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Prescribing Patterns of Antipsychotics in Schizophrenia Patients: A Study at Sikumana and Oesapa Primary Health Centers

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ABSTRACT

Introduction: Schizophrenia is a chronic mental disorder with a rising prevalence, including in East Nusa Tenggara. Antipsychotics are the mainstay therapy, but prescribing patterns in primary care vary depending on patient condition and drug response. This study aimed to describe the prescribing patterns of antipsychotics among schizophrenia patients at Sikumana and Oesapa Primary Health Centers, Kupang City.
Methods: A non-experimental descriptive design was applied using retrospective data from medical records of schizophrenia patients (ICD-X F20) during February–July 2025. Inclusion criteria consisted of patients who received antipsychotic therapy at both of two Primary Health Centers. Exclusion criteria included patients referred to higher-level facilities before receiving antipsychotic treatment.
Results: A total of 42 patients with 129 visits were analyzed, dominated by males (52.4%) and the 25–44 age group (59.5%). Most were chronic patients (88.1%). Of 129 prescriptions, monotherapy predominated (57.4%), dominated by haloperidol (45 times) and risperidone (21 times). Combination therapy was also common (42.6%), particularly chlorpromazine + risperidone (29 times) and chlorpromazine + haloperidol (24 times). Trihexyphenidyl (103 times) was frequently prescribed as prophylaxis against extrapyramidal side effects, while diazepam (17 times) was used for anxiety or sleep disturbances. Several drugs were prescribed at lower doses than national and international guidelines, reflecting stable patient conditions in primary care, where lower doses remained effective while minimizing adverse effects.
Conclusion: These findings highlight the dominance of typical antipsychotics and the limited variety of available drugs in primary care, underscoring the need for broader drug availability and more systematic monitoring of side effects.

Keywords: antipsychotics; atypical antipsychotics; prescribing patterns; schizophrenia; typical antipsychotics.

INTRODUCTION

Mental health is a fundamental component of overall health. A healthy mind enables individuals to face life's challenges effectively, including the ability to work and learn productively[1]. Schizophrenia is a mental disorder that disrupts normal brain function, impairing an individual's ability to think, feel, and behave appropriately[2]. Schizophrenia is listed among the top 20 leading causes of disability

worldwide. Patients with schizophrenia also have a 2–4 times higher mortality rate compared to the general population[3]. The exact etiology and pathogenesis of schizophrenia remain unclear, but research generally indicates that the condition is influenced by genetic, psychological, and environmental factors[4,5].

Globally, there were 23.6 million cases of schizophrenia in 2019[6]. In Indonesia, the prevalence increased to 4 per 1,000 population in 2023[7–9]. In East Nusa Tenggara, the prevalence reached 5.5 per 1,000 population in 2023. According to the 2024 Kupang City Health Profile, there were 453 schizophrenia patients, with the highest numbers reported at Sikumana Primary Health Center (67 patients) and Oesapa Primary Health Center (78 patients)[10].

Antipsychotics are the primary treatment for schizophrenia and are particularly effective in reducing positive symptoms, especially in patients experiencing delirium and hallucinations[11,12]. In general, monotherapy is the recommended approach. However, in clinical practice, combination therapy is often used when monotherapy proves insufficient, despite the increased risk of side effects[13,14].

Prescribing patterns of antipsychotics in primary care face several challenges. Patients' clinical conditions vary widely, ranging from newly diagnosed acute cases to stable chronic patients in the maintenance phase, influencing both dosage selection and drug combinations. From a pharmacotherapy perspective, the use of antipsychotics is limited by their potential side effects, particularly extrapyramidal symptoms, metabolic syndrome, and sedation, often necessitating additional medications to balance therapy[15]. Moreover, prescribing in primary care is heavily influenced by the availability of medications[16]. In Primary health centers, drug availability is more limited compared to psychiatric hospitals. Many second-generation (atypical) antipsychotics are not routinely available, resulting in treatment options being largely restricted to typical antipsychotics with limited variation.

In Indonesia, the treatment guidelines for schizophrenia are regulated under the Ministry of Health Decree of 2015, and no new official pharmacotherapy guidelines have been issued since[17]. Implementation of these guidelines in primary care settings has not been widely studied, as previous research was primarily conducted in psychiatric hospitals[18–20]. Therefore, this study was conducted to describe the prescribing patterns of antipsychotics among schizophrenia patients at two primary health centers in Kupang City—Sikumana and Oesapa—which record the highest numbers of schizophrenia patients.

METHODS

This study employed a non-experimental descriptive research design with retrospective data collection. Data were obtained from electronic medical records of schizophrenia patients at Sikumana and Oesapa Primary Health Centers in Kupang City, covering the period from February to July 2025. The study population consisted of patients diagnosed with schizophrenia (ICD-X code F20) at the two primary health centers. A total sampling technique was used, in which all patients who met the inclusion criteria were included as study participants. The inclusion criterion was patients who received antipsychotic therapy at either of the primary health centers, while the exclusion criterion was patients referred to higher-level healthcare facilities before receiving antipsychotic treatment at the primary health centers. Ethical approval was granted by the Ethics Committee of the Faculty of Pharmacy, Universitas Airlangga (No.30/LE/2025).

RESULT

During the study period, there were 277 visits by schizophrenia patients to Sikumana and Oesapa Primary Health Centers. Of these, 129 visits resulted in antipsychotic prescriptions, while 140

visits (50.5%) were referred to secondary health facilities. The remaining 8 visits (2.9%) received other medications. This data can be seen in Table 1.

Table 1. Schizophrenia Patient Visits

	Sikumana (n=205)	Oesapa (n=72)	Total (n=277)	Percentage (%)
Referred to Higher-Level Facility	112	28	140	50,5
Antipsychotic Prescriptions	85	44	129	46,6
Other Prescriptions	8	-	8	2,9

A total of 42 patients were identified, consisting of 22 males (52.4%) and 20 females (47.6%). Based on patient status, 5 were newly diagnosed patients (11.9%), while the majority were chronic patients (37 patients, 88.1%). In terms of visit frequency, 12 patients (28.6%) made only one visit during the study period, which represented the largest proportion. Only 2 patients (4.8%) visited 6 times regularly, while 2 other patients visited more than 6 times due to relapse monitoring.

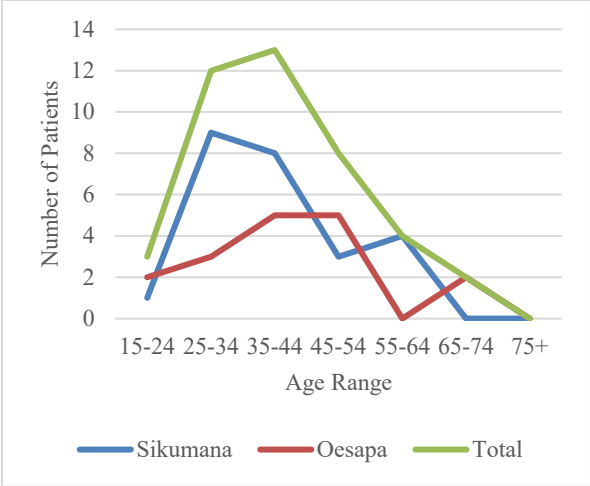

Figure 1. Graph of Distribution of Schizophrenia Patients Based on Age

Based on age categories (Figure 1) according to the Ministry of Health (2023)[9], the largest group was 35–44 years (13 patients, 30.9%), followed by 25–34 years (12 patients, 28.6%). Full distribution by sex, type of visit, age, and number of visits is presented in Table 2.

Out of 129 prescriptions, monotherapy was the most common regimen (74 prescriptions, 57.4%). The most frequently prescribed drugs in monotherapy were haloperidol (45 times) and risperidone (21 times). Combination therapy accounted for 55 prescriptions (42.6%), with the most frequent combinations being chlorpromazine + risperidone (29 times, 52.7%) and chlorpromazine + haloperidol (24 times, 43.6%). The distribution of prescribed drugs is presented in Table 3**.** In terms of drug classes, typical antipsychotics dominated, with chlorpromazine prescribed 61 times and haloperidol 73 times. Only risperidone represented the atypical antipsychotic group, prescribed 21 times. Figure 2 illustrates the frequency of prescribed drugs.

Trihexyphenidyl was the most commonly prescribed adjuvant, appearing in 103 prescriptions (85.8%) as prophylaxis against extrapyramidal side effects. Diazepam was prescribed 17 times (14.2%) for anxiety and sleep disturbances.

All prescribed medications were provided in oral tablet form, except for fluphenazine, which was given as intramuscular injection. Table 4 compares the dosage ranges received by patients with the recommended dosages according to the 2015 Ministry of Health guidelines.

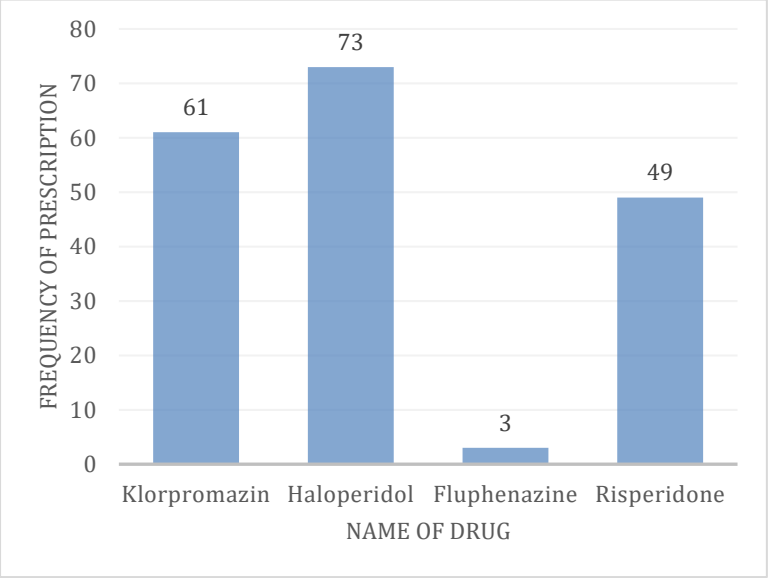

Figure 2. Graph of Frequently Prescribed Drug Names

Table 2. Distribution of Schizophrenia Patients

		Sikumana (n=25)	Oesapa (n=17)	Total (n=42)	Percentage (%)
Sex	Male	12	10	22	52,4
	Female	13	7	20	47,6
Type of Visit	Chronic Patient	23	14	37	88,1
	New Patient	2	3	5	11,9
Age (years)	15-24	1	2	3	7,1
	25-34	9	3	12	28,6
	35-44	8	5	13	30,9
	45-54	3	5	8	19,1
	55-64	4	-	4	9,5
	65-74	-	2	2	4,8
Number of Visits	1 Kali	6	6	12	28,6
	2 Kali	3	4	7	16,7
	3 Kali	7	2	9	21,4
	4 Kali	4	2	6	14,3
	5 Kali	2	2	4	9,5
	6 Kali	1	1	2	4,8
	>6 Kali	2	-	2	4,8

Table 3. Type of Therapy and Number of Antipsychotics Prescribed

Type of Therapy	Class	Drug Name	Number Prescribed per Visit			
			Sikumana (n=85)	Oesapa (n=44)	Total (n=129)	Percentage
Monotherapy n=74	Typical	HLP	27	18	45	60,8
		CPZ	0	7	7	9,5
		FLP	1	0	1	1,3
	Atypical	RSP	17	4	21	28,4
Combination n=55	Typical + Atypical	CPZ + RSP	23	6	29	52,7
		CPZ + RSP + FLP	2	0	2	3,7
	Typical + Typical	CPZ + HLP	15	9	24	43,6
EPS Prophylaxis n=103	Anticholinergic	THP	65	38	103	85,8
Anxiolytic n = 17	Benzodiazepine	DZP	16	1	17	14,2

HLP = Haloperidol, CPZ = Chlorpromazine, FLP = Fluphenazine, RSP = Risperidone, THP = Trihexyphenidyl, DZP = Diazepam

Table 4. Dosage Forms and Drug Doses Received by Patients

Drug Name	Dose (mg/day)	
	Received by Patients	Standard Dose
Monotherapy		
Haloperidol	1,5-15	5-20
Chlorpromazine	100-150	300-1000
Fluphenazine (IM)	25 (every 30 days)	25 (every 28 days)
Risperidone	1-5	2-8
Combination Therapy		
Haloperidol	3-10	5-20
Chlorpromazine	25-200	300-1000
Fluphenazine (IM)	25 (every 30 days)	25 (every 28 days)
Risperidone	4	2-8
Chlorpromazine	200	300-1000
Risperidone	0,5-5	2-8
Chlorpromazine	25-200	300-1000

IM = *Intra Muscular*

DISCUSSION

A total of 277 visits by schizophrenia patients were recorded at the two primary health centers, with 140 visits (50.5%) ending in referrals to higher-level healthcare facilities such as regional psychiatric hospitals and mental health clinics. The high rate of referrals demonstrates the limitations of schizophrenia management in primary care, particularly regarding the availability of antipsychotic drugs, which are mostly limited to typical agents, while atypical antipsychotics are not routinely available. These findings highlight the role of primary health centers in initiating schizophrenia

treatment; however, the limited drug options—especially the unavailability of atypicals—remain a major factor behind the high referral rates to higher-level facilities. Evidence from other studies examining the general availability of medicines in primary health centers similarly shows that drug availability in puskesmas is still inadequate, leading patients to be referred to secondary healthcare facilities because prescribed medications are not available[21–24.]

The patient distribution showed a predominance of males. This can be explained by the fact that schizophrenia tends to appear earlier in men than in women[25]. Men are also considered more susceptible due to generally experiencing greater life stressors[26]. With respect to age, the findings are consistent with global prevalence trends, where schizophrenia peaks in young adulthood and then gradually declines with increasing age[27,28]. The majority of patients treated at the primary health centers were chronic patients (37 patients, 88.1%), which reflects the continuity of schizophrenia management in primary care.

Regarding visit frequency, during the study period, the largest group of patients were those who made only a single visit (12 patients, 28.6%). Considering that the amount of medication prescribed typically covered one month of use, patients ideally should have visited six times during the February–July study period. However, only 2 patients (4.8%) attended all six monthly visits. This indicates suboptimal medication adherence and may also reflect the limited availability of antipsychotics at primary care facilities. The variety of drugs and doses available at the health centers remains limited compared to the National Formulary requirements[29]. Additionally, 2 patients (4.8%) made more than six visits (eight and twelve visits, respectively) during the study period due to post-relapse monitoring.

In terms of therapy, monotherapy was predominant with 74 prescriptions (57.4%), in accordance with general treatment guidelines that recommend antipsychotic monotherapy as the first-line therapy[30]. Typical antipsychotics accounted for 53 prescriptions (71.6%) of all monotherapies. According to other studies, who compared the effectiveness of typical and atypical antipsychotics, there is no significant difference in efficacy between the two classes[31]. Other studies have also shown no major differences in outcomes among various antipsychotics in placebo-controlled meta-analyses, with haloperidol being found equally effective compared to atypicals[32]. Combination therapy remained relatively common, with 55 prescriptions (42.6%), particularly chlorpromazine + risperidone (29 prescriptions, 52.7%) and chlorpromazine + haloperidol (24 prescriptions, 43.6%). This indicates a clinical need for optimized symptom control using combination regimens, given that monotherapy is sometimes insufficient for certain patients[13]. However, combination therapy carries greater safety risks, as the likelihood of extrapyramidal side effects is higher—especially when typical antipsychotics are included in the regimen[33].

As shown in Figure 2, the most frequently prescribed drugs were typical antipsychotics, namely chlorpromazine and haloperidol. The high use of these drugs increases the risk of movement-related side effects. The most frequent of these are extrapyramidal symptoms, caused by reduced dopamine activity. These side effects are most common with typical or first-generation antipsychotics, as they specifically block dopamine D_2 receptors. In contrast, atypical or second-generation antipsychotics act on multiple receptors, including serotonin, adrenergic, and histamine receptors, which reduce the risk of motor side effects[34]. This finding is consistent with the high rate of trihexyphenidyl prescriptions (103 prescriptions, 85.8%) used to prevent extrapyramidal symptoms[15]. However, the extensive use of trihexyphenidyl also requires careful monitoring due to its potential cognitive side effects, particularly in elderly patients[35]. Diazepam was also prescribed 17 times (14.2%) for anxiety or sleep disturbance[36]. However, diazepam may cause a *hangover effect*, in which patients feel drowsy, lethargic, and have difficulty concentrating[37].

As presented in Table 4, there were discrepancies between the doses received by patients and the standard doses recommended by the Ministry of Health (2015). In monotherapy, haloperidol was

prescribed in the range of 1.5–15 mg/day, lower than the recommended 5–20 mg/day. Chlorpromazine was prescribed at 100–150 mg/day, also lower than the recommended 300–1000 mg/day. Risperidone was prescribed at 1–5 mg/day, within but sometimes at the lower end of the standard 2–8 mg/day range, with some patients receiving 1 mg/day as a maintenance dose. These lower doses were likely aimed at minimizing extrapyramidal side effects, particularly since most patients at the primary health centers were clinically stable, making low doses effective for symptom control. Dose tapering may also be required once symptoms subside to avoid antipsychotic-related adverse effects [16]. Similarly, in combination therapy, the prescribed doses were generally lower than guideline recommendations. This reflects individualized dosing based on patient clinical needs and clinicians' experience, where low doses were found sufficient to achieve therapeutic effects while minimizing side effects. Hasrrison *et al* (2021) confirmed that low-dose antipsychotic regimens are as effective as standard doses for relapse prevention in schizophrenia[38].

The findings of this study highlight key challenges in schizophrenia management at the primary care level. The dominance of typical antipsychotics and limited drug availability show that access to medications strongly shapes prescribing decisions, emphasizing the need to expand formularies to include second-generation antipsychotics. The frequent use of low-dose regimens indicates that clinicians tailor therapy to patient stability, consistent with evidence supporting reduced-dose strategies to minimize side effects. The high referral rate further reflects limited service capacity in primary care, underscoring the need for improved documentation, monitoring of adverse effects, and strengthened psychosocial support.

Nonetheless, this study has limitations. Patient medical records did not consistently contain information on side effects or clinical outcomes. This is a significant limitation, as the success of antipsychotic therapy should not only be assessed by prescribing patterns but also by clinical effectiveness and long-term tolerability. More comprehensive medical record documentation is necessary to support evidence-based evaluation of schizophrenia treatment in primary care.

CONCLUSION

This study demonstrates that the management of schizophrenia at Sikumana and Oesapa Primary Health Centers is still dominated by the use of typical antipsychotics in monotherapy regimens, although combination therapy is also relatively common to optimize symptom control in some patients. The high use of trihexyphenidyl reflects clinicians' efforts to anticipate extrapyramidal side effects, while diazepam was prescribed for anxiety or sleep disturbances, despite the risk of a hangover effect. Antipsychotic doses were generally lower than standard recommendations, consistent with individualized treatment strategies for relatively stable patients. The high referral rate (50.5%) highlights the limitations of drug availability, particularly atypical antipsychotics, in primary care. Furthermore, incomplete documentation of side effects and clinical outcomes in patient records represents a significant weakness that should be addressed to enable more comprehensive and evidence-based evaluation of schizophrenia treatment in primary care.

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