

Research Article

Pharmacoepidemiological survey of schizophrenia in Central India

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ABSTRACT

Background: Schizophrenia is a chronic and debilitating psychiatric illness affecting around 0.3-0.7% of people at some point in their life. The rate of schizophrenia and related disorders is affected by some environmental factors and social variables. Therefore, pharmacoepidemiological survey of patients suffering from schizophrenia was carried out to analyze the sociodemographic profile and drug prescribing pattern.

Methods: A prospective observational study was conducted in psychiatry OPD of a tertiary care hospital for nine months. Diagnosis of schizophrenia was made according to DSM IV-TR criteria. Prescriptions were analyzed for socio demographic details, distribution of subsets of disease and psychotropic drugs prescribed.

Results: Amongst 196 cases analyzed, 55.61% were males, 69.9% were below 40 years, 52.04% unmarried, 61.22% belonged to low income group, 82.14% unemployed and 58.16% came from urban locality. Paranoid schizophrenia (79.59%) was the most common diagnosis and a total of 402 psychotropic drugs were prescribed. Average number of psychotropic drugs per prescription was 2.05. Atypical antipsychotics (80.09%) were prescribed more commonly than typical antipsychotics; olanzapine (42.48%) was the commonest antipsychotic drug followed by risperidone (21.68%), haloperidol (19.91%), quetiapine (7.96%), aripiprazole (4.42%) and clozapine (3.54%). As an adjunctive treatment escitalopram, clonazepam and carbamazepine were the commonly prescribed antidepressant, anxiolytic and antimanic agent respectively.

Conclusion: Low socioeconomic status, unemployment, urban locality and living alone are the sociodemographic factors associated with schizophrenia. The treatment pattern observed correlates with the changing trends in the treatment of schizophrenia world over.

Keywords: Schizophrenia, Epidemiology, Atypical antipsychotics

INTRODUCTION

Schizophrenia is a chronic and debilitating psychiatric illness consisting primarily of symptoms such as hallucinations and delusions, also termed as “positive” symptoms. In addition, individuals may experience “negative” symptoms which include loss of sense of pleasure, social withdrawal, impoverishment of thoughts and speech and flattening of affect. According to WHO

estimates, schizophrenia affects approximately 24 million people worldwide.¹ The prevalence of schizophrenia varies across the world, within countries, and at the local and neighborhood level.^{2,3}

The most recent publications estimate that prevalence of schizophrenia ranges from 1.4 to 4.6 / 1000 and the median incidence varies from 0.15 to 0.20 / 1000 population/year^{4,5} and it is higher (7 / 1000 population) in

the 15-35 year age group.^{6,7} It causes approximately 1% of worldwide disability adjusted life years.⁸

Individuals with schizophrenia differ from their peers even in early childhood, in a variety of developmental markers such as the age of attaining developmental milestones, levels of cognitive functioning, educational achievement, neurological and motor development, social competence and psychological disturbances.⁹ Systematic reviews of epidemiological studies have indicated that the rate of schizophrenia and related disorders is affected by some environmental factors¹⁰ and social variables including socioeconomic position and marital status.¹¹

Pharmacotherapy remains the cornerstone of schizophrenia treatment. Over the years the anti-psychotic pharmacopeia has broadened and almost all the new anti-psychotics are available in India. Given the severe side effects associated with many of the older antipsychotics, second-generation antipsychotics with atypical symptom response and safer adverse event profile have become the preferred choice.¹²

As epidemiological studies on schizophrenia are sparse in India, present study was undertaken to analyze the sociodemographic profile and drug prescribing pattern in patients with schizophrenia in central India.

METHODS

A prospective observational study was carried out over a period of nine months (01.07.2013 - 31.03.2014) at the Chirayu medical college and hospital, Bhopal a tertiary care teaching hospital in central India. One hundred and ninety six patients of schizophrenia, diagnosed according to Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM IV-TR) criteria¹³ were included in the study. A specially designed proforma was used to collect the required information. Data was entered and analyzed by using Microsoft excel 2007.

The collected data included socio demographic details, distribution of subsets of disease and psychotropic drugs prescribed. Sociodemographic profile includes details regarding age, gender, marital status, employment, socioeconomic status, locality and occupation. Prescriptions were analyzed for total number of drugs used, average number of drugs per prescription, number of fixed-dose combinations and types of psychotropic drugs used.

RESULTS

Sociodemographic details

Table 1 documents the socio demographic characteristics of the participants. Of the 196 cases analyzed, 55.61% were males and 69.9% were below 40 years. As regards to the socioeconomic status, 11.22% belonged to the

upper income group, 27.55% middle income group and 61.22% low income group. The majority of the patients 82.14% were unemployed and 52.04% were unmarried. About 58.16% of the patients came from urban locality while the remaining 41.84% were from rural area.

Table 1: Socio demographic characteristics of participants (n=196).

Categorical variables	n (%)
Age	
<40 years	137 (69.9)
>40 years	59 (30.1)
Gender	
Male	109 (55.61)
Female	87 (44.39)
Marital status	
Married	78 (39.8)
Unmarried	102 (52.04)
Separated	10 (5.1)
Divorced	6 (3.06)
Socioeconomic status	
Upper	22 (11.22)
Middle	54 (27.55)
Lower	120 (61.22)
Locality	
Urban	114 (58.16)
Rural	82 (41.84)
Employment	
Employed	35 (17.86)
Unemployed	161 (82.14)
Occupation	
Students	71 (36.22)
Housewife	62 (31.63)
Laborer & Farmer	25 (12.76)
Job Holder	12 (6.12)
Retired	16 (8.16)
Other	10 (5.10)

Schizophrenia and psychotropic drugs

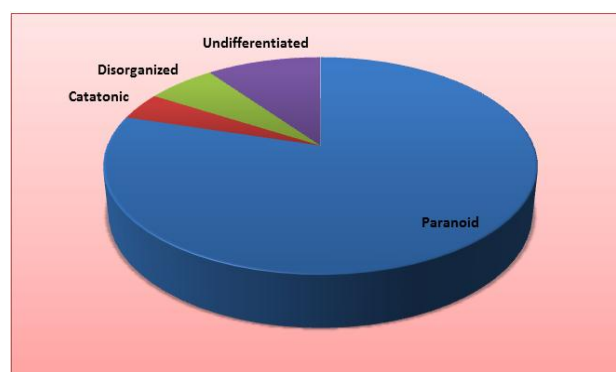


Figure 1: Morbidity pattern of schizophrenia.

Paranoid schizophrenia was the most common diagnosis 79.59% followed by undifferentiated 10.2%, disorganized 6.12% and catatonic 4.10% as shown in Figure 1.

Table 2 denotes the drug use pattern in schizophrenia. A total of 402 drugs were prescribed, out of which 376 were given orally and 26 parenterally as depot formulations. Average number of drugs per prescription was 2.05. Fixed-dose combinations were prescribed in 5.6% cases. The different classes of psychotropic medications prescribed were antipsychotics 226 (56.22%) followed by anticholinergics 92 (22.89%), anxiolytics 42 (10.45%), antidepressants 30 (7.46%) and mood stabilizers 12 (2.99%).

Table 2: Drug usage pattern in schizophrenia.

Drug usage pattern	
Total number of prescriptions	196
Total number of drugs	402
Average number of drugs per prescription	2.05
Number of fixed-dose combinations	11
Types of psychotropic drugs used	
Antipsychotics	226 (56.22%)
Antidepressants	30 (7.46%)
Anxiolytics	42 (10.45%)
Mood stabilizers	12 (2.99%)
Anticholinergics	92 (19.17%)

Figure 2 shows different antipsychotics prescribed amongst the study population. Olanzapine 42.48% was the commonest antipsychotic drug prescribed followed by risperidone 21.68% and haloperidol 19.91%. Of the 226 antipsychotic medications used, 169 patients were prescribed only one antipsychotic drug, 24 were prescribed two antipsychotics and 3 were given more than two antipsychotics.

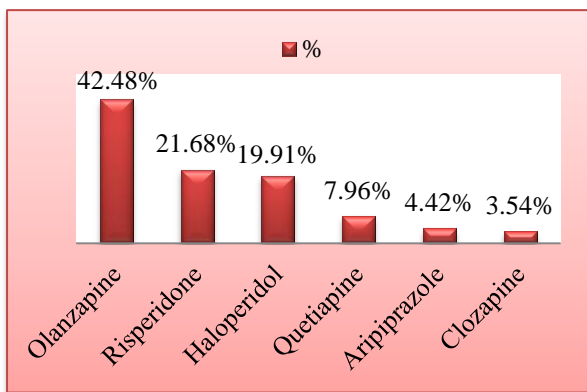


Figure 2: Distribution pattern of antipsychotics.

Of the anticholinergics, trihexyphenidyl was prescribed to 92 patients. Other psychotropic medications prescribed as adjunctive treatment were antidepressants (escitalopram and fluoxetine), anxiolytics (clonazepam and lorazepam) and antimanic agents (carbamazepine).

DISCUSSION

The burden of illness resulting from psychiatric and behavioral disorders is enormous, although it remains grossly under represented by conventional public health statistics. Therefore, we decided to carry out this epidemiological survey to determine the pattern and prevalence of schizophrenia in the given population and factors such as age, gender, socioeconomic status, employment, environment and occupation were evaluated.

In our study among 196 schizophrenia patients, 55.61% were males and 44.39% females. The male preponderance identified in this study was similar to many other studies.¹⁴⁻¹⁶ Recent meta analyses of third generation epidemiological studies have found that the male : female ratio was 1.4:1.^{17,18} However, this finding is different from a study done in Gujarat by Galani VJ et al. as it shows that females and males affecting schizophrenia were almost equal.¹⁹

Most of the patients with Schizophrenia i.e., 69.9% were below 40 years of age whereas only 30.1% of the patients were over 40 years. Ali A. reported that peak age of onset of schizophrenia is 15-30 years.²⁰ Schizophrenia is an illness starting early and our sample too reflects the same. Tandon et al. reported that this disease appeared earlier in men, usually in early twenties and women were affected in the twenties to early thirties²¹ which is a similar finding in our study.

Schizophrenia was seen commonly in low socioeconomic class and unemployed patients (82.14%). This finding is analogous to the outcome of study done in Sweden by Lessen E et al. as the data showed that utilization of psychotropic drugs was more among individuals with low income.²² Poverty results in lowered access to treatment, poorer medication compliance and a worsening of the psychosis. Although there is a long literature on the relationship of low socioeconomic position to risk for schizophrenia,²³ it seems likely that the association is due to the effects of insidious onset on the ability of the individual to compete in the job market.

52% patients were unmarried. The individual who eventually is diagnosed with schizophrenia is more likely to be single than others. The effect is greater for males, possibly because their earlier onset occurs during the years of formation of marriages.

In our study about 58.16% patients were from urban locality. The risk for schizophrenia at the urban environment was estimated to be 2.37 times higher than in the rural environment.²⁴ Neighborhood, social fragmentation and deprivation and other differences between life in cities and rural areas have been found to explain better the association of urban city with psychosis.²⁵

Schizophrenia was most commonly seen among students 36.22% followed by housewives 31.63%, farmers & laborers 12.76%, retired persons 8.16%, jobholders 6.12% and others 5.10% which is similar to the conclusion of research done by Banerjee et al.²⁶ A study from Bangladesh also reported that psychiatric disorder is more common among students and housewives.²⁷

In this study, atypical antipsychotics (80.09%) were more commonly prescribed compared to conventional antipsychotic drugs (19.01%) which are comparable to the studies done by Dutta SB et al.²⁸ and Grover S et al.²⁹ Olanzapine (42.48%) was the most commonly prescribed antipsychotic followed by risperidone (21.68%), haloperidol (19.91%), quetiapine (7.96%), aripiprazole (4.42%) and clozapine (3.54%). This shows the trend towards the use of newer atypical antipsychotics which are known to be better tolerated with less extrapyramidal symptoms than the typical antipsychotics.³⁰ They require less dosage adjustments, administered on once daily dose frequency which is expected to enhance patients' compliance to treatment. Most of the recent guidelines also recommend the use of atypical agents as the first line of treatment for schizophrenia.¹²

Antipsychotic polypharmacy (i.e., more than one antipsychotic) identified (13.78%) was less compared to other studies.^{16,28} Kontis et al. reported that despite consistent recommendations for antipsychotic monotherapy, antipsychotic polypharmacy is a common practice in the treatment of schizophrenia.³¹

Concomitant anticholinergics were used only in about half of the patients, reflecting their reduced usage with the increasing use of newer atypical antipsychotics. Fixed-dose combinations were also prescribed occasionally. Psychotropic poly-pharmacy was identified in about 37% patients. The use of poly-pharmacy for bipolar diseases is now an acceptable approach³² and the use of multiple medications to treat varying manifestations of schizophrenia could also be acceptable.

CONCLUSION

In general, epidemiologic research has built a strong knowledge base over the past quarter century, and this knowledge base will continue to contribute to public health efforts for prevention of schizophrenia in the coming decades. A study of socio-demographic aspects showed the prevalence of schizophrenia to be higher among males and <40 years age group. Low socioeconomic status, unemployment, urban locality and living alone are the sociodemographic factors associated with schizophrenia. Atypical antipsychotics were prescribed more commonly than that of typical antipsychotics; olanzapine was the commonest antipsychotic drug. The treatment pattern observed correlates with the changing trends in the treatment of schizophrenia the world over. However the rationale for choosing a drug and drug combinations was not

investigated. From a public health perspective, the results of this study can be useful for proper designing of psychiatric services. Further studies are needed to be carried out on larger scale to get the complete picture of schizophrenia epidemiology.

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