

ORIGINAL ARTICLE

PRESCRIBING PATTERN OF PSYCHOTROPIC DRUGS IN BIPOLAR DISORDER IN MENTAL HOSPITAL, LALITPURSabin Shrestha^{1*}, Deepti Kumari Mahatara^{1*}, Rahi Bikram Thapa², Pharsuram Adhikari¹, Deepti Piya Baniya¹ and Dharma Prasad Khanal¹¹*Department of Pharmacy, Manmohan Memorial Institute of Health Science, Soalteemode, Kathmandu, Nepal.*²*Department of Pharmacy, Purbanchal University School of Health Science, Gothgaun, Morang, Nepal.***ABSTRACT**

Background: Bipolar disorder is a chronic psychiatric condition associated with functional impairments, high morbidity, and an elevated suicide risk. The management of bipolar affective disorder (BPAD) heavily relies on psychotropic drug prescriptions. Analysing these prescribing patterns provides important insights into current treatment practices and helps optimize patient care.

Objective: To study the prescribing pattern of psychotropic drugs in patients diagnosed with bipolar disorder at the Mental Hospital, Lalitpur.

Method: A cross-sectional observational study was conducted over one month, including both inpatients and outpatients. Data were collected from 116 patients through a structured form, analysing socio-demographic characteristics and prescribed medications. Descriptive statistics were used to summarize the results.

Results: Among the 116 patients, Most were female (53.4%) and aged 21 to 40 years (61.2%). Bipolar disorder with current episode mania and psychotic symptoms (F31.2) was the most frequently diagnosed type. Antipsychotics were the most frequently prescribed drug class (41.44%), followed by anticonvulsants (21.92%) and mood stabilizers (16.21%). Among antipsychotics, olanzapine was the most commonly prescribed (54.34%), while sodium valproate dominated the anticonvulsant class (93.15%).

Conclusion: The study highlights the widespread use of antipsychotics and sodium valproate in managing bipolar disorder in resource-limited settings like Nepal. These findings underscore the importance of optimizing drug prescriptions and involving clinical pharmacists to enhance patient outcomes. Further research is needed to assess the long-term effects of these prescribing patterns.

Keywords: *Bipolar Disorder, Psychotropic Drugs, Prescription Patterns, Antipsychotic Medications, Mental Health*

<https://doi.org/10.3126/jmmihs.v9i2.71803>

*Corresponding Author: Sabin Shrestha (Assistant Professor), Department of Pharmacy, Manmohan Memorial Institute of Health Science, Soalteemode, Kathmandu, Nepal

Email: shresthasabin172@gmail.com

Deepti Kumari Mahatara, Department of Pharmacy, Manmohan Memorial Institute of Health Science, Soalteemode, Kathmandu, Nepal

Email: deeptimahatara0718@gmail.com

Received 06 October 2023; Received in Revised form 27 October 2024; Accepted 10 November 2024

INTRODUCTION

Bipolar disorder is a chronic psychiatric condition characterized by alternating episodes of mania, hypomania, depression, and sometimes mixed states, leading to significant cognitive, emotional, and functional impairments. It is one of the leading causes of disability worldwide, particularly among adolescents and young adults, with a lifetime prevalence of approximately 1%.¹ Globally, it has been identified as a significant public health issue, contributing to psychosocial dysfunction, marital problems, and an increased risk of suicide, which is estimated to be 20 times higher in individuals with bipolar disorder compared to the general population.² According to the World Health Organization, around 40 million people were diagnosed with bipolar disorder in 2019, further highlighting the global burden of this illness.³

Bipolar disorder typically manifests in adolescence or early adulthood and has profound effects on both patients and their caregivers. Educational and job-related difficulties, interpersonal challenges, and comorbid conditions, such as anxiety and substance abuse, are commonly encountered.⁴ The disorder is often misdiagnosed due to its episodic nature and the wide spectrum of mood episodes, ranging from depressive to manic states. While depressive episodes are characterized by feelings of hopelessness, weight changes, and sleep disturbances, manic episodes involve heightened or irritable moods and unproductive overactivity.⁵ The varying presentation of these mood episodes further complicates accurate diagnosis and effective treatment.

A previous study from Nepal highlighted that significant drug therapy-related problems, including inappropriate drug selection, irrational drug use, and therapeutic duplications, arise from a lack of adherence to evidence-based medicine (EBM) and established guidelines.⁶ Furthermore,

both prescribing and dispensing medications during critical life stages, such as pregnancy, face challenges due to the inadequate knowledge of drug dispensers.⁷ This situation reflects inefficient prescribing and dispensing practices, emphasizing the critical need for understanding prescription patterns to improve patient outcomes.

In Nepal, the Mental Hospital in Lalitpur serves as a primary center for psychiatric care, where psychotropic medications play a critical role in managing the symptoms of bipolar disorder.⁸ However, there is a notable lack of research data on the prescribing patterns of these drugs in the region, especially concerning their efficacy and side effect profiles among patients. Understanding these patterns is essential for optimizing treatment protocols and improving the quality of care for individuals suffering from bipolar disorder.

This study aims to address this gap by examining the prescribing trends of psychotropic drugs in bipolar patients at the Mental Hospital, Lalitpur. By evaluating the frequency and types of drugs prescribed, this research intends to contribute valuable insights to guide future clinical practices and improve patient outcomes.

How to Cite

Shrestha, S., Thapa, R. B., Mahatara, D. K., Adhikari, P., & Khanal, D. P. Prescribing Pattern of Psychotropic Drugs in Bipolar Disorder in Mental Hospital, Lalitpur. *Journal of Manmohan Memorial Institute of Health Sciences*, 9(2). <https://doi.org/10.3126/jmmihs.v9i2.71803>



METHODS

Ethics approval

The ethical approval for the study protocol was obtained from the Institutional Review Committee (IRC) of Manmohan Memorial Institute of Health Sciences (MMIHS-IRC Ref. No.: NEHCO/IRC/080/105). Approval for data collection from the Mental Hospital in Lagankhel, Lalitpur, was also secured from the hospital board (Ref. No. 148). Participation in the study was voluntary, and informed consent was obtained from all participants, including verbal and written consent from the patients or their legally authorized representatives prior to data collection.

Study design

This cross-sectional observational study was conducted on bipolar disorder patients visiting the Mental Hospital in Lagankhel, Lalitpur. Both inpatients and outpatients were included in the study. The data collection period lasted for one month, from December 16, 2023, to January 19, 2024. The data collection form, Prescription Chart, and questionnaire were developed and refined with input from clinical experts. A pre-test was conducted with 10% of the sample size to ensure the reliability of the data collection forms.

Sample size and Sampling

The sample size was calculated by a prevalence-based estimator formula⁹ based on a 95% confidence interval, a 5% margin of error, and a 6.9% prevalence rate resulting in a required sample size of 103 patients. However, a total of 116 patients were included in the study. Census sampling of a period of one month was used, where only patients who met the inclusion criteria of diagnosis of bipolar disorder and providing consent were selected.

Procedure

Data were collected using a structured data collection form, which included a consent form, socio-demographic information, and a medication prescription section. Relevant information was gathered from patient records, including case sheets, cardex, discharge summaries, and outpatient department (OPD) prescriptions. The questionnaire was completed by interviewing the patients or their caregivers.

Data analysis

The collected data were entered into Microsoft Excel 2019 and then imported into SPSS version 16 for statistical analysis. Descriptive statistics were used to summarize the data, with results expressed in terms of numbers and percentages.

RESULTS

Socio-Demographic Characteristics of Patients

Out of 116 bipolar disorder patients, 53.4% were female and 46.6% were male. Most (61.2%) were aged 21-40, and 65.5% had been diagnosed for 1-15 years. Education levels varied, with 31% having secondary education and 34.5% reporting substance use, mainly smoking (12%) and alcohol (9.5%). Co-morbidities were found in 22% of patients, and 26.7% had a family history of the disease. Detailed Socio-Demographic characteristics of patients enrolled in the study are presented in Table 1.

Bipolar Disorder Diagnosis

Among 116 patients, the most common diagnosis was F31.2 (bipolar disorder, current manic with psychotic symptoms) in 63.8%, followed by F31.1 (manic without psychotic symptoms) in 24.1%. Other diagnoses included F31.7 (in remission) in 6%, and smaller percentages for hypomania, mild/moderate depression, unspecified, and other bipolar disorders. Information on detailed diagnosis is presented in Table 2.

Prescribing Patterns of Psychotropic Drugs

Among 333 psychotropic drugs prescribed, antipsychotics were the most common (41.44%), followed by anticonvulsants (21.92%), mood stabilizers (16.21%), and anxiolytics (6.30%). Other less prescribed drugs included anti-parkinsonism agents (3.90%), antihistamines (3.60%), and antidepressants (2.40%). Detailed class of drugs prescribed is presented in Table 3.

Table 1 Detailed Socio-Demographics Characteristics of Patients (n=116)

Variables	Category	Frequency	Percentage
Gender	Male	54	46.6
	Female	62	53.4
Age Group	0-20	12	10.3
	21-40	71	61.2
	41-60	29	25
	61-80	4	3.5
	Primary level	34	29.3
Education Level	Secondary level	36	31
	Higher secondary	22	19
	Bachelor	14	12
	Illiterate	10	8.6
	None	76	65.5
Social History	Smoking	14	12
	Alcohol	11	9.5
	Smoking and Alcohol	3	5.2
	Alcohol and Cannabis	6	4.3
	Cannabis	5	2.6
Co-morbidity	Alcohol and Nicotine	1	0.9
	No	91	78
	Yes	25	22
	Family History of Disease	Yes	31
Duration of illness (years)	No	85	73.7
	<1	15	12.9
	1-15	76	65.5
	16-30	22	19
	>30	3	2.6

Table 2 Major Bipolar Disorder Diagnosed (n=116)

Types of disorder Diagnosed	Frequency	Percentage
F31.2 (Bipolar disorder, current episode manic with psychotic symptoms)	74	63.8
F31.1 (Bipolar disorder, current episode manic without psychotic symptoms)	28	24.1
F31.7 (Bipolar disorder, currently in remission)	7	6
F31.0 (Bipolar disorder, current episode hypomania)	2	1.7
F31.3 (Bipolar disorder, current episode mild or moderate depression)	2	1.7
F31.9 (Bipolar disorder, unspecified)	2	1.7
F31.8 (Other bipolar disorder)	1	0.9

Table 3 Class of Drugs prescribed in Bipolar Disorder (N=333)

Class of drugs	Frequency	Percentage
Antipsychotics	138	41.44
Anticonvulsants	73	21.92
Mood stabilizers	54	16.21
Anxiolytics	21	6.30
Others	14	4.20
Anti-parkinsonism	13	3.90
Antihistamines	12	3.60
Antidepressants	8	2.40
Total	333	100.0

Detailed Composition of Prescribed Drugs

Among antipsychotics, atypical antipsychotics were predominantly prescribed, with olanzapine being the most frequently used (54.34%), followed by quetiapine (10.86%), aripiprazole (9.42%), and risperidone (8.69%). Haloperidol (10.14%) and chlorpromazine (3.62%) were the most commonly prescribed typical antipsychotics. Sodium valproate accounted for 93.15% of the anticonvulsants prescribed, while lithium was the only mood stabilizer, prescribed to 54 patients. Lorazepam (52.38%) and clonazepam (42.85%) were the most commonly prescribed anxiolytics. All patients prescribed anti-parkinsonism drugs (3.90%) received benzhexol, while promethazine was the sole antihistamine prescribed. Among antidepressants, atypical antidepressants were prescribed in 37.5% of cases, followed by Selective serotonin reuptake inhibitors (SSRIs) (25%), Serotonin and norepinephrine reuptake inhibitors (SNRIs) (25%), and tricyclics (12.5%). Detailed prescribed drugs is presented in Table 4.

Table 4 Composition of Individual drugs in each Category

Variables	Category	Frequency	Percentage
Antipsychotics (Atypical)	Olanzapine	75	54.34
	Quetiapine	15	10.86
	Aripiprazole	13	9.42
	Risperidone	12	8.69
	Clozapine	3	2.17
Antipsychotics (Typical)	Amisulpride	1	0.72
	Haloperidol	14	10.14
	Chlorpromazine	5	3.62
Anticonvulsant	Sodium valproate	68	93.15
	Oxcarbazepine	3	4.10
	Topiramate	1	1.36
Mood stabilizers	Pregabalin	1	1.36
	Lithium	54	100
Anxiolytics	Lorazepam	11	52.38
	Clonazepam	9	42.85
	Clobazam	1	4.76
Anti-parkinsonism	benzhexol	13	100
Antihistamine drugs	Promethazine	12	100
	Atypical	3	37.5
Antidepressant	SSRIs	2	25
	SNRIs	2	25
	Tricyclic	1	12.5

DISCUSSION

In our study, the gender distribution was relatively balanced, with 53.4% female and 46.6% male patients. This contrasts with the male predominance seen in Safal et al.'s (2022) study in India, where 71.25% of patients were male.10 Conversely, Lin et al. (2022) reported a slight female predominance (52.1%) across multiple Asian countries.11 These differences may be attributed to regional variations in healthcare-seeking behaviour or cultural factors influencing treatment access. The relatively equal distribution in the Lalitpur study may indicate more equitable healthcare access for both genders, while the male dominance in India could reflect cultural norms where men are more likely to seek or be brought in for treatment.

Age distribution in our study revealed that most patients (61.2%) were between 21 and 40 years old, with 25% in the 41–60 age group, aligning with Safal et al. (2022), who reported similar results.10 Lin et al. (2022), however, noted a slightly higher mean patient age of 42.4 years in Asia.11 In terms of education, our study showed a range of educational backgrounds, with 31% having secondary education, 29.3% primary education, and 12% holding a bachelor's degree, reflecting a relatively high literacy rate likely due to the urban setting of Lalitpur. Substance use was noted in 34.5% of patients, with smoking and alcohol being the most common, consistent with regional trends noted by Lin et al. (2022), although Safal et al. (2022) did not report on substance use.10, 11 The duration of illness showed that 65.5% of patients had been diagnosed with bipolar disorder for 1–15 years, underscoring the chronic nature of the condition. Additionally, 26.7% of patients had a family history of bipolar disorder, which aligns with findings from other studies highlighting the genetic predisposition associated with the illness.11

In our study, antipsychotics were the most frequently prescribed class of drugs (41.44%), with olanzapine being the most commonly used antipsychotic (54.34%). This aligns with findings from a study in Nepal, which also reported that atypical antipsychotics are the most prescribed drugs for mental disorders such as schizophrenia.12 This trend is consistent across Asia, where second-generation antipsychotics (SGAs), like olanzapine and quetiapine, are widely used in managing bipolar disorder (BD).11 Lin et al. (2022) reported an increasing prevalence of antipsychotic prescriptions in Asia, with quetiapine used in 33.1% of cases and olanzapine in 19.6%.11 However, regional variations exist. For instance, a study by Safal et al. (2022) in India found mood stabilizers to be the most frequently prescribed drug class (44.34%), with lithium being the most common choice.10 This contrast underscores differing therapeutic priorities, as antipsychotics were more heavily favoured in our setting, while Indian practices lean more toward mood stabilizers.

Lithium, which was prescribed to all patients receiving mood stabilizers in our study, diverges from broader trends in the region where sodium valproate is the predominant choice, as seen in 47.2% of prescriptions across Asian countries.11 The preference for lithium in our setting might be attributed to its established efficacy in mood stabilization despite the challenges related to regular therapeutic monitoring.13 In contrast, sodium valproate is often preferred in resource-limited settings due to its less demanding monitoring requirements.11 Additionally, antidepressants were used sparingly in our cohort (2.4%), reflecting adherence to treatment guidelines that caution against their use in bipolar disorder due to the risk of manic episode induction.10, 11 Other studies, such as Lin et al. (2022), have noted a higher prevalence of antidepressant use (21.2%) in Asian countries during the depressive phases of BD, indicating a more cautious approach in our context.11

The prescription patterns observed in our study—dominated by antipsychotics, anticonvulsants (mainly sodium valproate), and limited use of mood stabilizers and antidepressants—are reflective of the local healthcare landscape. In resource-constrained settings like Lalitpur, sodium valproate's ease of monitoring makes it a practical choice over lithium, despite lithium's proven efficacy in long-term management.13, 14 The use of anxiolytics, primarily lorazepam and clonazepam (6.3%), in acute management of agitation and anxiety is consistent with global trends.15 Overall, our findings align with those from similar studies in low-resource settings, where

accessibility and practicality drive prescribing choices. Further investigation is needed to assess the long-term outcomes of these prescribing patterns, especially in relation to the unique challenges faced by the Nepali healthcare system.

Strengths and Limitations

A significant strength of this study is the use of a census method, enabling comprehensive data collection and offering valuable insights into the prescribing patterns for bipolar disorder medications in Nepal. However, the study's primary limitation is its short duration. Future research should focus on larger, multicentre studies with extended follow-up periods to further validate these findings.

CONCLUSION

This study provides valuable insights into the prescribing patterns of psychotropic drugs for bipolar disorder at the Mental Hospital in Lalitpur, Nepal, with antipsychotics, particularly second-generation antipsychotics like olanzapine, being the most frequently prescribed medications, reflecting both global trends and local practices. The significant use of sodium valproate as an anticonvulsant underscores the importance of drug accessibility and the challenges of monitoring resources in resource-constrained settings like Nepal. The relatively low prescription of mood stabilizers such as lithium, despite their known efficacy, aligns with clinical guidelines that recommend caution in the standalone use of mood stabilizers and antidepressants for bipolar disorder. The study highlights the need for continued monitoring and optimization of prescribing practices to improve patient outcomes and minimize the long-term impact of the disorder. Involving clinical pharmacists in reviewing prescription patterns could enhance treatment outcomes and quality of life for patients, while also providing valuable feedback to psychiatrists to align treatment approaches with current clinical guidelines. These findings lay a foundation for further research into the long-term effects of these prescribing patterns, considering the unique challenges of Nepal's healthcare system.

ACKNOWLEDGMENTS

The authors are grateful to all the hospital staff for their continuous support and motivation.

AUTHOR CONTRIBUTIONS

Sabin Shrestha, Dharma Prasad Khanal and Pharsuram Adhakari: Concept of research and final manuscript correction. Deepthi Kumari Mahatara and Sabin Shrestha: Finalize proposal, supervision of data collection, Data analysis and final Manuscript preparation. Rahi Bikram Thapa and Deepthi Piya Baniya: Proposal preparation, software data management, and initial draft of manuscript.

FUNDING

No funding to declare.

CONFLICTS OF INTERESTS

No conflicts of interest are to be declared.

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