

Prescription Patterns of Antipsychotics in Schizophrenia: Influence of Symptom Predominance and Clinical Global Impression Scale

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ABSTRACT

Background: Antipsychotics are central to schizophrenia treatment, and prescribing decisions may be influenced by symptom predominance (positive vs. negative) and illness severity. This study aimed to evaluate antipsychotic prescribing patterns based on these clinical factors among patients with schizophrenia in a tertiary care setting.

Methods: A cross-sectional observational study was conducted among 100 adult outpatients diagnosed with schizophrenia at a tertiary care hospital in Western Rajasthan. Data were collected using a structured proforma, including demographic and clinical variables. Symptom predominance was determined clinically, and illness severity was assessed using the Clinical Global Impression-Schizophrenia (CGI-Sch) scale. Prescribing trends were analysed descriptively, and binary logistic regression was used to identify predictors of polypharmacy (≥ 2 antipsychotics).

Results: The mean age of participants was 42.6 ± 12.9 years, with males comprising 57%. Negative symptoms predominated in 68% of patients. The mean number of prescribed drugs was 4.14 ± 1.26 , and the mean number of antipsychotics was 1.67 ± 0.75 . Atypical antipsychotics were used in 74% of patients. Polypharmacy was more common in those with CGI scores ≥ 12 (aOR 3.30, 95% CI: 1.42–7.7, $p = 0.0056$), while symptom type did not significantly influence prescribing patterns. Female gender was associated with lower odds of receiving multiple antipsychotics.

Conclusion: Illness severity, rather than symptom predominance, was significantly associated with antipsychotic polypharmacy. These findings highlight the need for individualized, severity-based prescribing practices in schizophrenia care.

Keywords: Antipsychotics, Schizophrenia, Prescribing pattern

INTRODUCTION

Schizophrenia is a chronic and debilitating psychiatric disorder that affects approximately 24 million people globally.

According to the Global Burden of Disease Study 2016, the global point prevalence of schizophrenia was 0.28%, with over 20 million individuals affected in 2016 alone.

Importantly, this burden is rising in middle-income countries like India due to population growth and aging, contributing significantly to years lived with disability and placing strain on health systems. [1] In India, recent population-based estimates indicate a current prevalence of 0.42%, with a treatment gap of over 70%, especially in urban non-metro regions. [2] These figures underscore the immense public health challenge posed by schizophrenia both globally and nationally.

Effective long-term management is crucial in minimizing symptom relapse, improving functional outcomes, and reducing the social and economic costs associated with the illness. As schizophrenia often requires life-long pharmacological treatment and coordinated psychosocial care, optimizing the choice and use of antipsychotic medications is a cornerstone of effective disease control. [3]

Anti-psychotics are classified into first-generation (typical) and second-generation (atypical). Both are effective in managing positive symptoms such as hallucinations and delusions. However, atypical antipsychotics are often preferred due to their lower risk of extrapyramidal side effects and their added benefit in alleviating negative symptoms and cognitive impairment. [4] These benefits have to be weighed against the metabolic adverse effects, which include insulin resistance, weight gain, and dyslipidemia, thus recommending constant surveillance. Verbal aggression, hallucinations, and social dysfunction are the most influential symptoms among Asian patients with schizophrenia. These symptom dimensions should be addressed in developing targeted treatment strategy for schizophrenia patients. [5]

Selecting an appropriate antipsychotic requires a patient-centered approach, considering symptom predominance, treatment history, adverse event profiles, and psychiatric comorbidities. Recognizing whether positive or negative symptoms predominate is particularly relevant, as this

may guide the choice of antipsychotic drug class and the need for adjunctive therapy. [6,7] The Clinical Global Impression-Schizophrenia (CGI-Sch) scale, a validated clinician-rated tool, provides a standardized method to assess the severity and progression of schizophrenia symptoms. It facilitates stratification of patients into mild, moderate, or severe disease categories, which can guide dosage decisions and escalation strategies. [8]

Despite the critical importance of these variables in clinical decision-making, studies examining real-world antipsychotic prescription trends in India—particularly in relation to symptom predominance and disease severity—are scarce. Most available data focus on generalized drug utilization patterns without stratifying by symptom profile. [9] Consequently, there is a pressing need for studies that explore how these clinical characteristics influence prescribing behaviours in Indian outpatient settings. Such data are essential for assessing alignment with national and international treatment guidelines and for identifying methods to improve prescribing practices and patient outcomes. [10]

This study was thus undertaken to analyse the prescription patterns of antipsychotic drugs among patients diagnosed with schizophrenia attending a tertiary care hospital in Western Rajasthan. The primary objective was to investigate how prescribing trends vary based on symptom predominance—positive versus negative—and the severity of illness as determined by the CGI-Sch scale. By elucidating these patterns, the study aims to inform more rational, individualized, and evidence-based approaches to antipsychotic use in clinical practice.

MATERIALS & METHODS

A cross-sectional, observational study was conducted in the Department of Pharmacology in collaboration with the Department of Psychiatry at Dr. Sampurnanand Medical College, Jodhpur, Rajasthan. Ethical approval was granted by

the Institutional Ethics Committee (Approval No: SNMC/IEC/2022/2077-2078), and written informed consent was obtained from all participants. The study adhered to the Declaration of Helsinki and ICH-GCP guidelines.

Study Population and Sample Size: A total of 100 adult patients (aged >18 years) diagnosed with schizophrenia based on the Diagnostic and Statistical Manual of Mental Disorders; Fifth Edition (DSM-5) criteria were enrolled. [11] Patients had to be prescribed at least one antipsychotic at the time of recruitment. Exclusion criteria included those <18 years of age, unwilling to provide consent, or admitted to inpatient/emergency or other specialty wards. A sequential sampling technique was employed to recruit consecutive eligible patients attending the outpatient psychiatry department. The sample size was calculated using the formula for estimating a single population proportion at a 95% confidence interval and 10% absolute allowable error. Based on an expected proportion (P) of 58.36% for drugs prescribed from the national essential drug list (as reported by Tripathi et al., and taking a standard normal deviate (Z) of 1.96, the minimum required sample size was estimated to be 96. [12] To account for potential variability and improve representativeness, the sample size was rounded up and finalized at 100 patients.

Symptom and Severity Assessment: Patients were classified as having predominantly positive or negative symptoms based on clinical judgment. Severity of illness was assessed using the Clinical Global Impression-Schizophrenia (CGI-Sch) scale, which provides a standardized, validated clinician-rated assessment of symptom intensity and treatment response. [13]

Data Collection: Demographic variables, clinical profiles, and prescription details were collected using a standardized proforma. Prescribing indicators were

analysed based on the WHO Core Drug Use Indicators, which include parameters such as average number of drugs per encounter, percentage of drugs prescribed by generic name, and percentage adherence to the National Essential Drug List. [14,15]

Statistical Analysis

Data was analysed using Epi Info version 7.2.1.0. [16] Descriptive statistics were used for demographic and drug utilization parameters. Binary logistic regression analysis was done for factors associated with treatment. P value of <0.05 was considered as statistically significant.

RESULT

A total of 100 patients diagnosed with schizophrenia were enrolled in the study. Of these, 57% were male and 43% were female. The mean age of participants was 42.56 ± 12.90 years. Symptom predominance revealed that negative symptoms were more common (68%) than positive symptoms (32%). The mean number of drugs prescribed per patient was 4.14 ± 1.26 , while the mean number of antipsychotics prescribed was 1.67 ± 0.75 .

Clinical severity, assessed using the Clinical Global Impression-Schizophrenia (CGI-Sch) scale, showed a score range of 7 to 20, with a mean of 11.86 ± 3.26 . Based on this, the cohort was dichotomized into those with scores <12 (mild illness) and those with scores ≥ 12 (moderate to severe illness).

Atypical antipsychotics were the most frequently prescribed class, used in 74% of patients either as monotherapy or in combination. Agents such as risperidone (49%), olanzapine (48%), and clozapine (16%) were most used. Typical antipsychotics were prescribed less frequently, with chlorpromazine and haloperidol representing the primary agents. Analysis of prescribing trends revealed that monotherapy was more common among patients with mild illness, whereas combination therapy (polypharmacy) was more often observed in patients with higher CGI scores. Among those receiving ≥ 5

drugs, a majority were in the moderate-to-severe category, suggesting that illness severity influenced prescribing complexity. Binary logistic regression was used to identify predictors of antipsychotic prescription. Patients with CGI scores ≥ 12 had a significantly higher likelihood of being prescribed more than one

antipsychotic (aOR = 3.30, 95% CI: 1.42–7.7, $p = 0.0056$). Female gender also showed a trend (but non-significant) toward reduced polypharmacy risk (aOR = 2.40, 95% CI: 0.98–5.87, $p = 0.0556$). However, age group and symptom type (positive vs. negative) were not statistically significant predictors.

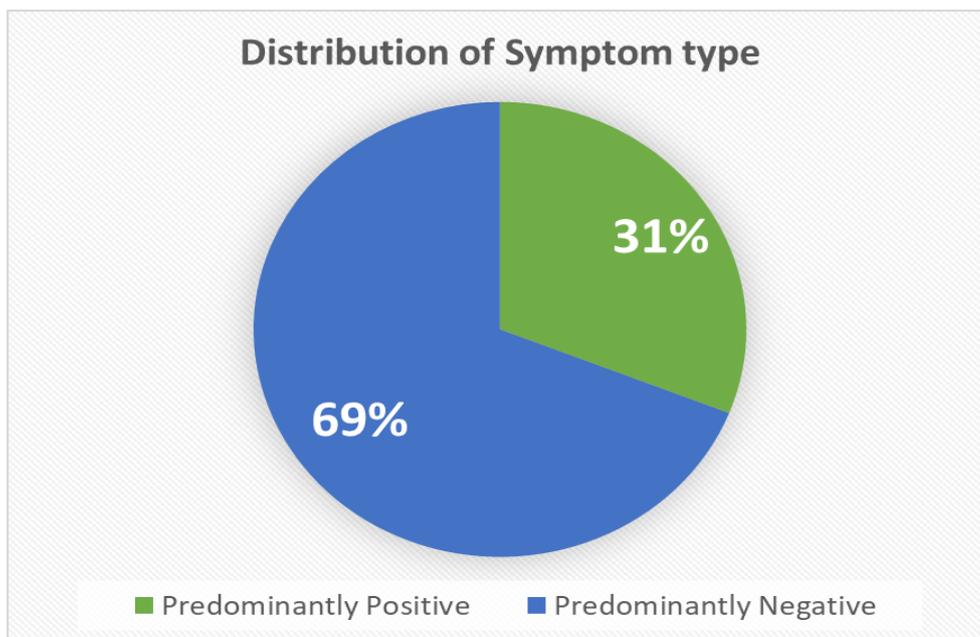


Figure 1: Pie Chart showing Distribution of Symptom type (Positive vs Negative)

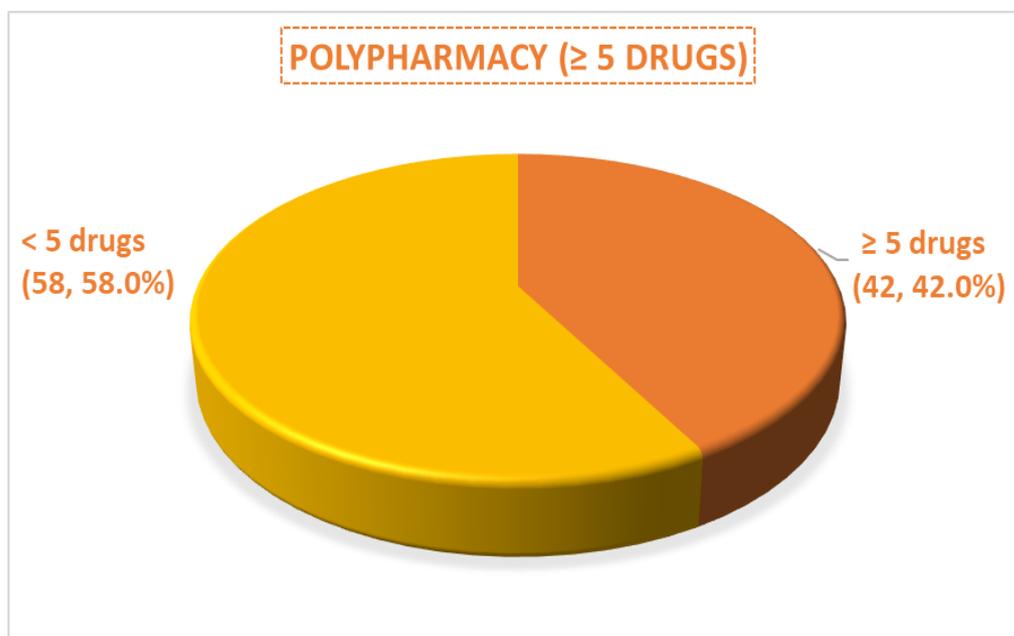


Figure 2: Pie Chart showing Polypharmacy distribution (≥ 5 drugs vs <5 drugs).

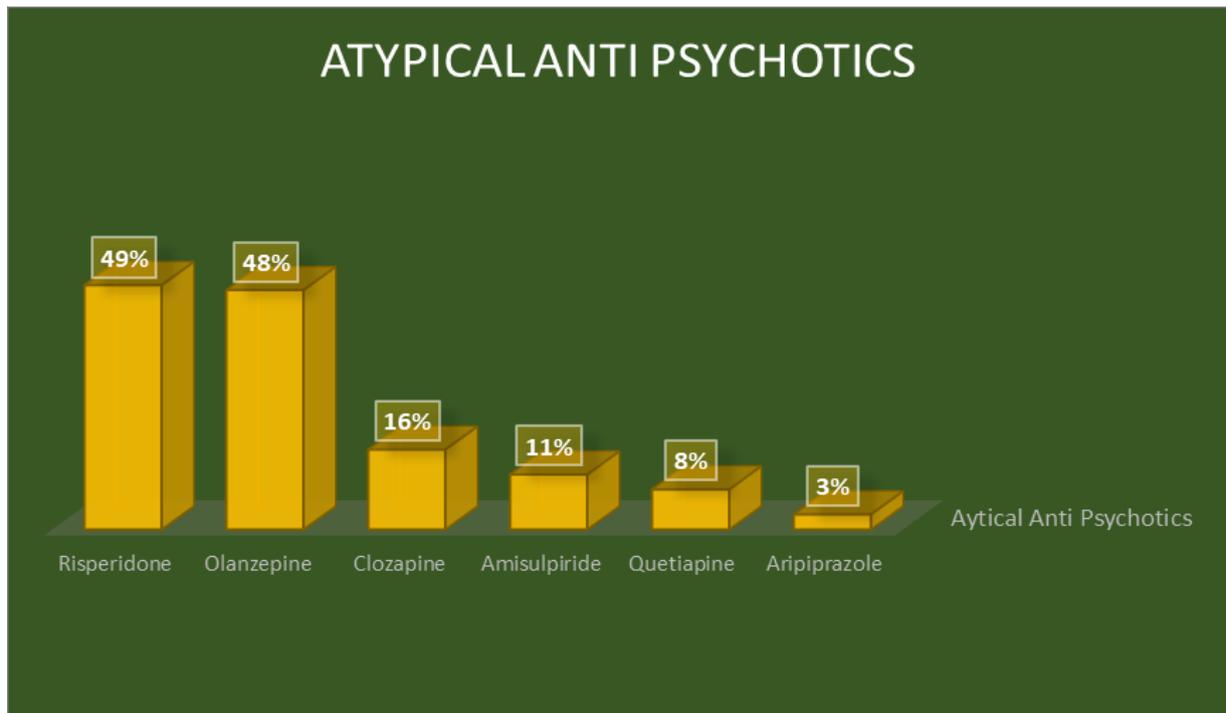


Figure 3 Bar Chart showing frequency of Atypical Antipsychotics prescribed

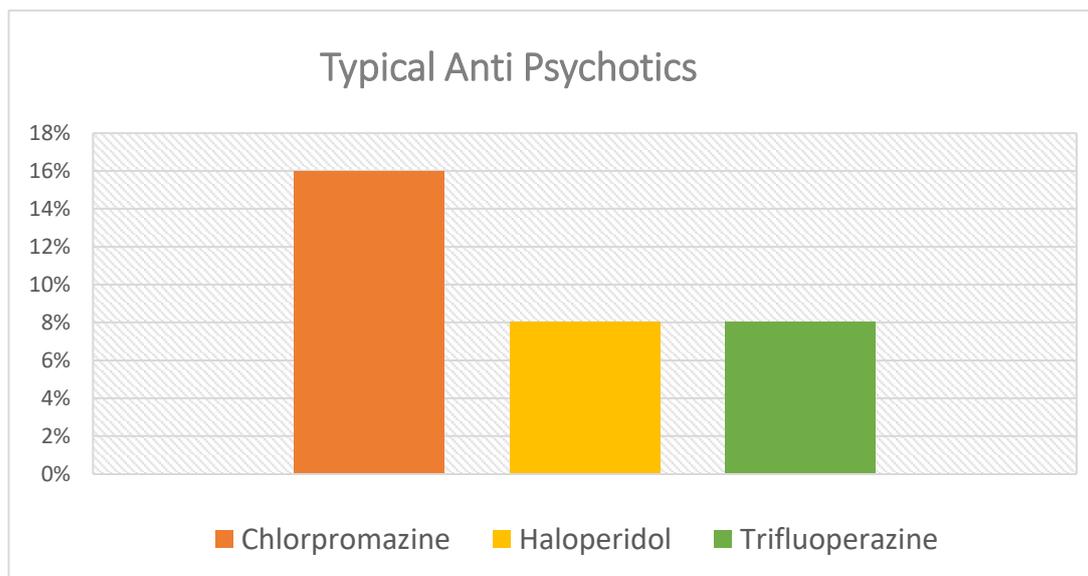


Figure 4 Bar Chart showing frequency of typical Anti-psychotics prescribed

Table 1: Binary Logistic Regression Analysis of Factors Associated with Mono vs Polytherapy of Anti-psychotics

Variable	Category	Monotherapy (Single Antipsychotics prescribed) n (%)	Polytherapy (Multiple Antipsychotics prescribed) n (%)	aOR	95% CI	P-value
Age group	≤50 years	34 (51.5%)	32 (48.5%)	Ref.		
	>50 years	15 (44.1%)	19 (55.9%)	0.62	0.25–1.56	0.3093
Gender	Male	23 (39.7%)	35 (60.3%)	Ref.		
	Female	26 (61.9%)	16 (38.1%)	2.40	0.98–5.87	0.0556
CGI score	<12	34 (63.0%)	20 (37.0%)	Ref.		
	≥12	15 (32.6%)	31 (67.4%)	3.30	1.42–7.7	0.0056
Symptoms	Positive	23 (57.5%)	17 (42.5%)	Ref.		
	Negative	26 (41.9%)	36 (58.1%)	1.36	0.52–3.55	0.5262

DISCUSSION

This study examined the prescription patterns of antipsychotic medications among schizophrenia patients, focusing on how treatment decisions are influenced by symptom predominance and illness severity as assessed by the Clinical Global Impression-Schizophrenia (CGI-Sch) scale. Findings demonstrate a preference for atypical antipsychotics in outpatient settings, a tendency toward polypharmacy in more severe cases, and limited impact of demographic factors on prescribing trends.

In line with previous literatures, the study confirms that atypical antipsychotics remain the cornerstone of schizophrenia management, prescribed in nearly three-fourths of patients. Risperidone and Olanzapine were the most frequently used agents, a pattern consistent with large-scale meta-analyses that rank these drugs among the most effective for positive symptom control and overall tolerability. [17] The use of clozapine, although comparatively lower in this cohort, reflects its position as a reserved option for treatment-resistant schizophrenia. [18]

Notably, symptom predominance did not significantly influence the likelihood of polypharmacy, a finding that diverges from some international reports suggesting that negative symptoms may prompt clinicians to combine antipsychotics in pursuit of broader symptom control. [19] This discrepancy may reflect local prescribing norms, limited access to adjunctive therapies, or hesitancy around aggressive pharmacotherapy in resource-constrained settings.

The study found that CGI score was a significant predictor of antipsychotic polypharmacy, with patients scoring ≥ 12 being over three times more likely to be prescribed multiple antipsychotics. This aligns with research highlighting the role of clinical severity in driving polypharmacy and more intensive management strategies. [20,21] Patients with higher CGI scores may present with complex symptom clusters, partial treatment responses, or treatment

resistance—each of which may prompt the addition of a second antipsychotic despite limited high-quality evidence supporting this practice. [22,23]

Although the role of polypharmacy in schizophrenia remains controversial, it is increasingly reported in both Western and Asian contexts. The REAP-AP survey reported that up to 36% of schizophrenia patients in Asia received more than one antipsychotic, often without clear clinical justification. [24] Polypharmacy is associated with higher healthcare costs, increased risk of metabolic and extrapyramidal side effects, and poorer adherence, raising concerns about long-term patient safety. [25–27]

Our results further indicate that female patients were more likely to be on monotherapy, although this trend did not reach statistical significance. Prior studies have reported similar gender differences, attributing them to greater help-seeking behaviour and higher adherence rates among female patients. [28,29] However, the influence of gender on prescription patterns remains understudied and warrants further exploration. [30]

From a therapeutic standpoint, the observed preference for atypical antipsychotics is justifiable. These drugs not only offer improved tolerability profiles when compared with their typical counterpart but also provide modest benefits in the treatment of negative and cognitive symptoms, although the effect sizes remain small. [31] This makes them particularly suitable in outpatient settings where long-term adherence and side-effect management are critical considerations. However, the metabolic risks associated with atypical antipsychotics, such as weight gain, hyperglycaemia, and dyslipidaemia necessitate vigilant monitoring, especially in polypharmacy scenarios. [32]

The finding that nearly half of the patients received more than one antipsychotic underscores the need for more robust prescription auditing mechanisms and evidence-based deprescribing frameworks.

International guidelines generally recommend monotherapy unless otherwise justified by treatment resistance or emergent clinical needs. [33] Educational interventions targeting psychiatrists and the development of local treatment algorithms may help curb unnecessary polypharmacy in the Indian context.

In terms of methodological strengths, the study employed a structured scale (CGI-Sch) to classify illness severity, allowing for standardized comparison across treatment subgroups. It also included a real-world outpatient cohort, enhancing the generalizability of the findings. However, certain limitations must be acknowledged. The cross-sectional design precludes causal inference. Symptom predominance was determined clinically without the use of structured rating scales like the PANSS or SANS/SAPS. [34] Despite not using these structured scales, symptom assessment was performed by experienced clinicians using standardized diagnostic criteria, ensuring clinical relevance and minimizing misclassification.

Future research should include larger, multicentric studies that incorporate longitudinal follow-up to assess treatment outcomes, relapse rates, and side-effect profiles across monotherapy and polypharmacy groups. Additionally, patient-reported outcomes and quality-of-life metrics could provide a more holistic assessment of treatment efficacy.

CONCLUSION

In conclusion, the study highlights the significant role of clinical severity (CGI score) in influencing antipsychotic polypharmacy, whereas symptom type had a limited effect on prescribing decisions. Atypical anti-psychotics remain the dominant choice in outpatient settings. These insights support the need for more individualized, severity-guided treatment approaches and underscore the importance of rational antipsychotic prescribing to optimize patient outcomes.

Declaration by Authors

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