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Original Research Article

Prescription Pattern of Antidepressants and Anxiolytics among Outdoor Patients at the Department of Psychiatry in a Tertiary Care Teaching Hospital

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Abstract

Introduction: Depression and anxiety disorders are common psychiatric conditions requiring long-term pharmacological treatment. Prescription pattern analysis helps assess rational drug use, while WHO ATC classification and PDD/DDD comparison provide a standard method for evaluating drug utilization. The present study was conducted to assess the prescribing pattern of antidepressants and anxiolytics in patients with depression and anxiety disorders.

Methods: This prospective observational study was conducted in the Psychiatry Outpatient Department of Shree Krishna Hospital, Karamsad, Gujarat, India, from July 2024 to October 2025. A total of 100 patients diagnosed with depression and/or anxiety disorder were included. Demographic details, clinical diagnosis, and prescription data were collected from hospital records. Prescribed antidepressants and anxiolytics were classified according to the WHO Anatomical Therapeutic Chemical classification system. The prescribed daily dose was compared with the WHO-defined daily dose, and the PDD/DDD ratio was calculated.

Results: Out of 100 participants, 50% had depression, 48% had anxiety disorder, and 2% had both conditions. The mean age was 44.75 ± 15.26 years, and females constituted 55% of participants. Among anxiety patients, clonazepam was the most commonly prescribed drug (53%), followed by escitalopram (38%), etizolam (23%), and sertraline (20%). Among depression patients, escitalopram was most frequently prescribed (47.1%), followed by fluoxetine (26.9%), mirtazapine (15.4%), and clonazepam (37.5%) as a co-prescribed anxiolytic. PDD/DDD analysis showed that SSRIs were generally prescribed near standard DDD values, while benzodiazepines, TCAs, and antipsychotic adjuncts were mostly prescribed below DDD values.

Conclusion: SSRIs were the mainstay of treatment, with cautious use of benzodiazepines and adjunctive psychotropic drugs. WHO ATC and PDD/DDD analysis supported largely rational prescribing practices.

Keywords: Antidepressants, anxiolytics, prescription pattern, ATC classification, PDD/DDD, depression, anxiety.

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Introduction

Depression and anxiety disorders are common psychiatric conditions and important causes of disability, impaired daily functioning, and health care burden worldwide. Depression affects more than 300 million people globally, while anxiety disorders also affect a large population and contribute substantially to non-fatal health loss. Depression is recognized as a leading cause of years lived with disability, and anxiety disorders are also among the major contributors to global disability.[1] In India, common mental disorders remain an important public health problem because of their high prevalence, chronic course, social stigma, and large treatment gap. The National Mental Health Survey of India reported that a large number of individuals require mental health care, but many do not receive appropriate treatment.[2,3] In clinical practice, depression and anxiety are frequently encountered in psychiatry outpatient departments and often require long-term

pharmacological treatment. Pharmacotherapy plays an important role in the management of depressive and anxiety disorders. Antidepressants used in routine practice include selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, tricyclic antidepressants, and other newer antidepressants. Selective serotonin reuptake inhibitors such as escitalopram, fluoxetine, and sertraline are commonly preferred because of better tolerability, safety, and lower toxicity compared with older antidepressants.[4–6] Anxiolytics, especially benzodiazepines such as clonazepam, lorazepam, and diazepam, are commonly prescribed for short-term relief of anxiety, sleep disturbance, and acute distress. However, their use requires caution because of sedation, dependence, tolerance, and cognitive adverse effects.[7,8]

Prescription pattern studies are important because they help assess the rationality and appropriateness of drug use in real-world clinical settings. In psychiatry, this is especially relevant because patients may receive multiple drugs, long-term therapy, and dose adjustments according to clinical response. Previous Indian studies have shown variation in the prescribing pattern of antidepressants and anxiolytics, with selective serotonin reuptake inhibitors commonly used in psychiatry outpatient departments and benzodiazepines frequently used as adjunctive agents.[5,9–12]

The World Health Organization Anatomical Therapeutic Chemical and Defined Daily Dose system provides a standard method for drug classification and drug utilization research. The ATC system classifies drugs according to the organ or system on which they act, as well as their therapeutic, pharmacological, and chemical properties.[13] The Defined Daily Dose represents the assumed average adult maintenance dose of a drug for its main indication, while the Prescribed Daily Dose represents the actual average dose prescribed in clinical practice.[14,15]

Comparing PDD with DDD helps identify whether drugs are being prescribed near, above, or below standard reference doses. Assessment of PDD and DDD is useful for antidepressants and anxiolytics because inappropriate dosing may affect efficacy, tolerability, and safety. A PDD/DDD ratio close to 1 suggests that the prescribed dose is similar to the standard reference dose, whereas values above or below 1 may reflect dose adjustments based on clinical need, severity, comorbidity, or safety concerns.[14,16]

The present study aimed to evaluate the prescription pattern of antidepressant and anxiolytic drugs among patients by using the WHO ATC system and compared the Prescribed Daily Dose with the WHO Defined Daily Dose.

Materials and Methods

Study Design and Setting: This was a prospective observational study conducted in the Psychiatry Outpatient Department of Shree Krishna Hospital, Karamsad, and Gujarat, India, attached to Pramukhswami Medical College. The study was conducted from July 2024 to October 2025, following approval from the Institutional Ethics Committee of Pramukhswami Medical College, Karamsad. The approval letter number was IEC/BU/156/Faculty/02/248/2024.

Study Population: A total of 100 patients diagnosed with depression and/or anxiety disorders were included in the study. Patients attending the Psychiatry Outpatient Department during the study period were screened according to predefined eligibility criteria. Among them, 50 patients had depression, 48 had anxiety disorder, and 2 patients had both depression and anxiety disorder.

Inclusion Criteria: Patients of either gender or any age attending the Psychiatry Department of Shree Krishna Hospital were included. Patients with a confirmed diagnosis of depression and/or anxiety disorder were eligible for enrolment.

Exclusion Criteria: Patients with anxiety and depressive disorders may presenting to the Emergency Department with psychiatric emergencies such as suicidal ideation and panic attacks were excluded from the study.

Sample Size: The sample size was calculated using a prevalence-based formula, considering a previously reported 38% prevalence of the prescribing pattern of antidepressant and anxiolytic drugs, with a 95% confidence level and a 10% allowable error. The minimum required sample size was 90. To compensate for possible dropouts and improve reliability, 100 participants were included in the final study.

Data Collection: Data were collected by using the online hospital information system of Shree Krishna Hospital, Karamsad. Eligible patients were identified from clinical records, and relevant information was entered into a structured case record form. Demographic details such as age, gender, education, occupation, and marital status were recorded. Clinical details, including diagnosis, comorbidities, past history of psychological disorder, family history, and addiction history, were also collected.

Prescription details include generic drug name, dose, dosage form, frequency, route of administration, duration of therapy, and concomitant psychotropic medications such as

sedative hypnotics, mood stabilizers, and antipsychotic drugs.

Assessment of Prescription Pattern: The prescription pattern of antidepressant and anxiolytic drugs was analyzed according to the number and percentage of patients receiving each drug. Drugs were grouped according to pharmacological class, including selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, tricyclic antidepressants, benzodiazepines, and other adjunctive psychotropic drugs. The frequency of prescription, commonly used drugs, dose, and dosing schedule were assessed separately for patients with depression and anxiety disorders.

WHO ATC Classification: All prescribed antidepressant and anxiolytic drugs were classified according to the World Health Organization Anatomical Therapeutic Chemical classification system. Selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, tricyclic antidepressants, benzodiazepines, sedative hypnotics, mood stabilizers, and antipsychotic drugs were classified using their respective ATC codes. The WHO ATC/DDD Index was used as the reference source for assigning ATC codes and Defined Daily Dose values.

PDD and DDD Comparison: The Defined Daily Dose for each drug was obtained from the WHO ATC/DDD reference values. The Prescribed Daily Dose was calculated as the average of the actual daily doses prescribed to the study participants. The PDD/DDD ratio was then calculated for each drug using the following formula:

PDD/DDD ratio = Prescribed Daily Dose / Defined Daily Dose

A PDD/DDD ratio close to 1 was considered indicative of the prescribed dose being near the WHO standard reference dose. A ratio above 1 indicated that the prescribed dose was higher than the DDD, while a ratio below 1 indicated that the prescribed dose was lower than the DDD. Drugs for which DDD values were not available were reported without PDD/DDD comparison.

Outcome Measures: The main outcome measures were the prescription pattern of antidepressant and anxiolytic drugs, classification of prescribed drugs according to WHO ATC codes, and comparison of the Prescribed Daily Dose with the WHO Defined Daily Dose.

Statistical Analysis: Data were entered in Microsoft Excel and analyzed using descriptive statistics. Continuous variables were expressed as mean and standard deviation.

Categorical variables were expressed as frequency and percentage. Prescription pattern data were presented as the number and percentage of patients receiving each drug. PDD, DDD, and PDD/DDD ratios were calculated and presented in tabular form.

Results

A total of 100 patients attending the Psychiatry Outpatient Department of Shree Krishna Hospital, Karamsad, were included in the study. Among them, 50 patients were diagnosed with depression, 48 patients with anxiety disorder, and 2 patients with both depression and anxiety disorder.

Baseline Demographic and Clinical Characteristics: Table 1 shows that the mean age of the study participants was 44.75 ± 15.26 years, with the highest proportion in the 41 to 50 years age group (24%) and a slight female predominance (55%). Most participants were married (84%), educated up to 12th standard or graduate level, and hypertension was the most common comorbidity (12%).

Table 1: Baseline demographic and clinical characteristics

Characteristic		n (%) or value
Total participants		100
Age, mean ± SD, years		44.75 ± 15.26
Age	18 to 30 years	20 (20%)
	31 to 40 years	21 (21%)
	41 to 50 years	24 (24%)
	51 to 60 years	18 (18%)
	Above 60 years	17 (17%)
Gender	Male	45 (45%)
	Female	55 (55%)
Education	Illiterate	2 (2%)
	1st to 12th standard	55 (55%)
	Graduate	43 (43%)
Occupation	Unemployed	14 (14%)
	Housewife	43 (43%)
	Job	33 (33%)
	Business	10 (10%)

Marital status	Married	84 (84%)
	Unmarried	16 (16%)
	Past history of psychological disorder	7 (7%)
	Family history of psychological disorder	5 (5%)
	Addiction present	13 (13%)
Comorbidities	Diabetes mellitus	7 (7%)
	Hypertension	12 (12%)
	Thyroid disorder	5 (5%)
	Other comorbidities	10 (10%)

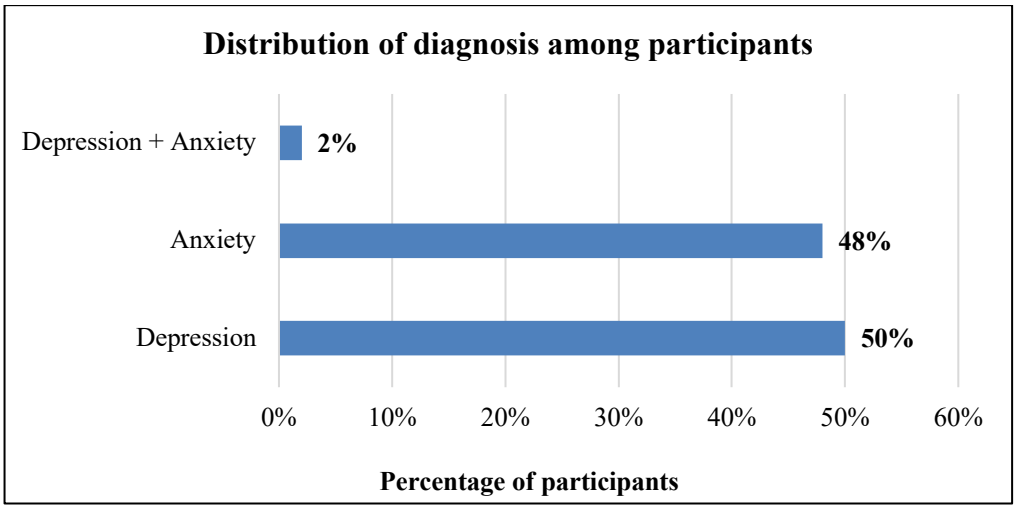

Figure 1: Distribution of diagnosis among study participants

Figure 1 shows the distribution of different diagnoses among the study participants.

Prescription Pattern of Anxiolytic Drugs: Figure 2 shows that clonazepam was the most commonly prescribed anxiolytic drug (53%), followed by escitalopram (38%), etizolam (23%), and sertraline (20%). Other drugs were prescribed less frequently, with most medications given once daily.

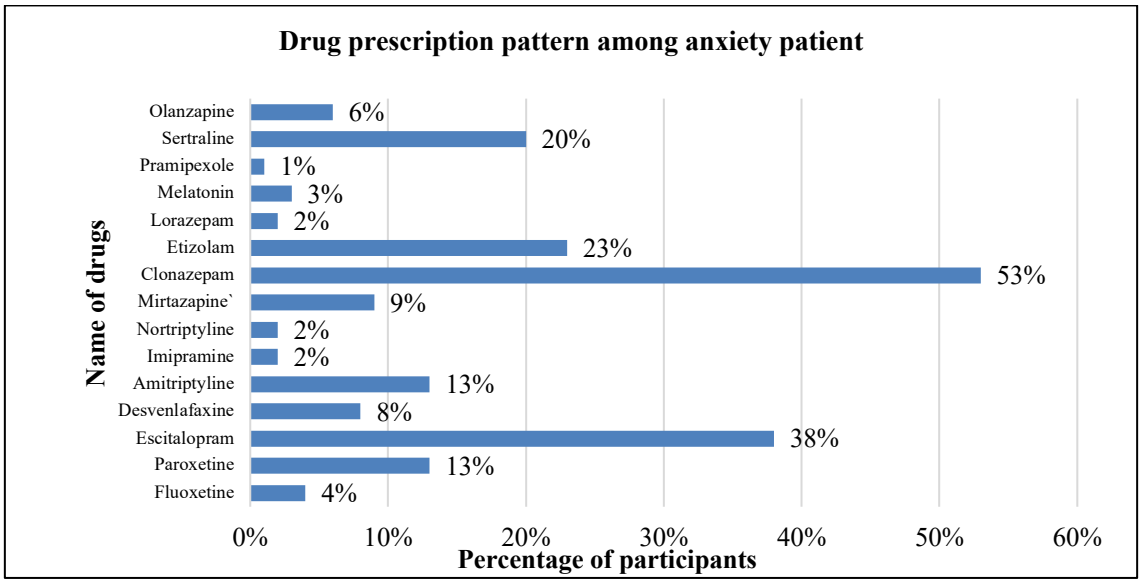

Figure 2: Drug prescription pattern of anxiolytic drugs

ATC Classification and PDD/DDD Ratio of Drugs Prescribed in Anxiety Disorders: Table 2 shows that most prescribed drugs belonged to the antidepressant and benzodiazepine classes according to the WHO ATC classification, with considerable variation observed in the PDD/DDD ratios among the commonly prescribed drugs.

Table 2: ATC classification and PDD/DDD ratio of commonly prescribed anxiolytic drugs

Drug	ATC code	DDD	PDD	PDD/DDD
Fluoxetine	N06AB03	20 mg	40 mg	2.00
Paroxetine	N06AB05	20 mg	16.87 mg	0.84
Escitalopram	N06AB10	10 mg	10 mg	1.00
Desvenlafaxine	N06AX23	50 mg	87.14 mg	1.74
Amitriptyline	N06AA09	75 mg	17.81 mg	0.24
Imipramine	N06AA02	100 mg	50 mg	0.50
Nortriptyline	N06AA10	75 mg	25 mg	0.33
Mirtazapine	N06AX11	30 mg	12 mg	0.40
Clonazepam	N03AE01	8 mg	0.30 mg	0.04
Etizolam	N05BA19	Not available	0.26 mg	Not applicable
Lorazepam	N05BA06	2.5 mg	2 mg	0.80
Melatonin	N05BH01	2 mg	3 mg	1.50
Pramipexole	N04BC05	2.5 mg	0.5 mg	0.20
Sertraline	N06AB06	50 mg	50 mg	1.00
Olanzapine	N05BH03	10 mg	2.5 mg	0.25

Prescription Pattern of Antidepressant Drugs: Figure 3 shows that the prescription pattern among patients with depression was mainly concentrated around a few commonly used drugs, while the remaining medications were prescribed less frequently.

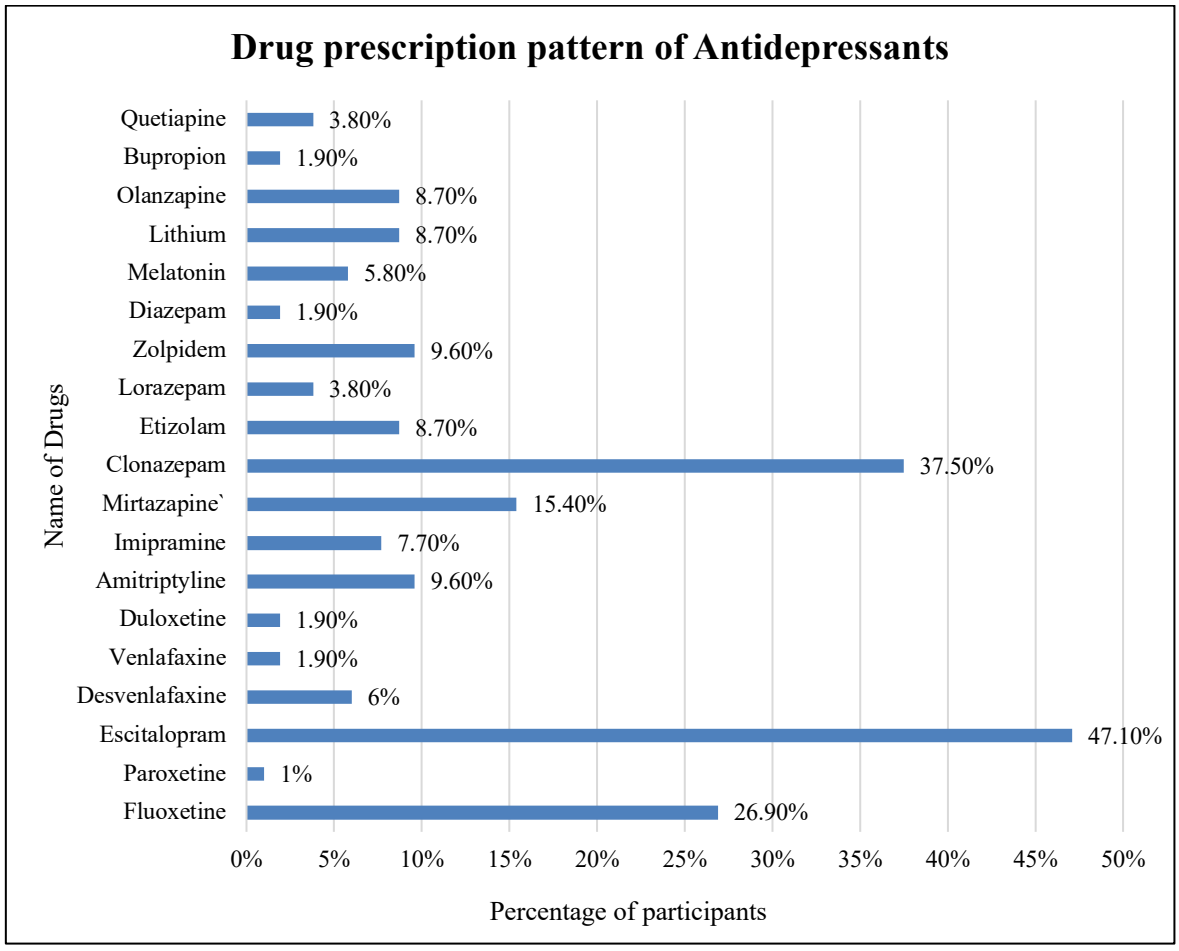

Figure 3: Drug prescription pattern of antidepressant drugs

ATC Classification and PDD/DDD Ratio of Drugs Prescribed in Depression: Table 3 shows that the prescribed drugs for depression were mainly classified under antidepressant, benzodiazepine, mood stabilizer, and adjunctive neuropsychiatric ATC groups, with variable PDD/DDD ratios across different drugs.

Table 3: ATC classification and PDD/DDD ratio of commonly prescribed antidepressant drugs

Drug	ATC code	DDD	PDD	PDD/DDD
Fluoxetine	N06AB03	20 mg	21.57 mg	1.08
Paroxetine	N06AB05	20 mg	12.5 mg	0.625
Escitalopram	N06AB10	10 mg	12.67 mg	1.30
Desvenlafaxine	N06AX23	50 mg	137.5 mg	2.75
Venlafaxine	N06AX16	100 mg	43.75 mg	0.44
Duloxetine	N06AX21	60 mg	50 mg	0.83
Amitriptyline	N06AA09	75 mg	38 mg	0.51
Imipramine	N06AA02	100 mg	28.12 mg	0.28
Mirtazapine	N06AX11	30 mg	19.56 mg	0.65
Clonazepam	N03AE01	8 mg	0.25 mg	0.03
Etizolam	N05BA19	Not available	0.3 mg	Not applicable
Lorazepam	N05BA06	2.5 mg	2 mg	0.80
Zolpidem	N05BF02	10 mg	6.25 mg	0.625
Diazepam	N05BA01	10 mg	5 mg	0.50
Melatonin	N05BH01	2 mg	3.75 mg	1.90
Lithium	N05AN01	24 mmol	500 mg	1.16
Olanzapine	N05BH03	10 mg	6.87 mg	0.69
Bupropion	N06AX12	300 mg	150 mg	0.50
Quetiapine	N05CH04	400 mg	25 mg	0.062

Overall, SSRIs were the predominant drug class prescribed in both depression and anxiety disorders. Escitalopram was the most common antidepressant in depression, while clonazepam was the most common anxiolytic in anxiety disorders. PDD/DDD comparison showed that several first-line antidepressants were prescribed close to the WHO-defined daily dose, while benzodiazepines, TCAs, and antipsychotic adjuncts were generally prescribed below the DDD values.

Discussion

The present prospective observational study evaluated the prescription pattern of antidepressant and anxiolytic drugs in patients attending a tertiary care psychiatry outpatient department. SSRIs were the most commonly prescribed drugs for both depression and anxiety disorders, while benzodiazepines were frequently used as adjunctive agents. Most benzodiazepines, TCAs, and antipsychotic adjuncts were prescribed at conservative doses.

The mean age of participants was 44.75 ± 15.26 years, with the largest number of patients in the 41–50-year age group, similar to findings reported by Mehdi et al. and Tripathi et al.[5,11] Females constituted 55% of the study population, consistent with previous studies showing a higher prevalence of depression and anxiety disorders among women.[5,12] Depression was diagnosed in 50% of patients, anxiety disorder in 48%, and both conditions in 2%, supporting literature showing frequent coexistence of these disorders.[1,17] Among anxiety disorder patients, clonazepam was the most commonly prescribed drug, followed by escitalopram, etizolam, and sertraline. Benzodiazepines were mainly used for rapid symptomatic relief, whereas SSRIs served as long-term therapy.[10,18] Escitalopram and sertraline had PDD/DDD ratios close to 1, indicating prescribing near the WHO reference doses, whereas fluoxetine and desvenlafaxine showed higher ratios.[6,19,20] TCAs such as amitriptyline and imipramine were used less frequently and at lower doses because of their adverse effect profile.[7]

In depression patients, escitalopram was the most commonly prescribed antidepressant, followed by fluoxetine and mirtazapine, reflecting the dominance of SSRIs in current psychiatric practice.[4–6]

Clonazepam was co-prescribed in 37.5% of depression patients, mainly for associated anxiety or insomnia, though at low doses, indicating cautious use.[7,8] Desvenlafaxine showed the highest PDD/DDD ratio, while TCAs and adjunctive antipsychotics showed lower ratios, suggesting conservative prescribing.[5,9] Lithium, olanzapine, and quetiapine were used selectively as augmentation agents in resistant or complicated cases.[6,21–23]

Overall, the prescribing pattern was rational and consistent with current treatment guidelines. SSRIs formed the mainstay of therapy, benzodiazepines were used cautiously, and TCAs and adjunctive antipsychotics were prescribed selectively. The WHO ATC classification and PDD/DDD comparison provided an objective assessment of prescribing practices.[13–15]

The main strength of this study is that it provides real-world prescription data from a tertiary-care psychiatric outpatient setting. The study included

the WHO ATC classification and PDD/DDD comparison, which strengthens the drug utilization analysis. However, the study has some limitations. It was conducted at a single center with a sample size of 100 patients, which may limit generalizability. Prescription data were collected from hospital records, so incomplete documentation may have affected some variables. The study focused on prescribing patterns and dose comparison, but did not assess long-term adherence, adverse drug reactions, cost analysis, or long-term treatment outcomes.

Conclusion

The present study showed that SSRIs were the most commonly prescribed antidepressants and formed the main pharmacological treatment for both depression and anxiety disorders in this tertiary care psychiatry outpatient setting. Escitalopram was the most frequently prescribed antidepressant among patients with depression, while clonazepam was the most commonly prescribed anxiolytic among patients with anxiety disorders. WHO ATC classification showed that most prescribed drugs belonged to the SSRI, SNRI, TCA, benzodiazepine, sedative hypnotic, mood stabilizer, and antipsychotic categories. PDD/DDD analysis showed that commonly used SSRIs were generally prescribed close to the WHO-defined daily dose, while benzodiazepines, TCAs, and antipsychotic adjuncts were mostly prescribed below DDD values. Overall, the prescribing pattern was largely rational and consistent with current clinical practice, with a preference for safer first-line antidepressants and selective use of adjunctive psychotropic drugs according to clinical need.

Regular prescription audits using WHO ATC and PDD/DDD methods can help promote rational psychotropic prescribing, improve dose monitoring, and support safer pharmacotherapy in patients with depression and anxiety disorders.

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