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Drug Utilization Study Of Patients Attending Outpatient Department Of Psychiatry In A Tertiary Care Teaching Hospital: A Prospective Observational Study.

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ABSTRACT

The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being, with mental well-being being a critical component of overall health. According to the World Health Organization (WHO), neuropsychiatric disorders rank as the third leading cause of global Disability-Adjusted Life Years (DALYs). The treatment of mental disorders involves both non-pharmacological and pharmacological approaches. Non-pharmacological methods include counseling, cognitive behavioral therapy (CBT), and psychoeducation. This prospective observational study was conducted over 18 months in the outpatient department of psychiatry at a tertiary care teaching hospital. Ethics committee approval was obtained prior to the study. This drug utilization study in the psychiatric outpatient department found that depression was the most common diagnosis, with a higher proportion of female patients. The average number of drugs prescribed per encounter was 2.63, and antidepressants, particularly SSRIs like escitalopram, were most commonly prescribed. The study showed low polypharmacy rates, with a preference for monotherapy, and a high percentage of drugs were from the National Essential Medicines List 2022 and prescribed by their generic names.
Keywords: WHO, CBT, DALYs, psychiatry.

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INTRODUCTION

The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being, with mental well-being being a critical component of overall health [1]. Mental disorders, characterized by significant disturbances in cognition, emotional regulation, or behaviour, contribute to 14% of the global disease burden and 30% of the non-fatal disease burden [2]. Depression and schizophrenia are among the most prevalent mental illnesses, with depression affecting 56 million Indians and anxiety disorders impacting 38 million [2].

According to the World Health Organization (WHO), neuropsychiatric disorders rank as the third leading cause of global Disability-Adjusted Life Years (DALYs) [3]. In India, a 2017 report estimated that 197.3 million individuals (with a 95% uncertainty interval of 178.4–216.4 million) are affected by mental disorders [4]. WHO's 2002 estimates indicated that globally, 154 million people suffer from depression, 25 million from schizophrenia, 91 million from alcohol use disorders, and 15 million from drug use disorders [4]. Additionally, a recent WHO report highlighted that epilepsy affects 50 million people, while Alzheimer's and other dementias impact 24 million individuals worldwide [4].

The treatment of mental disorders involves both non-pharmacological and pharmacological approaches. Non-pharmacological methods include counseling, cognitive behavioral therapy (CBT), and psychoeducation. Pharmacological treatments consist of antidepressants, antipsychotics, anticonvulsants, mood stabilizers, and stimulants, which work by altering neurotransmitter levels to manage symptoms effectively [5].

Drug utilization studies, as defined by WHO, analyse drug marketing, prescription, and usage patterns, focusing on their medical, social, and economic implications [6]. These studies are essential in psychiatry to assess prescription trends, identify issues like polypharmacy, and promote the rational use of medications. By evaluating WHO prescribing indicators [7], such as generic drug usage and adherence to the National Essential Medicines List, drug utilization studies help optimize patient care, address treatment gaps, and improve prescribing habits in psychiatric practice.

The aim of this study was to analyze drug utilization patterns and identify potential medication-related problems in the healthcare provided at a tertiary care teaching hospital. The study focused on evaluating the utilization patterns of psychotropic drugs among patients attending the psychiatry outpatient department. It also aimed to determine the prevalence of patients exposed to psychotropic medications and to categorize them based on age, sex, and diagnosis. Additionally, the prescriptions were assessed using the WHO core drug prescribing [7] indicators to evaluate rational drug use. Another aspect of the study involved comparing the prescribed daily dose (PDD) of psychotropic medications with their defined daily dose (DDD) to identify any discrepancies in dosing practices.

METHODOLOGY

This prospective observational study was conducted over 18 months in the outpatient department of psychiatry at a tertiary care teaching hospital. Ethics committee approval was obtained prior to the study.

Study Population and Sample Size

The sample size was calculated as 189 using a prevalence of 14.3%[1] and a 95% confidence level. The formula for sample size calculation were as follows**:**

$$n = [z^2 * p * (1 - p) / e^2] / [1 + (z^2 * p * (1 - p) / (e^2 * N))]$$

here,
Z = Z statistic for a level of confidence
z = 1.96 for a confidence level (α) of 95%
p = expected prevalence or proportion (in proportion of one; if 20%, P = 0.2),
p = 0.1430
d = precision (in proportion of one; if 5%, d = 0.05).
d = 0.05

N = population size
N = 2500000

The population of the region in 2.5 million and estimated prevalence of population is 14.3 % [8].

The sample size needed for the study is 189.

Data Collection

Eligible patients according to inclusion and exclusion criteria were informed about the study, and their consent was obtained. The inclusion criteria for this study were as follows: patients diagnosed with a psychiatric disorder by a registered psychiatrist, those receiving at least one psychotropic medication, and individuals aged between 18 and 70 years. Additionally, only patients who were willing to participate in the study were included. The exclusion criteria included patients not receiving any psychotropic medications, those admitted to the inpatient department, individuals younger than 18 years or older than 70 years, and patients who were unwilling to participate in the study. Data was collected using a predesigned case record form, which included demographic details (age and sex), clinical diagnosis, and drug utilization data. Diagnoses were categorized into schizophrenia, anxiety disorder, depression, bipolar disorder, and seizure disorder.

Drug Utilization Analysis

The collected data were assessed using WHO core prescribing indicators:

- Average number of drugs per prescription
- Percentage of psychotropic drugs, generic prescriptions, and drugs from the National Essential Medicine List (NEML)
- Percentage of single-drug therapy, polypharmacy, and fixed-dose combinations

Drugs were analyzed based on their names, categories, doses, and administration routes. Defined daily doses (DDD) were compared with prescribed daily doses (PDD) to identify underdosing (PDD/DDD < 1), adequate dosing (PDD/DDD = 1), or overdosing (PDD/DDD > 1).

Data Analysis

Data were categorized and analysed based on gender, age group, psychiatric diagnosis, and most commonly prescribed drugs. Descriptive statistics, proportions, and percentages were used for analysis and presented in tabular form using MS Office 365.

RESULTS

Table 1: baseline demographic characteristics of study population.

Heading	Number (n)	Percentage (%)
Total number of patients	212	
Age (mean)	44.01 years	
Age (range)	18 – 70 years	
Male	98	46.3%
Female	114	53.7%
Family history of psychiatric illness	59	27.83%

The mean age of the patients was 44.01 years. Out of the 212 patients evaluated, 114 (53.7%) were female, while 98 (46.3%) were male, resulting in a male-to-female ratio of 0.85:1, as illustrated in Figure 1, which shows the gender distribution of the study population. A family history of psychiatric illness was observed in 27.83% of the patients.
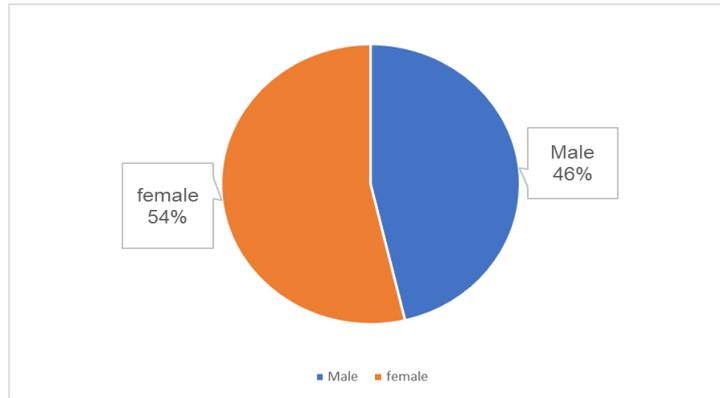
Figure 1: Gender Distribution of Study Population.

Table 2: Prevalence of psychiatric illness.

Diseases	Number of patients (n)	Percentage (%)
Depression	83	39.15
Schizophrenia	51	24.05
Anxiety	40	18.86
Seizure disorder	25	11.79
Bipolar disorder	13	6.13
Total	212	100

The most common diagnosis in the psychiatry outpatient department was depression, observed in 39.15% of the total patients. Schizophrenia was the second most common condition, affecting 24.05% of patients. Anxiety disorders were present in 18.86% of the studied population, while bipolar disorder and seizure disorder were observed in 6.13% and 11.79% of patients, respectively.

Table 3: Ten most frequently prescribed drugs in the study.

Sr no	Name of drug	Number (n)	ATC CODE	DDD (mg)	PDD (mg)	PDD/DDD
1	Olanzapine	41	N05AH03	10	6.57	0.65
2	Aripiprazole	21	N05AX12	15	11	0.73
3	Escitalopram	75	N06AB10	10	11.42	1.14
4	Chlordiazepoxide	53	N05BA02	30	28.26	0.94
5	Clonazepam	51	N03AE01	8	0.73	0.09
6	Fluoxetine	21	N06AB03	20	20	1
7	Flupentixol	13	N05AF01	6	2	0.33
8	Trifluoperazine	13	N05AB06	20	13	0.65
9	Amitriptyline	49	N06AA09	75	63.75	0.88
10	Trihexyphenidyl	25	N04AA01	10	4.08	0.4

The prescriptions were assessed based on the PDD/DDD ratio, where a ratio of one indicated adequate dosing, less than one indicated underdosing, and greater than one indicated overdosing. Fluoxetine was the only drug prescribed at an adequate dose, while escitalopram was prescribed at a higher dose (overdosing). All other drugs were administered at lower doses (underdosing).

Table 4: Prescription analysis according to WHO Core Indicator.

Heading		Result
1. Average number of drugs prescribed per encounter		2.63
2. Percentage encounter prescribed psychotropic drug		100%
3. Percentage drug prescribed from essential medicine list		64.52%
4. Percentage of drugs prescribed by generic names		73%
5. Percentage of single psychotropic drug prescribed per prescription		20%
6. Percentage of polypharmacy prescribed.		2%
7. Percentage of drug prescribed as fixed drug combination.		27.54%
8. Dosage forms of drug prescribe	9. Tablets	98%
	10. Capsule	1%
11. Injection		1%

The prescriptions of all patients were evaluated using the WHO core indicators to assess their rationality. Out of the 212 prescriptions analyzed, the average number of drugs per prescription was 2.63. Generic names were used for 73% of the prescribed drugs, and 64.52% of the drugs were selected from the National Essential Medicines List 2022. Polypharmacy, defined as more than five drugs per prescription, was observed in only 2% of the cases. Tablets were the most commonly prescribed dosage form, accounting for 98% of all prescriptions.

Table 5: class-wise distribution of the drugs.

Heading	Number (n)	Percentage (%)
Total no of drugs	562	100
Antidepressant	189	33.62
Anxiolytic	131	23.30
Antipsychotic	119	21.25
Anticonvulsant	36	6.40
Antimuscarinic	25	4.44
Mood stabiliser	11	1.96
Others (proton pump inhibitor + NSAIDs + antiemetic + multivitamin)	51	9.07

Antidepressants were the most commonly prescribed drugs, given to 33.62% of patients. Anxiolytics were the second most common class, prescribed in 23.30% of patients, followed by antipsychotics, which were used in 21.25% of cases. Mood stabilizers were the least commonly prescribed, accounting for only 1.96% of the prescriptions.

Table 6: number of drugs per prescription.

Heading	Number (n)	Percentage (%)
1 drug per prescription	42	20
2-3 drugs per prescription	119	56
4-5 drugs per prescription	47	22
>5 drugs per prescription	4	2

Most common number of drugs prescribed was 2-3 drugs which was seen in 56 % of total prescription. Monotherapy or only one drug per prescription was given in 20 % of the cases whereas polypharmacy or more than 2 drugs per prescription was seen in 2% of the cases.

DISCUSSION

Demographics of the Study Population

The study included 212 patients, with a mean age of 44.01 years. The most common age groups were 35-49 years, followed by 18-34 years. This is in line with studies by J Shareef et al. (mean age 37.82 years) and Suhaib Hattab et al [10]. (47.3 years). There was a female predominance (male-to-female ratio of 0.85:1), consistent with other studies showing higher female representation in psychiatry outpatient settings. Additionally, 27.8% of patients had a positive family history of mental illness, confirming findings that family history increases the risk of psychiatric disorders.

Prescription Patterns

The average number of drugs prescribed was 2.63, similar to Mudhaliar MR et al [11]. (2.37) and Swamy MK et al [12]. (1.85). Antidepressants were the most commonly prescribed drugs, constituting 33.63% of prescriptions. This is consistent with Richa Chaturvedi et al [13]. and Swamy et al. Fixed-dose combinations accounted for 27.54%, and 73% of drugs were prescribed by their generic names. These figures are higher compared to Mukherjee SH et al [14].'s study, which reported 45.63% drugs from the National Essential Medicine List (NEML) and 18.36% fixed-dose combinations. These results suggest a careful and cost-conscious prescribing approach. Polypharmacy was observed in 2% of prescriptions, lower than in Teli SE et al [15]. (3.7%) and Ahmed Tabish et al [16]. (45%), with the latter using a different polypharmacy definition.

Disease Distribution

Depression was the most common disorder (39.15%), followed by schizophrenia (24.05%) and anxiety disorder (18.86%). This is slightly different from studies by Ujwala P. Gawali et al [17]. and Prakash Thapa et al [18], where anxiety disorder ranked second, followed by schizophrenia.

CONCLUSION

This drug utilization study in the psychiatric outpatient department found that depression was the most common diagnosis, with a higher proportion of female patients. The average number of drugs prescribed per encounter was 2.63, and antidepressants, particularly SSRIs like escitalopram, were most commonly prescribed. The study showed low polypharmacy rates, with a preference for monotherapy, and a high percentage of drugs were from the National Essential Medicines List 2022 and prescribed by their generic names.

These findings suggest that psychiatrists are following national guidelines, prescribing judiciously, and considering both cost and side effects. However, the study's limited sample size and focus on one department may limit its generalizability. Future research should assess the safety, efficacy, and appropriate dosing of these medications to optimize patient care. This study provides a foundation for developing better prescription guidelines in psychiatric outpatient settings.

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