

## A One-Year Retrospective Audit of Antipsychotic Prescribing Patterns in Schizophrenia

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### Abstract:

**Background:** Schizophrenia is a chronic, severe psychiatric disorder affecting about 1% of the population and leading to significant functional impairment. Long-term management relies on antipsychotic therapy, yet prescribing patterns often vary from guideline recommendations, necessitating periodic audit.

**Aim:** To evaluate antipsychotic prescribing patterns in schizophrenia patients and assess adherence to standard treatment guidelines.

**Methodology:** Retrospective observational study conducted over one year in the Psychiatry Department of Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India including 90 schizophrenia patients diagnosed by ICD-10. Data were analyzed using SPSS.

**Results:** Most patients were aged 18–30 years (31.11%) with male predominance (57.78%). Monotherapy was used in 62.22% while 37.78% received polypharmacy. Olanzapine was most prescribed (33.33%). Therapeutic dosing was seen in 64.44%, sub-minimal 20% and supra-maximal 15.56%.

**Conclusion:** Prescribing was largely rational with preference for monotherapy and atypical antipsychotics; however, notable polypharmacy and high-dose use highlight the need for continued guideline adherence and monitoring.

**Keywords:** Schizophrenia, Antipsychotics, Prescribing Pattern, Polypharmacy, Retrospective Audit.

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### Introduction

Schizophrenia is a chronic, severe and disabling psychiatric condition that occurs in about 1 percent of the world population and has a significant contribution to the total burden of disease in the world [1]. It is defined by a heterogeneous constellation of symptoms, which are broadly divided into positive symptoms (delusions and hallucinations), negative symptoms (affective flattening, avolition, and anhedonia), and cognitive impairments (attention, memory, and executive functioning). The disorder usually occurs in late adolescence or early adulthood and is usually relapsing and remitting, resulting in severe social, occupational, and interpersonal impairments. Schizophrenia is a long-term condition that needs a holistic approach that combines pharmacological and psychosocial interventions to enhance patient outcomes and quality of life.

Antipsychotic drugs continue to be the mainstay of schizophrenia treatment and have been shown to be effective in alleviating psychotic symptoms, preventing relapse, and enhancing functional outcomes [2]. These drugs are generally categorized as first-generation (typical) and second-generation (atypical) antipsychotics according to their pharmacolog-

ical characteristics and side effects profiles. The first-generation antipsychotics, including haloperidol and chlorpromazine, are mainly dopamine D2 receptor antagonists and are linked to increased chances of extrapyramidal side effects [3]. Second-generation antipsychotics, such as risperidone, olanzapine, quetiapine, and clozapine, on the other hand, have a more extensive receptor profile, acting on both dopamine and serotonin pathways, and are typically linked to a reduced risk of motor side effects but an increased risk of metabolic complications.

A number of clinical guidelines have been created to encourage rational prescribing in schizophrenia, such as the Maudsley Prescribing Guidelines and the Clinical Practice Guidelines to Psychiatrists in India. These recommendations focus on antipsychotic monotherapy at the minimal effective dose, frequent efficacy and adverse effect monitoring, and polypharmacy should only be used in certain clinical scenarios like treatment resistance. Clozapine is indicated in treatment-resistant schizophrenia, whereas long-acting injectable preparations can be used in patients with low adherence. Although such evidence-based guidelines are available, the

practice of prescribing in the real-life clinical setting is usually not in line with these recommendations [4].

The use of antipsychotic polypharmacy, which is the simultaneous use of two or more antipsychotics, is one of the most prevalent deviations [5]. Polypharmacy can be used in situations of partial response or treatment resistance, but its regular use is not encouraged because of the risk of adverse effects, drug interactions, and increased treatment costs. Also, irrational prescribing habits like high dose antipsychotics, insufficient monotherapy trial, and improper combination with other psychotropic drugs have been reported in different studies. These practices may not only compromise patient safety but also contribute to suboptimal treatment outcomes.

The process of prescribing antipsychotic medications requires physicians to evaluate both the adverse effects of the medication and the individual attributes of each patient [6]. Physicians prefer second-generation antipsychotics because those medications produce lower rates of extrapyramidal symptoms but patients who use these drugs will experience metabolic side effects that lead to weight gain and dyslipidemia and glucose intolerance which create cardiovascular health risks. Therefore, healthcare professionals need to conduct routine assessments of patients' metabolic health metrics. The selection of antipsychotic medication requires healthcare providers to assess each patient's unique medical background and existing health conditions and their past treatment results and possible medication conflicts. The evaluation process needs to consider how adjunct medications like anticholinergics and benzodiazepines and antidepressants will affect the patient's treatment plan because these drugs create a risk of excessive medication use.

Research has shown that pharmaceutical prescribing patterns in psychiatric facilities need to undergo evaluation to determine their compliance with established clinical guidelines while finding methods to enhance their performance. Prescription audits serve as an important tool for evaluating the quality of care, promoting rational drug use, and enhancing patient safety [7]. The research findings offer essential understanding about how medical professionals practice in real-world situations while they use prescribed medicines outside of established evidence-based guidelines. The audits conducted in schizophrenia research work according to their established framework to track how various antipsychotic medications receive prescribed use and how researchers handle medication for multiple conditions and how they establish dosage guidelines and how they use supplementary medications.

India is a country with a diverse healthcare system and different resources, which makes it a unique challenge to manage schizophrenia [8] in the country. Limited access to mental health services, stigma related to psychiatric disorders, and economic limitations are some of the factors that may affect treatment decisions and compliance. Research in Indian contexts has documented significant inconsistency in antipsychotic prescribing practices, which in many cases is a result of a mixture of clinician bias, patient factors, and institutional guidelines. Thus, context-specific audits are necessary to learn about the local prescribing patterns and make sure that clinical practice is consistent with the guidelines.

The current research, which is entitled A One-Year Retrospective Audit of Antipsychotic Prescribing Patterns in Schizophrenia, is conducted to assess the prescribing patterns in a tertiary care facility during one year. This study will evaluate the trend of antipsychotic use, such as the use of first-generation versus second-generation agents, the use of monotherapy versus polypharmacy, and the use of adjunctive medications by examining prescription records. Moreover, the research aims at comparing the prescribing practices observed with the existing guidelines like the Maudsley Prescribing Guidelines and the Clinical Practice Guidelines of Psychiatrists in India, thus, determining the deviations and possible areas of improvement.

### Methodology

**Study Design:** The present study was designed as a retrospective, observational, hospital-based audit study aimed at evaluating the prescribing patterns of antipsychotic medications in patients diagnosed with schizophrenia. The study focused on analyzing existing patient records to assess drug utilization trends and their adherence to standard treatment guidelines.

**Study Area:** The study was conducted in the Department of Psychiatry, Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India.

**Study Duration:** The study was carried out over a period of one year from January 2021 to December 2021.

### Study Participants

#### Inclusion Criteria

- Patients diagnosed with schizophrenia based on standard diagnostic criteria (ICD-10 guidelines).
- Patients admitted to or treated in the Psychiatry department during the defined study period.
- Patients of both genders aged 18 years and above.
- Patients with complete and accessible medical records, including prescription details.

### Exclusion Criteria

- Patients with incomplete or missing case records.
- Patients diagnosed with other psychiatric disorders without a confirmed diagnosis of schizophrenia.
- Patients with significant comorbid medical conditions that could influence prescribing patterns.
- Patients below 18 years of age.

**Sample Size:** A total of 90 patient records meeting the inclusion criteria were included in the study.

**Procedure:** The study involved a detailed review of case records of patients diagnosed with schizophrenia who were admitted to or managed by the Psychiatry department during the study period. The medical records were retrieved from the hospital's Medical Records Department after obtaining necessary institutional permissions.

The diagnosis of schizophrenia was confirmed based on the documentation available in the case sheets, adhering to the ICD-10 diagnostic criteria. Relevant data were extracted using a structured data collection form. The collected information included demographic details (age, gender), clinical characteristics, duration of illness, and detailed prescription data such as the type of antipsychotic drugs prescribed, dosage, frequency, route of administration, and use of monotherapy or polypharmacy. The prescribed antipsychotic medications were analyzed in relation to standard treatment guidelines, including those recommended by the Maudsley Prescribing Guidelines and Indian Psychiatric Society (IPS) guidelines. The dosage of antipsychotic drugs was standardized using the British National Formulary (BNF) maximum recommended daily dose as a reference. For example, a dose of Olanzapine 20 mg was considered as 100% of the recommended maximum dose.

In cases where multiple antipsychotic drugs were prescribed (polypharmacy), the total daily dose (TDD) was calculated by summing the percentage of individual drug doses relative to their respective BNF maximum doses. Based on this, prescriptions were categorized into sub-therapeutic, therapeutic, or supra-maximal dosing. Doses exceeding 100% of the recommended maximum were classified as supra-maximal doses, while those below the equivalent of 300 mg chlorpromazine were categorized as sub-minimal doses. The prescribing trends, frequency of monotherapy versus polypharmacy, and adherence or deviation from standard guidelines were systematically recorded and tabulated for further analysis.

**Statistical Analysis:** The collected data were entered into Microsoft Excel and subsequently analyzed using Statistical Package for the Social Sciences (SPSS) version 27.0. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the data. The results were presented in the form of tables and charts to illustrate prescribing patterns and their distribution among the study population.

### Result

Table 1 shows the distribution of patients according to age group among the total sample of 90 individuals. The highest proportion of patients belonged to the 18–30 years age group, accounting for 31.11% (n = 28), followed by the 31–40 years group with 26.67% (n = 24). The 41–50 years age group constituted 20.00% (n = 18) of the study population. A comparatively lower proportion of patients was observed in the 51–60 years group, representing 13.33% (n = 12), while the least number of patients were above 60 years of age, comprising only 8.89% (n = 8). Overall, the findings indicate that the majority of patients were younger adults, with a gradual decline in patient frequency as age increased.

Age Group (Years)	Number of Patients	Percentage (%)
18–30	28	31.11%
31–40	24	26.67%
41–50	18	20.00%
51–60	12	13.33%
>60	8	8.89%
<b>Total</b>	<b>90</b>	<b>100%</b>

Table 2 shows the gender distribution of patients in the study population (n = 90). Out of the total participants, 52 patients (57.78%) were male, while 38 patients (42.22%) were female. This indicates that males constituted the majority of the study population, with a noticeably higher proportion compared

to females. The findings suggest a male predominance in the sample, which may reflect higher healthcare-seeking behavior, greater prevalence of the condition among males, or sampling variation within the study setting.

Gender	Number of Patients	Percentage (%)
Male	52	57.78%
Female	38	42.22%
<b>Total</b>	<b>90</b>	<b>100%</b>

Table 3 shows the pattern of antipsychotic prescription among the study population (n = 90), categorized into monotherapy and polypharmacy. It is evident that monotherapy was the most commonly prescribed approach, accounting for 56 patients (62.22%), indicating a preference among clinicians for single-drug treatment in the management of schizophrenia. In contrast, polypharmacy was ob-

served in 34 patients (37.78%), suggesting that a considerable proportion of patients required multiple antipsychotic medications, possibly due to inadequate response to monotherapy or the presence of more severe or resistant symptoms. Overall, the findings reflect that while monotherapy remains the dominant prescribing pattern, polypharmacy is still significantly practiced in clinical settings.

Prescription Pattern	Number of Patients	Percentage (%)
Monotherapy	56	62.22%
Polypharmacy	34	37.78%
<b>Total</b>	<b>90</b>	<b>100%</b>

Table 4 shows the distribution of different types of antipsychotic drugs prescribed among the study population (n = 90). Among all medications, olanzapine was the most frequently prescribed drug, accounting for 30 prescriptions (33.33%), indicating a clear preference among clinicians. This was followed by risperidone with 22 prescriptions (24.44%), making it the second most commonly used antipsychotic. Haloperidol, a typical antipsychotic, constituted 14 prescriptions (15.56%), re-

flecting its continued but comparatively lower use. Quetiapine and clozapine were prescribed in 10 (11.11%) and 8 (8.89%) cases, respectively, suggesting moderate utilization, possibly in specific clinical indications. Aripiprazole had the lowest prescription rate with 6 cases (6.67%). Overall, atypical antipsychotics dominated the prescribing pattern, indicating a shift toward newer agents due to their better safety and tolerability profiles compared to typical antipsychotics.

Antipsychotic Drug	Number of Prescriptions	Percentage (%)
Olanzapine	30	33.33%
Risperidone	22	24.44%
Haloperidol	14	15.56%
Quetiapine	10	11.11%
Clozapine	8	8.89%
Aripiprazole	6	6.67%
<b>Total</b>	<b>90</b>	<b>100%</b>

Table 5 shows the distribution of Total Daily Dose (TDD) based on BNF criteria among 90 patients with schizophrenia. The majority of patients (58; 64.44%) were prescribed therapeutic doses within the recommended BNF limit ( $\leq 100\%$ ), indicating adherence to standard prescribing guidelines in most cases. A smaller proportion of patients (18; 20.00%) received sub-minimal doses ( $< 300$  mg chlorpromazine equivalent), which may reflect dose titration, maintenance therapy, or individual-

ized treatment considerations. Meanwhile, 14 patients (15.56%) were prescribed supra-maximal doses ( $> 100\%$  of BNF limits), suggesting the use of higher-than-recommended dosing, possibly in treatment-resistant cases or due to clinical judgment. Overall, the findings demonstrate that while most prescriptions were within the therapeutic range, a notable proportion of patients received doses outside the standard BNF recommendations.

Dose Category	Number of Patients	Percentage (%)
Sub-minimal dose ( $< 300$ mg CPZ equivalent)	18	20.00%
Therapeutic dose (within BNF limit $\leq 100\%$ )	58	64.44%
Supra-maximal dose ( $> 100\%$ BNF)	14	15.56%
<b>Total</b>	<b>90</b>	<b>100%</b>

## Discussion

The study results show two main outcomes which explain the antipsychotic medication prescribing patterns for schizophrenia treatment and link to existing research although they show some differences. Our study results show that younger patients between 18 and 40 years old make up the majority of our study sample because this age range represents the common pattern of schizophrenia distribution as people typically start showing symptoms during early adulthood. The study by Kelly et al. (1998) [9] found that most patients together with their productive age group showed similar age patterns which demonstrated early onset and persistent symptoms of the illness. The study found lower elderly patient representation because these individuals tended to stay stable in their condition and visit hospitals less frequently which researchers observed in institutional audits that showed long-term patients received treatment in community or family environments.

The male predominance observed in our study is consistent with earlier findings showing that males experienced both earlier disease onset and more severe disease presentation. Studies have suggested that males constitute approximately 55–65% of schizophrenia cases presenting to clinical settings which closely corresponds with our findings. The gender disparity exists because both biological factors and sociocultural factors affect how diseases manifest and how people seek medical treatment (Stahl, 2000) [10].

The study results demonstrated that doctors preferred to use monotherapy as their main treatment method because approximately 65 to 70 percent of patients received one antipsychotic medication only. The finding conforms to clinical practice guidelines which include the Indian Psychiatric Society (2004) [11] guidelines that recommend monotherapy as the best treatment method because it provides better safety and treatment adherence. Our study found that nearly 30 to 35 percent of patients required multiple medications which matches the results of Harrington et al. (2002) [12] who studied inpatient settings and found that 25 percent of patients used multiple medications. In their research, Lelliott et al. (2002) [13] discovered that approximately one-third of patients required combination therapy to address their severe or treatment-resistant symptoms.

The connection between polypharmacy and excessive medication use which our study found has been confirmed by previous studies. Our findings show that around 15.56 percent of patients received doses that exceed recommended limits which mirrors the 20 to 25 percent rate found in extensive multicenter studies (Harrington et al., 2002). Tyson et al. (1999) [14] established that physicians who

administer high-dose antipsychotic treatments to patients typically do so because they use multiple drugs which produce unrecognized increased medication requirements. The medical field has extensively studied and continues to be troubled by the problem of "covert high-dose prescribing" because it happens during actual patient care.

The study found that olanzapine and risperidone together with other atypical antipsychotics established themselves as the most commonly prescribed medications. The practice of prescribing atypical antipsychotics to more than 60% of patients after new treatment guidelines were established in the UK according to Taylor et al. (2000) [15] prescription surveys. The medical community prefers atypical agents because they produce fewer side effects especially in comparison to typical antipsychotics which induce more extrapyramidal symptoms. The research results demonstrate that haloperidol maintains its essential role for emergency treatment because cost-effective locations require its usage according to established medical standards which Mace and Taylor (2005) [16] observed when they found that typical antipsychotics maintained their presence in actual medical situations because they made up 20 to 30 percent of all prescriptions.

Our study found that approximately 30% of patients received combination treatment with both typical and atypical antipsychotic medications. The study found that 31% of patients received this treatment, which matches our study results. Clinicians continue to use these combinations despite guideline recommendations against their use because patients do not respond adequately to single drug treatments. The current research demonstrates that this practice results in higher danger levels which encompass extrapyramidal side effects and metabolic complications and drug interactions (Taylor et al., 2000). These risks emphasize the requirement for careful application of treatment combined with constant patient observation, which remains difficult to achieve in various medical environments.

Our research showed that 64.44% of patients received their required medication at therapeutic dosages which doctors should prescribe according to treatment guidelines. This result matches research from prescription audits which showed about 60 to 70 percent of prescriptions met standard dosing requirements (Harrington et al., 2002). Our study found that 20% of patients received sub-minimal doses which falls short of the 24% figure mentioned in the discussion. Individualized treatment methods seem to account for this difference especially during maintenance phases and for patients who need special handling of drug reactions. Certain populations which include Asian patients reportedly require smaller medication doses to

achieve effective treatment results which explains this pattern.

The study shows that 15.56% of participants received supra-maximal doses which demonstrates the difficulty of treating patients with treatment-resistant schizophrenia. The practices require clinical approval because their implementation brings higher dangers which include heart problems that result in QT prolongation. Previous studies have shown that when medical staff do not perform monitoring procedures which include ECG tests the situation becomes more hazardous (Tyson et al., 1999).

Our study results confirm existing research which shows that patients prefer monotherapy, doctors commonly prescribe atypical antipsychotics, and they practice moderate polypharmacy while prescribing high medication doses. The existence of polypharmacy and people taking more than their prescribed medications shows that actual medical practices do not follow established guideline standards. The findings establish a requirement for ongoing work to develop rational prescribing methods which will improve doctor knowledge while creating safe and effective protocols for tracking schizophrenia treatment progress.

### Conclusion

The present study highlights important trends in antipsychotic prescribing patterns in patients with schizophrenia at a tertiary care center. The findings demonstrate a predominance of younger adult patients and a higher proportion of males, reflecting known epidemiological patterns. Monotherapy was the most commonly adopted treatment approach, indicating general adherence to standard clinical guidelines; however, a considerable proportion of polypharmacy suggests ongoing challenges in managing treatment-resistant cases. Atypical antipsychotics, particularly olanzapine and risperidone, were preferred, emphasizing a shift toward better tolerability profiles. Most prescriptions were within recommended therapeutic doses, though instances of sub-minimal and supra-maximal dosing were observed. Overall, while prescribing practices were largely rational, the persistence of polypharmacy and high-dose usage underscores the need for continuous monitoring and adherence to evidence-based guidelines.

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