e-ISSN: 0975-9506, p-ISSN: 2961-6093

Available online on www.ijpqa.com doi: 10.25258/ijpqa.16.2.111

International Journal of Pharmaceutical Quality Assurance 2025; 16(2); 715-720

Original Research Article

Integrated Prescription Patterns and Drug Utilization of Antidepressants in Major Depressive Disorder: A Retrospective Study

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Received: 20-01-2025 / Revised: 10-02-2025 / Accepted: 25-02-2025

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Conflict of interest: Nil

Abstract:

Background: Major Depressive Disorder (MDD) is a prevalent mental condition that causes significant functional impairment and socioeconomic hardship, and prescription pattern studies are valuable for evaluating real-world antidepressant use and sensible prescribing methods.

Objective: To assess the antidepressant prescribing pattern and medication utilization in MDD patients who visit a tertiary care teaching hospital's psychiatry outpatient department.

Method: This retrospective, record-based observational study comprised 105 eligible prescriptions/case records from adult patients with MDD. A structured proforma was used to collect and analyze descriptive data on age, gender, marital and occupational status, income, comorbidities, antidepressant therapy, route of administration, fixed-dose combinations, generic prescribing, and prescribing from the National List of Essential Medicines (NLEM).

Result: The average age of the patients was 40.4 ± 6.0 years, with a little female predominance (50.48%). The majority of patients were single (53.33%), jobless (61.90%), and from low-income families (65.71%). Comorbidities were found in 24.76% of patients, with hypertension being the most prevalent. A total of 107 antidepressants were prescribed in 105 prescriptions, with a mean of 1.02 antidepressants per prescription. Monotherapy was utilized by 98.10% of patients. The most often prescribed medicines were fluoxetine (32.71%) and citalopram (31.78%), showing a preference for SSRIs. NLEM drugs accounted for 60.00% of prescriptions, with generics accounting for just 10.48%.

Conclusion: Antidepressant treatment was mostly sensible, with SSRI-based monotherapy and little polypharmacy; nonetheless, more generic prescribing is needed to promote cost-effective and rational medication usage in MDD care.

Keywords: Antidepressant, prescription pattern, SSRIs, NLEM, MADRS.

Introduction

Major depressive disorder (MDD) is one of the primary causes of disability among adults aged 15 to 44 years [1]. The global point prevalence of MDD is estimated to be 298 million people, or 4.7% of the total population. Lifetime prevalence estimates vary by country, ranging from 3% in Japan to 17% in the United States. In 2013, it was projected that 15.7 million persons aged 18 and above in the United States experienced at least one severe depressive episode in the previous year. This represents 6.7% of all US adults. In 2000, the entire economic burden of depressive illness in the United States was projected to be $83.1 billion, with direct medical expenses of $26.1 billion (31%), workplace costs of $51.5 billion (62%), and suicide-related death costs of $5.4 billion (7%).

People with MDD are undertreated. Only half of people diagnosed with MDD receive any therapy in a given year [2, 3]. Recently, the majority of MDD patients have been treated with medication, psychotherapy, or both. The first-line pharmacological alternatives include selective serotonin reuptake inhibitors (SSRIs) and selective serotonin-norepinephrine reuptake inhibitors (SNRIs) [4]. MAOIs and tricyclic antidepressants (TCAs) are two second-line pharmacological alternatives. It is usual for treated people to utilise different antidepressants or antipsychotics concurrently. In a retrospective examination of Texas Medicaid data, 35% of patients taking an SSRI also obtained antianxiety or sleep drugs. According to a meta-analysis of 10 clinical trials, adjunct use of antipsychotics with antidepressant therapy may result in greater remission than

adjunct use of placebo [5]. The impact of concurrent usage of antipsychotics, various antidepressants, including SSRI/SNRIs, and TCAs on MDD treatment durability remains unknown.

Patients with MDD are three times more likely to be noncompliant than nondepressed people. Improved adherence to antidepressant treatment may result in longer depression remissions, greater workplace productivity, and lower total expenditures [6]. Adverse events and a lack of effectiveness are well-known causes of poor antidepressant treatment persistence. Suboptimal treatment results, such as no persistence, early drug termination, and antidepressant prescription switching, are consistently related to increased health-care expenditures [7].

First-line pharmacological treatments for MDD include selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, mirtazapine, and bupropion. Approved antidepressants often take many weeks of continuous medication before producing a clinical response. Furthermore, there is evidence of poor effectiveness with monotherapy antidepressant alternatives [8], with a significant number of patients failing to react to first-line treatment [9,10]. In a large retrospective study that analysed treatment patterns within the first major depressive episode (MDE), less than 5% of patients persisted on their initial antidepressant regimen, and nearly half did not have adequate treatment duration (i.e., 4-8 weeks) to assess a proper response; additionally, the majority of patients either discontinued treatment or cycled through multiple antidepressants.

Current US recommendations describe four critical treatment stages for managing MDD after a non-optimal response to pharmacotherapy: (1) dose optimisation to maximise therapeutic benefit, (2) therapy switch (i.e., discontinuing the current pharmacotherapy in favour of an alternative pharmacotherapy), (3) combination therapy (i.e., adding a second antidepressant drug to the initial one), or (4) augmentation therapy (i.e., supplementing the initial antidepressant drug with a non-antidepressant pharmacotherapy) [11,12]. therapy regimens provided in the real world do not necessarily adhere to practice standards or on-label therapy for MDD. Several variables impact therapeutic decisions, including safety and tolerability, adherence, and patient-physician relations [13]. Nonetheless, identifying the most appropriate medication for each patient as early as feasible remains a significant issue and a barrier to improving long-term treatment results in MDD [14].

Enhancing treatment accessibility and selecting the most appropriate therapeutic options are crucial for healthcare decision-makers, and economic evaluations play a vital role in guiding these decisions. Hence, the present study aimed to analyze antidepressant prescription patterns among individuals diagnosed with depressive disorder visiting the psychiatry outpatient department (OPD) at a tertiary care hospital.

Methodology

Study Design: This retrospective, record-based observational research examined the prescribing pattern of antidepressant medicines in individuals diagnosed with Major Depressive Disorder (MDD). The methodological framework was adapted from the base paper, which examined antidepressant prescribing patterns and drug utilization indicators in a tertiary care psychiatry outpatient setting; however, the current study was designed as a retrospective prescription audit using available case records and prescriptions.

Study Area

The study was carried out at the Department of Psychiatry, Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India.

Study Duration: The study was conducted over a period of one Year, from December 2022 to November 2023.

Sample Size: The research comprised 105 prescriptions/case records from individuals with Major Depressive Disorder who met the qualifying requirements. The sample included all qualifying records available throughout the study period, resulting in the final dataset for analysis. The accompanying data sheet showed 105 prescriptions, 107 antidepressant pills, and an average of 1.02 antidepressants per prescription.

Study Population: The research population consisted of adult patients with Major Depressive Disorder (MDD) who visited the psychiatry OPD and were prescribed at least one antidepressant medication. The data were examined for socio-demographic information, comorbidities, prescription details, type of antidepressant medication, mode of administration, generic prescriptions, fixed-dose combinations, and prescribing from the National List of Essential Medicines (NLEM).

Inclusion Criteria

- Records of patients aged 18 and above.
- Patients diagnosed with Major Depressive Disorder in the Psychiatry Outpatient Department.
- Records in which at least one antidepressant medication has been prescribed.
- Records provide sufficient demographic information, diagnostic, and medication details for analysis.

Exclusion Criteria

- Records containing incomplete or missing prescription information.
- Records with an uncertain diagnosis or diagnoses other than Major Depressive Disorder.

- Duplicate records or prescriptions from a single visit.
- Antidepressants were administered for indications other than MDD.
- Illegible prescriptions and documents with documentation mistakes hampered thorough analysis.

Data Collection: Data was gathered retrospectively from OPD prescriptions, patient case records, and accessible hospital medical records using a pre-designed data collecting proforma. The variables collected included age, gender, marital status, occupational status, income status, social habits, comorbidities, prescribed type of antidepressant, monotherapy or combination therapy, route of administration, use of fixed-dose combinations (FDCs), generic prescribing, and NLEM status. This data collecting strategy was similar with that of the original paper, which used a standardised proforma to record demographic information, prescription medicines, and WHO core prescribing indicators.

Study Procedure: After identifying relevant records from the Psychiatry OPD, case records and medications were vetted using specified inclusion and exclusion criteria. Relevant demographic and clinical information were retrieved and recorded in a structured data sheet. Antidepressant prescriptions were then examined for frequency of use, therapeutic pattern (monotherapy/combination therapy), method of administration, generic name prescribing, usage of fixed-dose combinations, and compliance with NLEM. Prior to statistical analysis, the final dataset was cross-checked for completeness.

Statistical Analysis: The data obtained was imported into Microsoft Excel and analyzed with SPSS version 25.0 or a similar statistical package. Continuous values were reported as mean ± SD, and categorical variables as frequency and percentage. Drug utilization parameters were examined descriptively. The average number of antidepressant pills per prescription was determined by dividing the total number of antidepressant drugs dispensed by the total number of prescriptions analyzed; in the current study, this figure was 1.02. Prescription indicators such as FDC usage, generic prescribing, injectable use, dosage form documentation, and NLEM prescribing were all summarized. The basis study also employed SPSS version 25, descriptive statistics, and WHO core drug-use indicators for prescription analysis.

Result

Table 1 shows data from 105 individuals with Major Depressive Disorder, with an average age of 40.4 ± 6.0 years. The gender breakdown was nearly equal, with a little female majority (50.48%). The majority of patients were single (53.33%), jobless (61.90%), and from low-income families (65.71%). Co-morbidities were present in 24.76% of patients, with hypertension being the most frequently linked ailment. The majority of patients (98.10%) got monotherapy, primarily orally (71.43%), and 60.00% of the prescription medications were from the NLEM.

Table 1: Sociodemographic and clinical characteristics of the patients

Parameters	Number of Patients (N = 105)	Percentage (%)
Age (years), mean ± SD	40.4 ± 6.0	—
Sex		
Female	53	50.48
Male	52	49.52
Marital status		
Single	56	53.33
With partner	49	46.67
Professional status		
Employed	40	38.1
Unemployed	65	61.9
Income status		
Low	69	65.71
Medium	26	24.76
High	10	9.52
Social habit		
Alcoholic	15	14.29
Smoker	11	10.48
Presence of co-morbidities		
Yes	26	24.76
No	79	75.24
Co-morbidities		
Hypertension	15	14.29
Migraine	8	7.62

Parkinson's disease	2	1.9
Epilepsy	1	0.95
Antidepressant therapy prescription		
Monotherapy	103	98.1
Combination therapy	2	1.9
Route of administration		
Oral	75	71.43
Injectable	28	26.67
Other / PRN	2	1.9
NLEM		
Yes	63	60
No	42	40

Table 2 shows that 105 prescriptions were analyzed, comprising 107 antidepressant medicines, with an average of 1.02 antidepressants per prescription, showing minor polypharmacy. Only 1.90% of prescriptions included fixed-dose combinations, but the dosage form was specified in all prescriptions (100%). Drugs from the NLEM accounted for 60.0% of prescriptions, whereas only 10.48% were prescribed by generic name. Injectable medications were administered in 26.67% of instances, indicating that while oral treatment predominated, injectable formulations were also utilized in a significant number of patients.

Table 2: Analysis of antidepressant prescriptions based on WHO core drug use indicators

Drug Use Indicators	Results of Analysis
Total number of prescriptions analyzed	105
Total number of antidepressant drugs prescribed	107
Average number of antidepressant medicines per prescription	1.02
Prescriptions containing FDC	2 (1.90%)
Percentage of prescriptions with dosage form mentioned	100%
Prescriptions from NLEM (2022)	63 (60.00%)
Prescriptions written with generic name	11 (10.48%)
Prescriptions containing injectable drugs	28 (26.67%)

Table 3 shows that of the 107 antidepressant medicines administered, fluoxetine (32.71%) was the most regularly used, followed by citalopram (31.78%). Amitriptyline was the most commonly prescribed medicine (10.28%), followed by imipramine, escitalopram, and sertraline (5.61% each). Paroxetine was administered in 4.67% of instances, whereas the clonazepam + fluoxetine combination was utilized in just 1.87%. Overall, the prescription pattern indicated a definite preference for SSRIs.

Table 3: Antidepressant drug usage pattern

Drug Name	Frequency	Percentage (%)
Fluoxetine	35	32.71
Citalopram	34	31.78
Amitriptyline	11	10.28
Imipramine	6	5.61
Escitalopram	6	5.61
Sertraline	6	5.61
Paroxetine	5	4.67
Clonazepam + Fluoxetine	2	1.87
Others	2	1.87
Total	**107**	**100**

Discussion

In the current study, patients had a mean age of 40.4 ± 6.0 years, with nearly equal gender distribution. However, Seema et al. found a somewhat lower mean age of 39.5±12 and a greater number of female patients (68.2%). The present study indicated that a larger number of patients were low-income, jobless, and single, which is consistent with earlier findings. Prescription trends are studied to determine pharmaceutical consumption practices in the actual world [15]".

The burden of sickness caused by mental and behavioral problems is significant, but traditional public health statistics continue to underrepresent it. Some psychotropics are among the most regularly utilized; their usage poses a significant public health risk. However, there is currently inadequate information regarding psychotropic drug usage in central India's population; the study was conducted to determine the morbidity pattern of mental disorders as well as prescribing patterns for psychotropic drugs in our hospital.

The average number of psychotropic medicines per prescription was 1.02, which is consistent with other research' findings of 2 to 3.3 drugs per prescription [16,17]. Psychiatric polypharmacy is defined as the simultaneous prescription of two or more psychiatric drugs (of the same chemical class or pharmacologic activities) to treat the same illness [18]. In our survey, more than 95% of prescriptions had 1-3 medicines, with only 4% containing four or more. These data indicate a low rate of polypharmacy. It is recommended to limit the number of medications per prescription as much as possible since polypharmacy increases the risk of drug interactions, hospital costs [19], and prescribing mistakes [20]. Prescriptions with the generic name were only 28.75%, indicating that brand names are popular among medical practitioners, which contradicts the WHO standards, which list generic prescription as one of the markers for rational prescribing. Generic medicine prescribing also makes therapy more affordable for patients.

In the current investigation, whereas all prescriptions indicated medication dosage forms, only 10% were written using generic names. In contrast, Thakkar et al. found significantly higher rates (76.01) of generic prescription. According to the current survey, the majority of prescriptions (59.91%) were based on NLEM. Similarly, another study found that pharmaceuticals on the Indian and WHO essential medicines lists were widely used. NLEM's major goal is to guarantee that medications are used rationally by focusing on cost effectiveness, safety, and efficacy [21].

The current retrospective prescription audit shows that antidepressant use in patients with Major Depressive Disorder was primarily rational and conservative, as evidenced by the very low average number of antidepressants per prescription (1.02) and the overwhelming preference for monotherapy (98.1%). This implies that prescribers in the psychiatric OPD preferred single-drug treatment options, reducing needless polypharmacy and its associated risks such as medication interactions, side effects, prescription mistakes, and increased treatment costs. This study's sociodemographic profile, including a mean age of 40.4 ± 6.0 years, a slight female preponderance, and a greater proportion of unmarried, jobless, and low-income patients, suggests that depression is more prevalent among socially and economically vulnerable populations. Furthermore, the prevalence of comorbidities in roughly a quarter of patients, particularly hypertension and migraine, emphasizes the importance of careful individualized medicine selection in clinical practice. Overall, these findings are compatible with the study's goal of analyzing real-world antidepressant use, and they demonstrate a prescription pattern that is broadly consistent with a controlled and clinically careful approach in a tertiary care hospital.

Another significant result from the study was the evident prevalence of SSRIs, with fluoxetine (32.71%) and citalopram (31.78%) being the most regularly prescribed antidepressants, whereas tricyclic antidepressants such as amitriptyline and imipramine were used less frequently. This trend is clinically significant since SSRIs are often recommended as first-line treatments in MDD due to their superior tolerability, safety, and acceptance when compared to earlier antidepressants. Although oral delivery was the most common route, the use of injectable medications in more than one-fourth of prescriptions warrants additional investigation to establish whether they were clinically warranted. Taken together, the findings indicate that, while antidepressant prescribing in this setting broadly follows accepted therapeutic trends, there is still room for improvement in generic prescribing, essential medicine compliance, and further optimization of rational pharmacotherapy in MDD management.

Conclusion

The current study found that prescribing antidepressants in patients with Major Depressive Disorder at a tertiary care psychiatry outpatient department was largely rational, with a strong preference for monotherapy (98.1%) and a very low average of 1.02 antidepressants per prescription, indicating minimal polypharmacy. The prescribing pattern revealed a clear predominance of selective serotonin reuptake inhibitors (SSRIs), particularly fluoxetine (32.71%) and citalopram (31.78%), implying that clinicians overwhelmingly preferred antidepressants with better tolerability and established first-line utility in the treatment of MDD. The majority of prescriptions were taken orally, and 60% of medications were prescribed, indicating satisfactory compliance with essential medical principles. However, the proportion of generic prescribing was low (10.48%), indicating a significant opportunity for improvement in encouraging cost-effective and sensible medication usage. Overall, the data suggests that antidepressant use in this scenario was usually prudent and acceptable, albeit continuing prescription auditing and a stronger emphasis on generic prescriptions may improve the pharmacological therapy of Major Depressive Disorder.

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