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Original Research Article

Drug utilization study of antidepressant drugs in psychiatric outdoor patients at a tertiary care hospital in southern Rajasthan

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ABSTRACT

Background: The World Health Organization (WHO) defines “Drug Utilization” as the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social, and economic consequences. Antidepressants are used to treat depressive illnesses and anxiety disorders. However, these are also employed in the pharmacotherapy of several psychiatric disorders. Very few studies were found regarding the pattern of prescription of antidepressants in outdoor patients in southern Rajasthan. So, this study has been planned to learn about the prescription pattern of antidepressant drugs as per WHO Core Drugs Prescribing indicators at a tertiary care hospital in southern Rajasthan.

Methods: A cross-sectional observational study was conducted among 375 patients by convenient sampling over one year duration, in the outdoor Department of Psychiatry at RNT Medical College, Udaipur, Rajasthan. Patient’s prescriptions were analyzed for drug utilisation pattern in OPD after relevant consent. All data was compiled in MS Excel and analyzed using statistical methods.

Results: Out of 375 prescriptions analyzed, 48.8% were males and 51.2% were females. Most commonly, patients had a diagnosis of depressive disorder (42.93%), followed by bipolar affective disorder (14.4%). The most common drug class prescribed was SSRI (88.86%). Escitalopram (41.65%) was the most prescribed drug, followed by Sertraline (30.51%).

Conclusions: Among the prescribed antidepressants SSRIs were the most common class of drug followed by TCA. Escitalopram was the most common drug to be prescribed followed by sertraline. More than half of the patients receiving antidepressants suffered from non-depressive disorders. Monotherapy was preferred over combination therapy. All patients were prescribed generic drugs.

Keywords: Anxiety, ATC classification, Depressive disorder, PDD/DDD ratio

INTRODUCTION

Drug utilization studies focus on the factors related to the prescribing, dispensing, administering and effects of drug utilization, whether beneficial or adverse, mainly to assess whether the drug treatment is rational or not.¹ To reach this goal, methods of auditing drug therapy towards rationality are necessary. History has taught us that successful drug utilization research requires collaboration among

clinicians, clinical pharmacologists, pharmacists, and epidemiologists.

For the benefit and improvement of current drug usage patterns, regular studies of patterns of drug utilization in various hospital settings or patient populations are therefore crucial to critically analyze the recent hospital drug policies and to recommend various guidelines for future times, if required.^{2,3} In pharmaco-epidemiology

drug utilization research is an important part as it describes the extent, nature and determinants of drug exposure.⁴

For measuring drug usage, various drug therapies comparison of cost consumption and improving the drug use practices in health facilities, the anatomical therapeutic chemical (ATC) classification and defined daily dose (DDD) methodologies are the most important tools.^{1,5}

Antidepressant medications are commonly prescribed drugs in psychiatric OPD; mainly used to treat depressive illness and several anxiety disorders. However, these are also employed in the treatment of several mental conditions, such as obsessive-compulsive disorders, schizophrenia, enuresis, chronic pain, neuropathic pain, attention deficit hyperactivity disorder, eating disorders, personality disorders, and impulse control problems. Regardless of whether there is co-morbid depression in these circumstances^{6,7}

The prescribing pattern of antidepressant drugs differs among physicians depending on their experiences, the patient's characteristics, the availability of drugs etc. Several different classes of antidepressants including selective serotonin reuptake inhibitors (SSRIs), selective norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs) are being used these days.

In the last decade, there has been a gradual shift in the prescribing patterns of antidepressants from tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAO inhibitors) to selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake Inhibitors (SNRIs). The main objective of the study is to assess the utilization pattern of antidepressant drugs in a tertiary care hospital in Udaipur, Rajasthan.

METHODS

This is a hospital-based cross-sectional study conducted in the Psychiatry Department of Maharana Bhupal Hospital, Udaipur, a tertiary care hospital in southern Rajasthan for a period of 1 Year from July 2023 to June 2024 in 375 patients. Prepared standard research protocol, subject's proforma and informed consent form were approved by the Institutional Ethics Committee before patient enrolment.

Inclusion criteria

All patients of either sex, above the age of 18 years, willing to give informed consent, attending the psychiatry department outdoors with a confirmed diagnosis of Depression who had any condition where at least one antidepressant was prescribed.

Exclusion criteria

Any patient who consulted in OPD and was subsequently admitted were excluded.

Study instruments

Proforma for data collection, subjects informed consent form, MNDY drug list and WHO anatomical therapeutic classification (ATC) and defined daily dose (DDD) metric system.

Data were analyzed using general parameters and demographic parameters like the profile of the patient, type of diagnosis, Daily Defined Dose for each antidepressant drug and some of the WHO indicators as mentioned below: 1) Age and sex distribution, 2) Distribution based on type of patients (new vs follow-up), 3) Marital status of patients, 4) Occupational status of patients, 5) Distribution of patients based on diagnosis, 6) Commonly used drug groups in study subjects, 7) Utilization pattern of different antidepressant drugs, 8) Total no of antidepressant drugs prescribed per encounter, 9) Total no of drugs prescribed per encounter, 10) Average no of drugs per encounter [antidepressant and total drugs], 11) WHO-DUS prescribing indicators, 12) ATC, prescribed Daily dose (PDD) and defined daily dose (DDD) of antidepressant drugs.⁸⁻¹⁰

RESULTS

The present cross-sectional and observational study was done to analyze the prescription pattern in patients attending outdoors in the department of psychiatry of a tertiary care hospital. We have collected data from 375 patients.

Age and sex distribution

Out of 375 patients, 183 (48.8%) were male and 192 (51.2%) were female. Females are more commonly affected as compared to males. In our study, the maximum number of patients, 91 (24.27%) belonged to the age group of 31-40 years followed by 90 (24%) in 41-50 years and 76 (20.27%) in the 18-30 years age group. The mean age of the study subject was 43.25 ± 13.9 years (Figure 1).

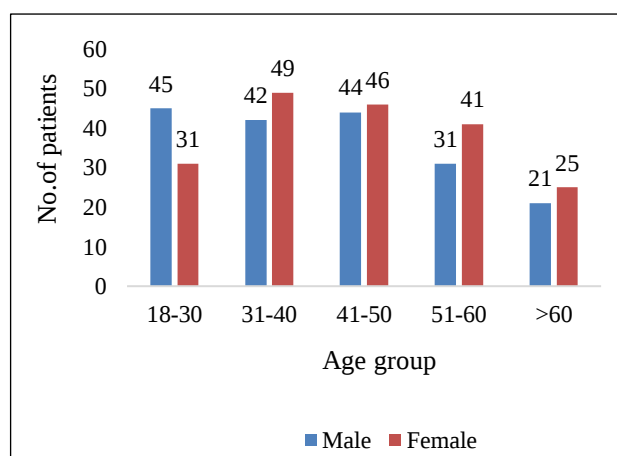


Figure 1: Age and sex distribution of patients (n=375).

Distribution based on new and follow-up patients

In the present study, 338 (90.13%) of patients were diagnosed as 'Old' cases who came for Follow-up, and about 37(9.87%) were diagnosed as 'New' cases.

Distribution based on marital status of patients

In our study, most patients were married 77.33% followed by unmarried 20%

Distribution based on occupational status of patients

In our study, most patients were unemployed (55.20%) followed by employed (37.33%) and students (7.47%).

Distribution of patients based on diagnosis

According to the latest ICD 10 classification, we found that 161 (42.93%) patients had a diagnosis of depressive disorder, 54 (14.4%) patients had a diagnosis of Bipolar affective disorder (BPAD) (Figure 2).

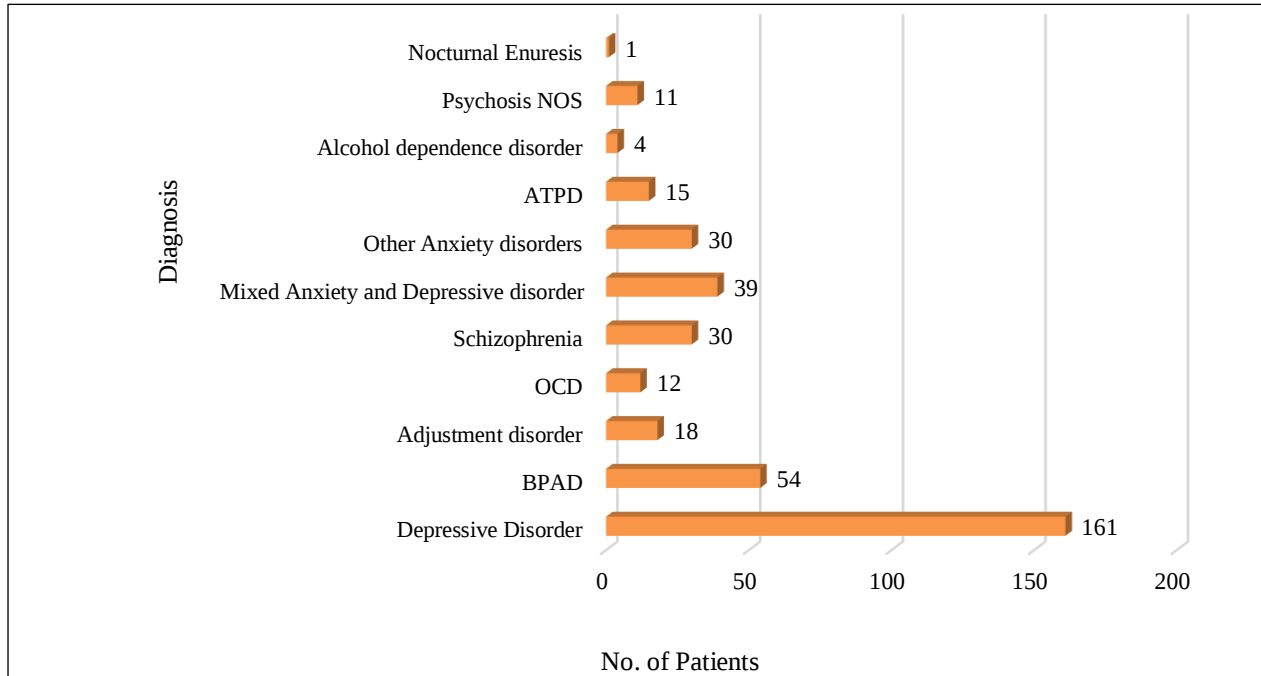


Figure 2: Distribution of patients based on diagnosis (n=375).

Commonly used drug groups in study subjects

Among the antidepressants the most prescribed drug class was SSRIs and the most prescribed drug in this class was escitalopram (45.87%) followed by sertraline (33.60%) and fluoxetine (18.40%). Another prescribed class was TCAs and the drug which was prescribed from this class was amitriptyline (12%).

Overall, the most prescribed antidepressant was escitalopram (45.86%). Drug classes that were prescribed apart from antidepressants were benzodiazepines which included clonazepam (57.33%), and alprazolam (32%). Antipsychotics such as quetiapine (22.67%), olanzapine (15.73%) and risperidone (14.93%) (Table 1).

Utilization pattern of different antidepressant drugs

In our study, among antidepressants, SSRIs (88.86%) were most frequently prescribed, followed by TCA (11.14%). Among SSRIs, the most commonly prescribed drug was escitalopram (41.65%) followed by sertraline (30.51%),

fluoxetine (16.71%), amitriptyline (10.90%) (Table 2, Figure 3).

Total number of antidepressant drugs prescribed per encounter

In this study, the maximum number of patients 337 (89.87%) received 1 antidepressant drug, followed by 38 (10.13%) who received 2 antidepressant drugs.

Total number of drugs prescribed per encounter

In our study, the majority of patients (92.26%) received less than 5 drugs daily (Figure 4).

Average number of drugs per encounter

The average number of antidepressant drugs per encounter was 1.10 with a standard deviation of 0.30 and a range of 1 to 2.

The average number of total drugs per encounter was 3.02 with a standard deviation of 0.98 and a range of 1 to 6.

WHO-DUS prescribing indicators*Percentage of drugs prescribed by generic name*

In our study, 100 % of drugs were prescribed by generic name.

Table 1: Commonly used drug groups in study subjects (n=375).

Drugs	No. of patients (%)
Atypical antipsychotics	
Olanzapine	59 (15.73)
Risperidone	56 (14.93)
Quetiapine	85 (22.67)
Anti muscarinic drugs	
Trihexyphenidyl (THP)	26 (6.93)
Anti epileptics	
Sodium valproate	33 (8.8)
Anti manic	
Lithium	5 (1.33)
Benzodiazepines	
Alprazolam	120 (32)
Lorazepam	25 (6.67)
Clonazepam	215 (57.33)
SSRIs	
Escitalopram	172 (45.87)
Sertraline	126 (33.6)
Fluoxetine	69 (18.4)
TCAs	
Amitriptyline	45 (12)
Imipramine	1 (0.27)
Proton pump inhibitors	
Omeprazole	15 (4)
Pantoprazole	56 (14.93)
Other	
Multivitamin	52 (13.86)
Thiamine	2 (0.53)
Diclofenac sodium	50 (13.33)
Propranolol	20 (5.33)

Table 2: Utilization pattern of different antidepressant drugs (n=413).

Antidepressant drug	No. of prescriptions (n=413)	% of prescription
Escitalopram	172	41.65
Sertraline	126	30.51
Fluoxetine	69	16.71
Amitriptyline	45	10.90
Imipramine	1	0.24
Total	413	100

*No. of patients-375, while no. of total prescribed antidepressants drugs was 413, because few prescriptions had more than one antidepressants

ATC, Prescribed Daily Dose (PDD) and Defined Daily Dose (DDD) of antidepressant drugs⁸⁻¹⁰

In our study prescribed daily doses of escitalopram (12.09mg), sertraline (97.22mg), fluoxetine (25.50mg), amitriptyline (40.17mg), imipramine (25 mg). PDD: DDD ratio ranged between 0.25-1.94 with sertraline having a maximum ratio (1.94) followed by fluoxetine (1.27), escitalopram (1.20), amitriptyline (0.53) and imipramine (0.25) (Table 5).

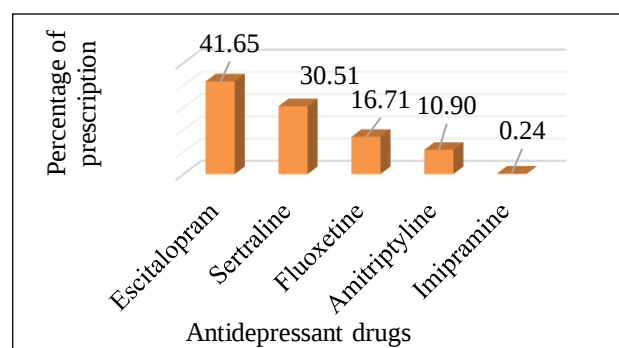


Figure 3: Utilization pattern of different antidepressant drugs.

Table 3: Utilization pattern of different antidepressant drugs [single drug/two drugs combination] (n=375).

Drugs	No. of patients (n)	% of patients
Single drugs		89.87
Escitalopram	151	40.27
Sertraline	104	27.73
Fluoxetine	66	17.60
Amitriptyline	15	4.00
Imipramine	1	0.27
Two drugs combination		10.13
Escitalopram+sertraline	5	1.33
Escitalopram+amitriptyline	13	3.47
Escitalopram+fluoxetine	3	0.80
Sertraline+amitriptyline	17	4.53

Percentage of encounters with an injection prescribed

In the present study, total encounters with an injection prescribed were 0 and the percentage of encounters with an injection prescribed was 0%.

Percentage of drugs prescribed from essential medicine list

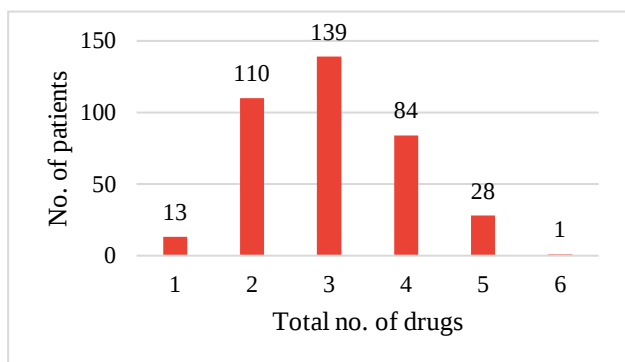
Out of 20 drugs used, 16 (60%) drugs were prescribed from the WHO model list of essential medicines (23rd list, 2023) and 15 (75%) drugs were prescribed from the National List of Essential Medicines of India (NLEM), 2022.

Table 4: WHO-DUS prescribing indicators.

Prescribing indicators	Counts and percentages
Total number of prescriptions analysed	375
Total number of drugs prescribed	1140
The average number of drugs per encounter	3.04
Drugs prescribed by generic name	100
Drugs prescribed from the essential drugs list (India)	75
Drugs prescribed from the essential drugs list (WHO)	60
Total number of prescriptions with an injection	Nil
Total number of prescriptions with FDC's	Nil

Table 5: ATC, PDD and DDD of antidepressant drugs.

Drug	ATC code	PDD (mg)	DDD (mg)	PDD:DDD ratio
Escitalopram	N06AB10	12.09	10	1.20
Sertraline	N06AB06	97.22	50	1.94
Fluoxetine	N06AB03	25.50	20	1.27
Amitriptyline	N06AA09	40.17	75	0.53
Imipramine	N06AA02	25	0.1g	0.25

**Figure 4: Total number of drugs prescribed per encounter.**

DISCUSSION

The current study is a cross-sectional observational study focusing on patients receiving anti-depressants and the pattern of their utilization. In our study, out of 375 patients, 183 (48.8%) were male, and 192 (51.2%) were female. This slight female preponderance in antidepressant use is also similar to Yerkade et al, Kulkarni et al, Hussain et al.¹⁶⁻¹⁸ Some even have found higher male preponderance by Tripathi et al.¹³

In our study maximum number of patients belongs to middle-age group. 91 (24.27%) belonged to the age group of 31-40 years, followed by 90 (24%) in 41-50 years. Yerkade et al have similar findings.¹⁶

Our study suggested that depressive disorders (42.93%) and BPAD (14.4%) mixed anxiety and depressive disorder (10.4%) were the most common diagnoses where antidepressants were used.

A similar study conducted by Nayak et al suggested that depressive disorders (42%) and anxiety disorders (28%) were the most common diagnoses where antidepressants were used. These results are similar to our study.⁹

This study also confirmed that more than half of the patients who were receiving antidepressants had diagnoses other than depression. These results are in line with Jyotiranjana et al, Yerkade et al.¹⁶

The majority of patients in our study received monotherapy, indicating that they were well-tolerated with a single medication. These results are in line with numerous Indian studies.¹¹⁻¹³

In this study, among antidepressants, SSRIs (88.86%) were most frequently prescribed, followed by TCA (11.14%). Among SSRIs, the most commonly prescribed drug was escitalopram (41.65%) followed by sertraline (30.51%), fluoxetine (16.71%), amitriptyline (10.90%)

In studies by Sen et al, Mishra et al, Tripathi et al, Grover et al and escitalopram is the most commonly used drug.¹¹⁻¹⁴

The reason for higher usage of SSRIs compared to TCA could be their better safety profile while having similar efficacy.¹⁵

In this study 100% of drugs were prescribed by generic name.

In this study, PDD: DDD ratio ranged between 0.25-1.94 with sertraline having a maximum ratio (1.94) followed by fluoxetine (1.27), escitalopram (1.20), amitriptyline (0.53)

and imipramine (0.25). This result is almost similar to Ranjan et al.⁸

This study has few limitations. The present study was done on a limited number of patients. This is an institutional-based analysis of anti-depressant prescriptions. Further periodic multi-centric studies are required for collaborative analysis.

This study has few strengths. The study rigorously applied drug utilization tools such as the ATC/DDD classification, as well as calculating the PDD/DDD ratios to evaluate the prevalence of antidepressant usage within the study population's community. Also, since the treatment is free of cost under the Mukhyamantri Nishulk Dava Yojana (MNDY), patients from all social and economic backgrounds sought care at our facility and were included in the study. This study was the first of its kind to analyze the utilization of drugs in the psychiatry OPD, where all medications were provided free of charge. Additionally, there was a strong emphasis on prescribing drugs using their generic names.

CONCLUSION

Among the prescribed antidepressants SSRIs were the most common class of drug followed by TCA. Escitalopram was the most common drug to be prescribed followed by sertraline. More than half of the patients receiving antidepressants suffered from non-depressive disorders. Monotherapy was preferred over combination therapy. All patients were prescribed generic drugs.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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