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Prescribing Profile of Psychotropic Medications at a Primary Healthcare Clinic in Gorontalo Province Indonesia

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ABSTRACT

Psychotropic medication prescribing in primary healthcare requires continuous monitoring to support rational drug use and patient safety, yet clinic level data on psychotropic medication utilization in Gorontalo Province remain limited. This study aimed to describe the utilization profile of selected psychotropic and related medications by age group and sex at a primary healthcare clinic in Gorontalo Province, Indonesia. A retrospective descriptive study was conducted using prescription records from July to September 2025. The medications analyzed were Alprazolam 1 mg, Olanzapine 10 mg, Hexymer 2 mg, Risperidone 2 mg, and Merlopam 2 mg. Data were grouped by medication type, month of prescription, age group, and sex, then presented as utilization frequencies. The results showed that total drug utilization increased from 1,621 prescription events in July to 2,331 in August and 3,130 in September, with 7,082 prescription events recorded during the three-month period. Male patients accounted for 3,961 events, while female patients accounted for 3,121 events. Hexymer 2 mg showed the highest overall utilization with 2,152 events, followed by Alprazolam 1 mg with 1,568 events, Merlopam 2 mg with 1,456 events, Risperidone 2 mg with 1,384 events, and Olanzapine 10 mg with 522 events. The highest utilization was observed among productive age groups, particularly 26–30 years and 31–36 years. These findings indicate that psychotropic and related medication utilization increased during the study period, with higher use among male patients and productive age groups, highlighting the importance of routine prescription monitoring to promote rational drug use and strengthen mental health services in primary care.

Keywords:
Psychotropic medication; Prescribing profile; Primary healthcare; Retrospective study; Gorontalo.

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1. Introduction

Mental disorders remain a major public health concern worldwide because they affect cognition, emotion, behavior, social functioning, and quality of life. The World Health Organization reported that nearly one in seven people globally lived with a mental disorder in 2021, with anxiety and depressive disorders among the most common conditions. Although effective prevention and treatment options are available, many people still face limited access to appropriate mental health care, especially in resource-limited settings. This situation highlights the need for stronger mental health services, including pharmacological management, at the primary healthcare level [1,2].

Psychotropic medications are an important component of mental health treatment. These medications include antidepressants, antipsychotics, anxiolytics, sedative-hypnotics, and mood stabilizers, depending on the clinical indication. Their use must be guided by rational prescribing principles because inappropriate selection, dosage, duration, or combination of psychotropic medications may increase the risk of adverse effects, drug interactions, dependence, and poor treatment outcomes. The WHO Essential Medicines framework emphasizes that essential medicines should be selected based on disease prevalence, public health relevance, efficacy, safety, and cost-effectiveness. Recent evidence from primary healthcare settings also shows that inappropriate psychotropic prescribing remains a relevant issue that needs continuous monitoring [3,4].

Primary healthcare clinics play an important role in improving access to mental health care, particularly for patients who require early detection, routine treatment, medication continuation, or referral to specialist services. The WHO Mental Health Gap Action Programme supports the expansion of mental health services for mental, neurological, and substance use disorders in non-specialist healthcare settings. This approach is relevant for primary healthcare facilities because they often serve as the first point of contact for patients with psychological distress, sleep problems, anxiety symptoms, depression, psychosis, or long-term psychiatric conditions. Therefore, prescribing data from primary healthcare clinics can provide useful information about real world psychotropic medication use [5,6].

However, evidence on the prescribing profile of psychotropic medications in primary healthcare clinics, particularly in Gorontalo Province, remains limited. Most available studies tend to focus on hospitals, psychiatric outpatient departments, or broader national data, while clinic-level prescribing patterns are rarely described in detail. A prescribing profile can help identify the most commonly prescribed psychotropic medications, therapeutic classes, patient characteristics, and potential patterns such as polypharmacy or repeated use of certain drug groups. Therefore, this study aims to describe the prescribing profile of psychotropic medications at a primary healthcare clinic in Gorontalo Province, Indonesia, as a basis for improving rational drug use, patient safety, and mental health service quality in primary care [7,8].

2. Methods

Study Design and Setting

This study used a retrospective descriptive observational design. The study aimed to describe the prescribing profile of psychotropic medications at a primary healthcare clinic in Gorontalo Province, Indonesia. The retrospective approach was selected because the data were obtained from existing prescription records. The observation period covered three consecutive months, namely July, August, and September 2025. No intervention was given to patients, and the study only reviewed prescription data that had already been recorded during routine clinical practice.

Data Source and Study Population

The data source consisted of prescription records from a primary healthcare clinic in Gorontalo Province, Indonesia. The study population included all prescription records containing selected psychiatric-related medications during the period of July to September 2025. The medications reviewed in this study were alprazolam 1 mg, olanzapine 10 mg, trihexyphenidyl HCl 2 mg, risperidone 2 mg, and lorazepam 2 mg. These medications were selected because they represented the most frequently prescribed drugs related to mental health services at the clinic during the study period.

The unit of analysis in this study was the prescription record. Each prescription record was reviewed based on the medication prescribed, the month of prescription, patient age, and patient sex. Prescription records with incomplete information on the main variables were excluded from the relevant analysis. When one prescription contained more than one selected medication, each medication was recorded according to its drug name and strength to describe the prescribing profile more accurately.

Study Variables

The main variable in this study was the type of medication prescribed. The medications were classified according to the drug name and dosage strength, consisting of alprazolam 1 mg, olanzapine 10 mg, trihexyphenidyl HCl 2 mg, risperidone 2 mg, and lorazepam 2 mg. The prescribing profile was described by identifying the frequency of each medication prescribed during the three-month study period. The patient characteristics analyzed in this study included age and sex. Age was grouped into several categories, namely 14 to 25 years, 25 to 30 years, 31 to 36 years, 45 to 55 years, and 70 to 82 years. Sex was categorized as male and female. These characteristics were analyzed for each month of observation, namely July, August, and September 2025. This classification was used to describe the distribution of psychotropic medication prescribing based on patient demographic characteristics.

Data Collection Procedure

Data collection was conducted by reviewing prescription records from July, August, and September 2025. The researcher first identified prescription records that contained one or more of the selected medications. After that, relevant data were extracted into a structured data collection sheet. The extracted information included the month of prescription, name of medication, dosage strength, patient age, and patient sex. All data were checked for completeness and consistency before analysis. Drug names and dosage strengths were standardized to avoid duplication caused by differences in writing format. For example, alprazolam 1 mg, olanzapine 10 mg, trihexyphenidyl HCl 2 mg, risperidone 2 mg, and lorazepam 2 mg were recorded using uniform terminology. The collected data were then grouped by month, medication type, age category, and sex. The final dataset was used to describe the prescribing pattern of psychiatric-related medications at the clinic during the three-month observation period.

3. Results

The analysis provides a comparative overview of utilization frequency among male and female patients within five age categories, allowing the observation of dominant age groups, sex-based differences, and medication-specific utilization trends. **Table 1** summarizes the numerical distribution of drug use, while **Figure 1** visualizes these data to facilitate clearer interpretation of utilization patterns across age and sex groups.

Table 1. Drug Utilization by Age Group and Sex in July 2025

Age Group	Alprazolam 1 mg Male	Alprazolam 1 mg Female	Olanzapine 10 mg Male	Olanzapine 10 mg Female	Hexymer 2 mg Male	Hexymer 2 mg Female	Risperidone 2 mg Male	Risperidone 2 mg Female	Merlopam 2 mg Male	Merlopam 2 mg Female
14-25	111	50	20	20	45	50	25	20	40	30
25-30	72	55	35	30	50	53	50	45	51	25
31-36	55	10	10	7	30	48	50	100	75	50
45-55	20	10	11	10	15	56	24	25	25	20
70-82	0	0	0	0	48	0	0	0	0	45
Total	**258**	**125**	**76**	**67**	**188**	**207**	**149**	**190**	**191**	**170**

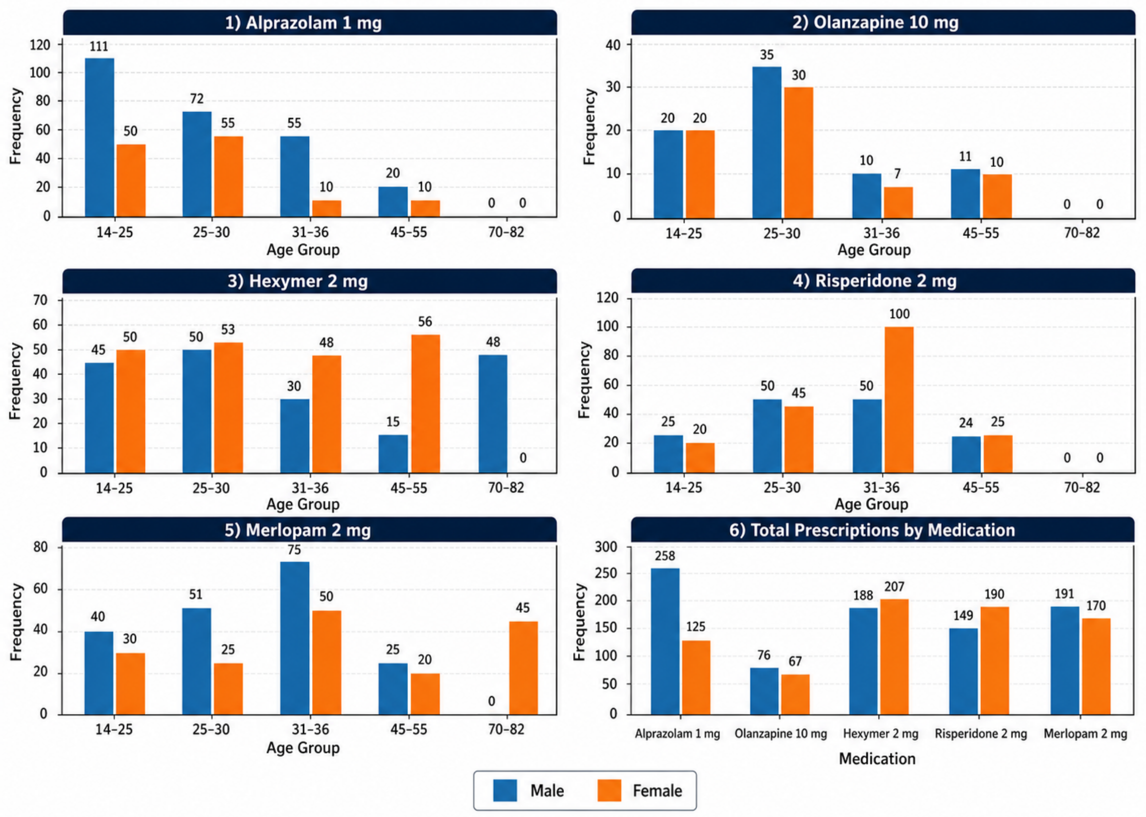

Figure 1. Drug Utilization by Age Group and Sex in July 2025

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The following table and figure present the distribution of drug utilization by age group and sex for the subsequent observation period. In this section, the utilization pattern is examined across five medication categories, namely Alprazolam 1 mg, Olanzapine 10 mg, Hexymer 2 mg, Risperidone 2 mg, and Merlopam 2 mg. The data are grouped according to patient age and sex to identify differences in utilization frequency between male and female patients, as well as to determine which age groups show the highest use for each medication. **Table 2** provides the detailed numerical distribution, while **Figure 2** presents the same data visually to support a clearer comparison of utilization trends across demographic groups.

Table 2. Drug Utilization by Age Group and Sex in August 2025

Age Group	Alprazolam 1 mg Male	Alprazolam 1 mg Female	Olanzapine 10 mg Male	Olanzapine 10 mg Female	Hexymer 2 mg Male	Hexymer 2 mg Female	Risperidone 2 mg Male	Risperidone 2 mg Female	Merlopam 2 mg Male	Merlopam 2 mg Female
14-25	85	45	15	25	60	40	35	30	35	50
26-30	150	50	20	30	145	65	50	50	56	140
31-36	125	55	10	40	150	75	55	75	55	100
45-55	30	30	8	25	45	35	30	13	45	55
70-82	20	0	0	0	9	14	0	0	0	56
Total	**410**	**180**	**53**	**120**	**409**	**229**	**170**	**168**	**191**	**401**

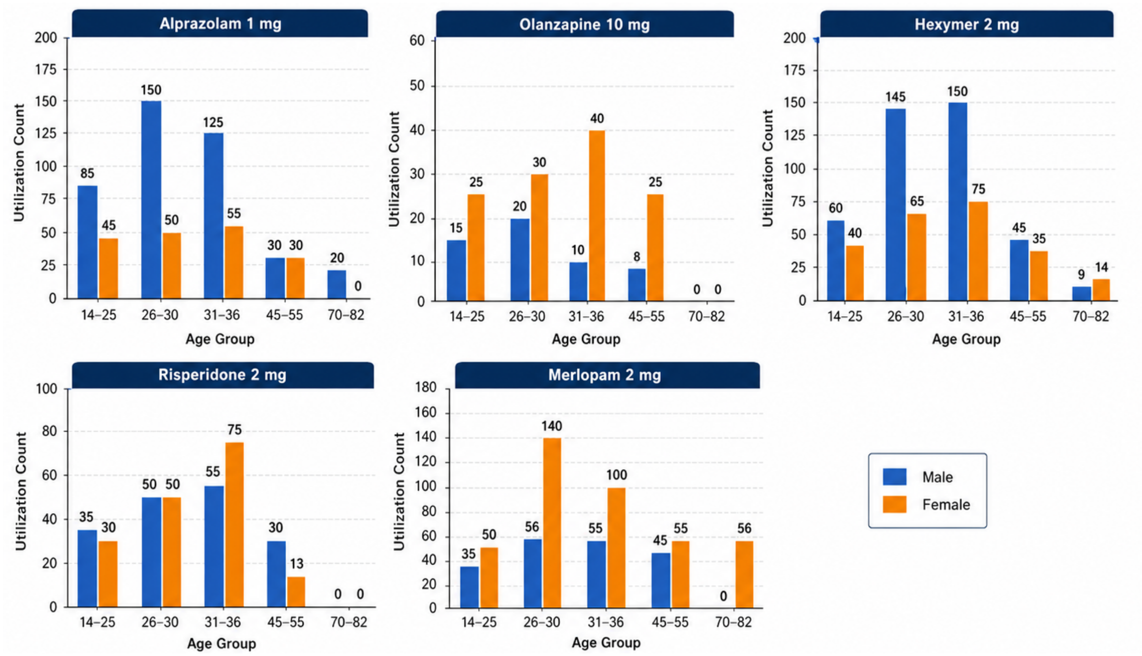

Figure 2. Drug Utilization by Age Group and Sex in August 2025

The September 2025 data were analyzed to further describe drug utilization patterns across age group and sex. This analysis includes five medication categories, namely Alprazolam 1 mg, Olanzapine 10 mg, Hexymer 2 mg, Risperidone 2 mg, and Merlopam 2 mg. The distribution is presented to identify the dominant age groups, sex-based utilization differences, and medication-specific trends during the observation period. Table 3 provides the detailed frequency of drug utilization, while Figure 3 illustrates the same data graphically to support clearer comparison across demographic categories.

Table 3. Drug Utilization by Age Group and Sex in September 2025

Age Group	Alprazolam 1 mg Male	Alprazolam 1 mg Female	Olanzapine 10 mg Male	Olanzapine 10 mg Female	Hexymer 2 mg Male	Hexymer 2 mg Female	Risperidone 2 mg Male	Risperidone 2 mg Female	Merlopam 2 mg Male	Merlopam 2 mg Female
14-25	100	35	15	25	150	100	100	50	25	60
26-30	120	55	35	30	250	150	125	80	35	100
31-36	135	55	20	55	189	100	150	50	85	145
45-55	55	25	17	9	100	80	80	22	15	38
70-82	15	0	0	0	0	0	50	0	0	0
Total	**425**	**170**	**87**	**119**	**689**	**430**	**505**	**202**	**160**	**343**

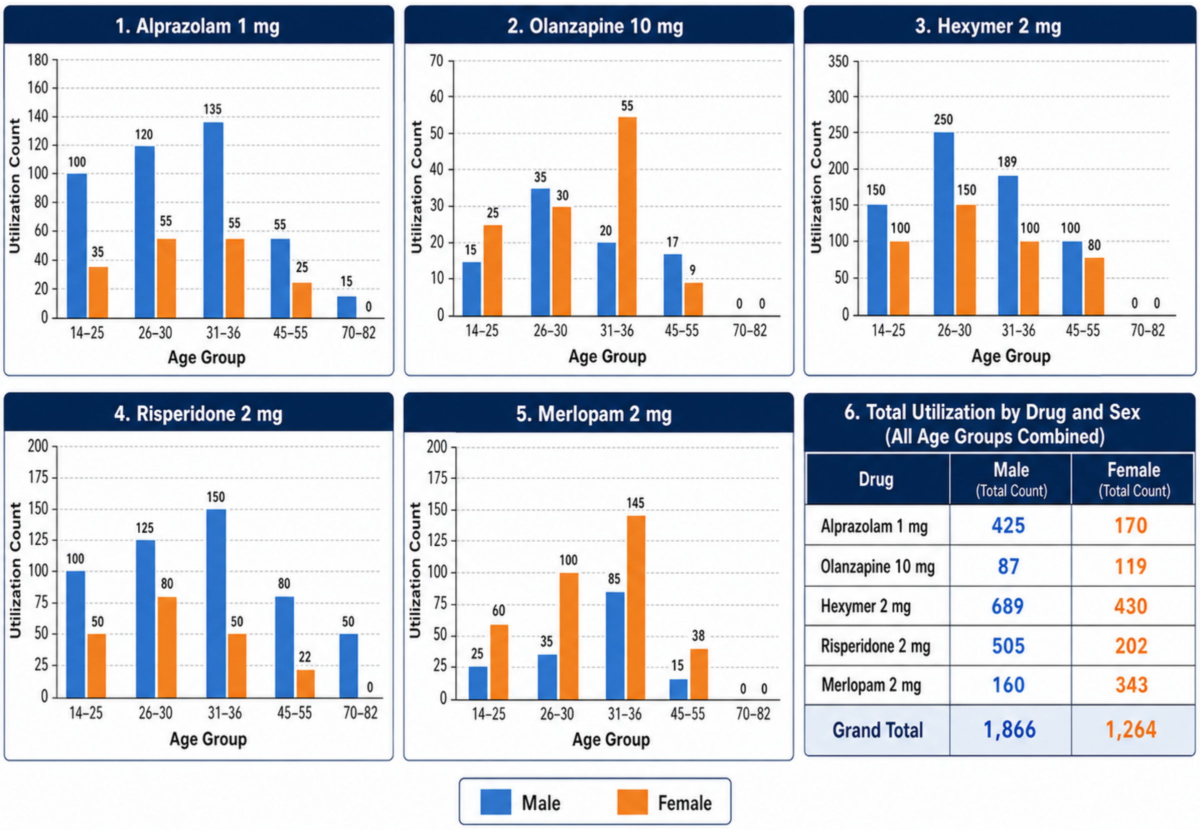

Figure 3. Drug Utilization by Age Group and Sex in September 2025

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4. Discussion

The findings show a clear increase in drug utilization from July to September 2025. Total utilization rose from 1,621 prescription events in July to 2,331 in August, and then increased further to 3,130 in September. This pattern indicates that psychotropic and related medication use at the primary healthcare clinic was not static during the three month observation period. The increase may reflect higher patient visits, more follow up prescriptions, changes in clinical demand, or differences in medication availability. However, because this study used prescription-based retrospective data, the increase cannot be directly interpreted as an increase in disease prevalence [7,9–11].

Across the three months, medication utilization was concentrated mainly among younger and early middle-aged patients. The 25 or 26 to 30-year age group and the 31 to 36-year age group showed the highest overall utilization. In July, the highest total use appeared in the 25 to 30-year group, with 466 prescription events. In August, the highest use was observed in the 26 to 30-year group, with 756 prescription events. In September, the 31 to 36-year group showed the highest utilization, with 984 prescription events, followed closely by the 26 to 30-year group, with 980 events. This distribution suggests that patients in productive age groups represented the main users of these medications during the study period [12,13].

Sex based differences were also observed. Overall, male patients had higher total utilization than female patients across the three-month period. Total male utilization reached 3,961 events, while female utilization reached 3,121 events. Male predominance was most visible in alprazolam, Hexymer, and risperidone use. Alprazolam utilization was consistently higher among male patients in all three months, with total male use of 1,093 compared with 475 among female patients. A similar pattern appeared for Hexymer and risperidone, where male patients accounted for most utilization events. This finding suggests that male patients may have had more frequent prescriptions for several psychotropic or adjunctive medications in this clinic setting [14,15].

In contrast, female patients showed higher utilization for olanzapine and Merlopam. Across the three months, olanzapine use was higher among female patients, with 306 events compared with 216 among male patients. Merlopam also showed a female-dominant pattern, with 914 events among female patients compared with 542 among male patients. The female predominance was especially strong in August and September. In August, Merlopam utilization among female patients reached 401 events, while male utilization was 191 events. In September, female use remained higher, with 343 events compared with 160 among male patients. This pattern indicates that sex-based prescribing differences varied by medication type [16].

Hexymer 2 mg showed the highest total utilization among all medications, with 2,152 prescription events over three months. Its use increased markedly in September, reaching 1,119 events. This increase was particularly notable among male patients, who accounted for 689 Hexymer events in September. Since Hexymer contains trihexyphenidyl, its high use may indicate frequent management of extrapyramidal symptoms or co-prescribing with antipsychotic therapy. However, this interpretation should be made cautiously because the present data do not link each prescription to diagnosis, clinical indication, or concurrent medication use. Further review of prescription combinations would be useful to assess whether Hexymer use was clinically appropriate.

Alprazolam 1 mg also showed high utilization, with 1,568 total prescription events across the study period. Its use was consistently higher among male patients and was most prominent in the 14 to 25, 25 or 26 to 30, and 31 to 36-year age groups. The high frequency of alprazolam prescriptions deserves attention because benzodiazepine use requires careful monitoring of indication, duration, repeat prescribing, dependence risk, sedation, and potential drug interactions. In primary care, regular evaluation of benzodiazepine prescriptions is important to ensure rational use and patient safety.

Risperidone 2 mg demonstrated a substantial increase in September, rising from 339 events in July and 338 events in August to 707 events in September. The highest September use was observed among male patients aged 31 to 36 years, with 150 events, followed by male patients aged 26 to 30 years, with 125 events. Female risperidone use was lower in September than male use, although female utilization was high in July among the 31 to 36-year group. This changing pattern suggests that antipsychotic prescribing varied across months and demographic groups. A more detailed analysis of diagnosis, treatment duration, and refill patterns would help clarify whether the increase reflected new cases, continuation therapy, or repeated prescriptions.

Olanzapine 10 mg had the lowest total utilization compared with the other medications, with 522 prescription events during the three-month period. Although its overall use was lower, female patients showed higher utilization than male patients. The highest female olanzapine use occurred in September among the 31 to 36-year group, with 55 events. The relatively lower use of olanzapine compared with risperidone may reflect prescribing preference, patient tolerance, drug availability, or clinical considerations in the primary care setting. However, these possible explanations require further clinical data.

The elderly group aged 70 to 82 years showed the lowest overall utilization. Across the three months, this group accounted for a smaller number of prescription events than the younger age groups. Even so, some medication-specific patterns deserve attention. In July, Hexymer use was recorded among male elderly patients, while Merlopam use was recorded among female elderly patients. In August, Merlopam use among elderly female patients reached 56 events. In September, risperidone was recorded among elderly male patients. These findings are important because psychotropic medication use in older adults requires careful monitoring due to higher vulnerability to sedation, cognitive effects, falls, anticholinergic burden, and drug interactions [17,18].

Overall, the results indicate that psychotropic and related medication prescribing in this primary healthcare clinic was dominated by Hexymer, alprazolam, Merlopam, and risperidone, while olanzapine showed the lowest utilization. The dominant age groups were 25 or 26 to 30 years and 31 to 36 years. Male patients had higher total utilization overall, but female patients showed higher use of olanzapine and Merlopam. These findings highlight the need for routine prescription monitoring, especially for benzodiazepines, antipsychotics, and adjunctive anticholinergic therapy.

From a clinical and service perspective, this prescribing profile can support rational drug use evaluation at the primary healthcare level. The clinic can use these findings to review prescribing indications, duration of therapy, repeat prescriptions, potential polypharmacy, and the appropriateness of adjunctive medication use. Future analysis should include diagnosis, number of individual patients, prescription duration, dose frequency, refill status, and medication combinations. This would allow a more complete assessment of prescribing quality and patient safety.

Before final submission, the age-group classification should be standardized. July uses the category 25–30 years, while August and September use 26–30 years. For consistency, the study should use one classification format throughout the manuscript, such as 14–25, 26–30, 31–36, 45–55, and 70–82 years, or revise it into non-overlapping age groups.

Conclusion

This study shows that psychotropic and related medication utilization at the primary healthcare clinic in Gorontalo Province increased from July to September 2025, with the highest total utilization recorded in September. The prescribing pattern was dominated by Hexymer 2 mg, Alprazolam 1 mg, Risperidone 2 mg, and Merlopam 2 mg, while Olanzapine 10 mg showed the lowest overall use. Most prescriptions were concentrated among patients in the productive age groups, particularly 26–30 years and 31–36 years. Male patients showed higher overall utilization, especially for Alprazolam, Hexymer, and Risperidone, whereas female patients showed higher use of Olanzapine and Merlopam. These findings indicate the need for routine monitoring of psychotropic prescribing in primary care to support rational drug use, minimize potential risks, and improve patient safety in mental health services.

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Conflict of interest statement

The authors declared no conflict of interest

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