids. The most common substances of abuse in substance abusers group in this study were alcohol (60%), followed by cannabis (28%), and opioids (28%) with equal frequency. 4 (16%) patient were polysubstance abusers. Alcohol abuse had a later age of onset than both cannabis and opioids.

DISCUSSION

The mean age of substance abusing schizophrenic group was less than the mean age of substance non-abusing schizophrenic group (substance abusers = 27.96 yrs. < non-abusers = 32.68 yrs.). This is in agreement to the general trend

that the substance abusers patients are younger compared to non-abusers patients.^{9,24,35,41} In an exception to this trend, a study of reported non-abusers patients to be younger (substance abusers = 27 < non-abusers = 29) a finding attributable to sampling bias in that the sample comprised of inpatients.⁴⁵ The finding of lower age of substance abusers group can be due to dual diagnosis patients seeking early treatment due to more serious nature of problem, increased awareness, better social adjustment, and less psychopathology compared to non-abusers group.

60% of patients of both the groups in our study had completed their middle school. This is in keeping with the literature where 61-78% of the patients are reported to have completed high school education.^{35,37} A slightly low level of achievement, middle school compared to high school, maybe due to general low level of educational attainment prevalent in our area.

In both the study groups, more than half of the patients were employed in semiskilled jobs (shopkeeper, farming, service, etc.) and were earning. This finding is in contrast to other studies where a majority in both groups of patients was unemployed.^{35,37} This could be explained by higher levels of tolerance of our society towards their illness or a lower severity of psychopathology.

Majority of our study group patients were married and living with the family. This is in contrast to the general trend in the literature, which reports that most of the schizophrenics with or without substance abuse are single and living alone.^{26,35,38}

Again this could be attributed to the culture of marriage at an early age higher jointedness of the family prevalent in this region. These factors may be contributing, in part, to most of our patients continuing to be employed despite their behavioural problems.

The religion and residence of the study group is in keeping with the profile of the population in the catchment area of our hospital.

We found that the substance abusers patients of our study group had less mean age at onset of schizophrenia compared to the non-abuser patients (22.88 yrs. vs. 25.56 yrs.). This finding conforms to most other studies.^{24,37,39,40} This may be due to substance abuse acting as a stressor and precipitating schizophrenia in an already vulnerable individual.

We also found that mean duration of schizophrenia in substance abusers group was shorter than in the non-abusers

group (65.0 month vs. 89.88). This is similar to the findings of another study (64 months vs. 78 months).⁴³ The early attendance of substance abusers group at our outpatient clinic could either mean a greater severity of problem behaviours (forcing early treatment seeking) or a better insight or adjustment (encouraging treatment seeking) or more social support being available.

In only 4 co-morbid patients, schizophrenia preceded onset of substance abuse with vice versa in 21 patients. There were no differences in type of substances abused, age at intake, onset, and other variables in those 4 cases. Neither the reasons for drug abuse varied significantly between them and the other 21 cases.

Most of the patients of both the groups belonged to the paranoid subtype and had an insidious onset of illness.

We discovered that the family history of substance abuse was significantly high in substance abusers than in non-abusers. This suggests that there may be familial determinants of substance abuse, which could be environmental, genetic, or both. Similar findings have been reported by another.³⁷ Substance abusers and non-abusers group did not differ across family history of schizophrenia. This suggests that compared to schizophrenia substance abuse has a greater potential for familial transmission.

Alcohol was abused by majority (60%) of the substance abusers group. This conforms to the findings of other studies of similar nature (52.2 to 77.3%).^{8,38} The most frequent abuse combination was alcohol and cannabis in a previous study, which again conforms to our finding of 75% of our polysubstance abusers abusing alcohol and cannabis.¹⁴ A high alcohol may be due to its easy availability, legal sanction, and less social stigma attached to its use compared to other drugs.

One study suggested that opioid abuse maybe underrepresented in the clinical samples due to their effectiveness as antipsychotics.⁴⁶

Age of onset of alcohol abuse (mean=19.63 yrs.) was higher than the age of onset of cannabis (mean=18.75 yrs.) and opioids (mean=18.67 yrs.). This agrees with other studies done recently.^{40,44} Since the current study focused on drugs of abuse likely to produce symptoms similar to schizophrenia, nicotine abuse was not given special attention to. It is one of the limitations of this study.

SUMMARY AND CONCLUSION

The mean age of substance abusing schizophrenic group was less than the mean age of substance non-abusing schizophrenic group. 60% of patients of both the groups in our study had completed their middle school. In both the study groups, more than half of the patients were employed in semiskilled jobs. Majority of the study group patients were married and living with family. The religion and residence of the study group was in keeping with the profile of the population in the catchment area of the hospital. Substance abusers had less mean age at onset of schizophrenia compared to the non-abuser patients. Mean duration of schizophrenia in substance abusers group was shorter than in the non-abusers group (65.0 month vs. 89.88). Most of the patients of both the groups belonged to paranoid subtype and had an insidious onset of illness. Family history of substance abuse was significantly high in substance abusers than in non-abusers. Alcohol was abused by majority (60%) of the substance abusers group. The most frequent substance abuse

combination was alcohol and cannabis. Age of onset of alcohol abuse (mean=19.63 yrs.) was higher than the age of onset of cannabis (mean=18.75 yrs.) and opioids (mean=18.67 yrs.).

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