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Original Research Article

## Drug utilization study in patients visiting psychiatric OPD in tertiary care hospital

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### ABSTRACT

**Background:** The illness due to psychiatric diseases and behavioral disorders is enormous, but it remains under represented by conventional public health statistics; which mainly targets mortality more than morbidity or dysfunction. The drug utilization study was conducted to find out problems and provide feedback to prescribers so as to create awareness about irrational use of drugs. This study was conducted in psychiatry outpatient department (OPD) of a tertiary care hospital.

**Methods:** A prospective, observational and cross-sectional study was conducted in Department of Pharmacology in collaboration with department of psychiatry in a tertiary care hospital. Patients fulfilling the inclusion criteria visiting psychiatric OPD from 01 October 2018 to 31 December 2018 period of 3 months were enrolled in the study. Assessment of the prescriptions was done as per the ICD-10 criteria and World Health Organization-indicators for rational use of drugs (WHO-INRUD).

**Results:** Among total 390 prescriptions; 71.54% was males and 28.46% were females. All the drugs were oral formulations. The burden of diseases are depression 35.89%, anxiety 20.51%, schizophrenia 18.97% and bipolar disorder 11.28% and other psychiatric diseases were 13.33%. Olanzapine was the most common drug which was prescribed followed by alprazolam. Total 1,140 drugs were prescribed out of which 86.32% was psychotropic drug and 13.68% were other like vitamin B-complex, analgesics, anta-acids, antibiotics and NSAIDS. The Most common prescribed class was atypical antipsychotics 26.31% followed by benzodiazepines 20.26%, antipsychotics 19.74%, tricyclic antidepressants 8.16%, anticonvulsants 9.21%, antiepileptics 2.37% and lastly selective serotonin reuptake inhibitors.

**Conclusions:** Atypical antipsychotics was most commonly prescribed drug followed by benzodiazepines. All the drugs were prescribed by their generic names which suggests awareness among prescribers regarding WHO policies for generic prescribing.

**Keywords:** Prescription, Psychiatry, Polypharmacy, Medication error, Psychotropic drugs

### INTRODUCTION

The drug prescription pattern varies along with the different geographical areas which was influenced by multiple factors such as patient's characteristics, type of disease, prevalence of disease, socioeconomic status, and availability of the drug. Prescribing pattern is basically a component of the medical audit which requires

monitoring, evaluation and necessary modifications in the prescribing practices of the prescribers to achieve rational and cost affective medical treatment.<sup>1</sup>

Psychiatric disorders are the one of the most common public health problems.<sup>2</sup> Recent advantages in the field of psychopharmacological diseases are continuously heading towards the new approaches and improved treatment

pattern for psychiatric diseases.<sup>3</sup> So, the investigators which are exposed to the field on psychopharmaceuticals are continuously doing their researches to find the drugs which are more safer as well as more efficacious.

Drug utilization research can be defined as 'an eclectic collection of descriptive and analytical methods for the quantification, the understanding and the evaluation of the processes of prescribing, dispensing and consumption of medicines, and for the testing of interventions to enhance the quality of these processes'.<sup>4</sup> Drug prescription study also shows us about irrational use of drugs for e.g. polypharmacy according to World Health Organization (WHO) polypharmacy can be defined as "the administration of many drugs at the same time or the administration of an excessive number of drugs".<sup>5,6</sup> Prescription pattern studies will identify problems before a drug is dispensed and will greatly improve patient care.<sup>7</sup>

The purpose of this study was to investigate drug prescription pattern of psychiatrist in outpatient department (OPD) of psychiatric department in the tertiary hospital, Maharashtra. This study was carried out to analyze the pattern of psychotropic drug utilization.

## METHODS

This prospective, cross-sectional and observational study was carried out in department of pharmacology in collaboration with department psychiatry of a tertiary healthcare teaching institute in Maharashtra after obtaining approval from the institutional ethics committee. Patients were given prior information.

### *Study design*

It was a hospital based prospective, cross-sectional and observational study

### *Study period*

The study was conducted over a period of 3 months from 01 October 2018 to 31 December 2018 at a tertiary healthcare teaching institute in Maharashtra.

### *Sampling*

A total of 390 prescriptions were selected as per inclusion and exclusion criteria.

### *Inclusion criteria*

All patients above the age of 18 years and of either gender visiting psychiatric OPD were enrolled in the study.

### *Exclusion criteria*

All IPD patients, patients below 18 years age, pregnant and lactating females, patients in which diagnosis was not clear

or were suffering from diseases other than psychiatric illness were excluded from the study.

## Methodology

A pre-structured performa was utilized to collect the required information.

All information pertaining to the patient such as patient's age, gender, diagnosis and administered drug therapy (drugs categorized into different classes, their doses, frequency and dosage form; prevalence of polypharmacy; percentages of fixed-dose combinations (FDCs) and off-label; percentage of drugs following guidelines of WHO prescription indicators) was recorded.

The following data were collected and analyzed: demographic information i.e. age and sex, diagnosis; drugs categorized into different classes, their doses, frequency and dosage form; prevalence of polypharmacy; percentages of FDCs and off-label and; percentage of drugs following guidelines of WHO prescription indicators.

Data were entered and analyzed using Microsoft Excel 2013.

## RESULTS

Figure 1 represents age and gender wise distribution of psychiatric patients enrolled in the study. The total 390 prescriptions analyzed 71.54% was males and 28.46% were females. The age range was 18-77 years and majority of psychiatric cases were recorded in age group of 31-45 years with male preponderance.

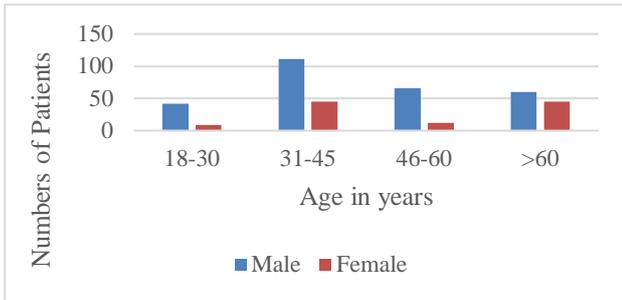
### *Distribution of psychiatric illness*

As per the results of the study, 35.89% patients were diagnosed with depression, 20.51% had anxiety and schizophrenia was reported in 18.97% of patients. 11.28% of patients had bipolar disorder and 13.33% of patients were diagnosed with other psychiatric diseases. Total 1140 drugs were prescribed, out of which 86.32% was psychotropic drugs and 13.68% were other concomitant drugs like vitamin B-complex, analgesics, anta-acids and antibiotics.

Table 2 shows the prescribed drug along with it's the class it belongs to; number of drugs among total 1140 drugs and its percentage.

Table 3 shows the 156 other concomitant drugs which has been prescribed among total 1140 drugs with its percentage. Oral route was the only mode of administration in all the patients. 92.59% drugs were present in National list of essential medicine. The drugs were prescribed in generic name. Not even a single drug was given by injectable route. Apart from the antipsychotics few other drugs like non-steroidal anti-inflammatory drugs

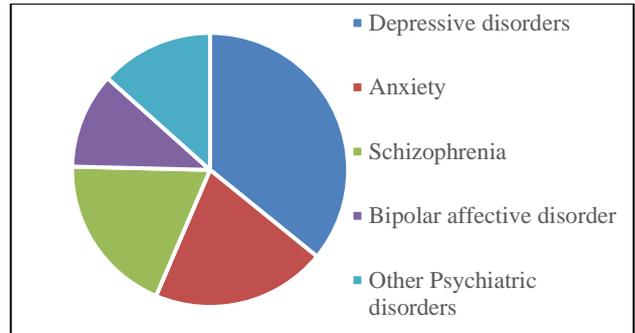
(NSAIDs), antibiotics and antifungals were also prescribed.



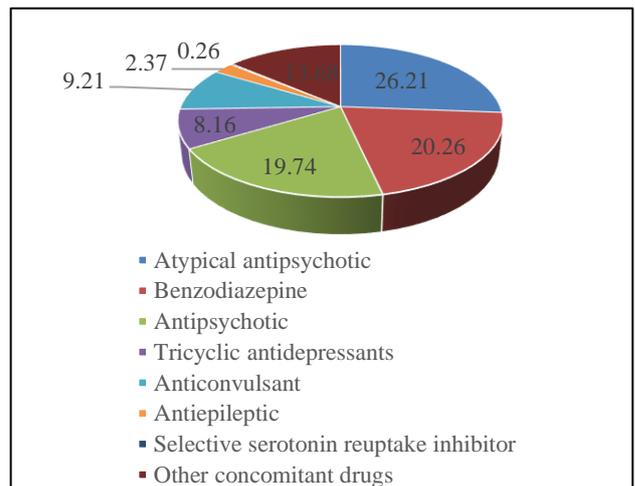
**Figure 1: Age and gender wise distribution of psychiatric illness.**

**Table 1: Distribution of psychiatric diseases.**

Sr. no.	Diagnosis	No. of patients (%)	Male	Female
1	Depressive disorders	140 (35.89)	106	34
2	Anxiety	80 (20.51)	50	30
3	Schizophrenia	74 (18.97)	53	21
4	Bipolar affective disorder	44 (11.28)	31	13
5	Other psychiatric disorders	52 (13.33)	39	13



**Figure 2: Overall burden of psychiatric disorder.**



**Figure 3: Drugs prescribed.**

**Table 2: Prescribed psychotropic drugs.**

Sr. no.	Drugs	Class of drug	Number (%)
1	Olanzapine	Atypical antipsychotic	300 (26.31)
2	Alprazolam	Benzodiazepine	201 (17.63)
3	Trifluoperazine+trihexyphenidyl combination	Antipsychotic	198 (17.37)
4	Amitriptyline	Tricyclic antidepressant	93 (8.16)
5	Carbamazepine	Anticonvulsant	57 (5)
6	Sodium valproate	Anticonvulsant	48 (4.21)
7	Haloperidol	Antipsychotic	27 (2.37)
8	Phenytoin sodium	Antiepileptic	27 (2.37)
9	Diazepam	Benzodiazepine	27 (2.37)
10	Phenobarbitone	Barbiturate	6 (0.53)
11	Lorazepam	Benzodiazepine	3 (0.26)
12	Fluoxetine	Selective serotonin reuptake inhibitor	3 (0.26)

**Table 3: Prescribed concomitant drugs.**

Sr. no.	Drugs	Number (%)
1	Ferrous sulfate+folic acid	30 (2.63)
2	Calcium lactate	18 (1.58)
3	B-complex	15 (1.31)
4	Chlorpheniramine maleate	15 (1.31)
5	Ranitidine	15 (1.31)
6	Paracetamol	12 (1.05)
7	Amoxicillin	9 (0.79)

Continued.

Sr. no.	Drugs	Number (%)
8	Cough expectorant	9 (0.79)
9	Diclofenac sodium+paracetamol	9 (0.79)
10	Azithromycin	6 (0.53)
11	Fluocinolone acetonide H	3 (0.26)
12	Amlodipine	3 (0.26)
13	Cetirizine	3 (0.26)
14	Clotrimazole	3 (0.26)

## DISCUSSION

Drug prescription study helps to understand how the physician is prescribing a specific drug and to assess rationality of the prescriptions in terms of efficacy, potency, cost and diagnosis.<sup>8,9</sup> This type of study is very important as different classes of drugs are available for treating a particular disease.<sup>10</sup>

On the basis of the study the male patients are in more number when compare with female patients this result is similar to some studies Chakraborty et al and Grover et al.<sup>11,12</sup> As psychiatric diseases are considered as sins in some socioeconomic region the difference in the male-female ratio may be due to the difference in socioeconomic condition, cultural, and educational background of family.

Preponderance of psychiatric illness was more in 31-45 years age group. Most of the studies have shown similar results with age ranging from 25-45 years of age example Shamkuwar et al.<sup>13</sup> This could be due to the responsibilities like carrier, goals, marriage, family establishment is maximum in this age range. Apart from this hormonal change occurring in this age group may also have an impact on the disease prevalence and progression. After this second peak occurs in the age group of >60 years of age which are mainly due to the degenerative changes in the brain.<sup>14</sup>

Depression is one of the most common psychiatric disorder and it was also most common disorder found in this study with male preponderance this may be due to the overall male patients visiting psychiatry OPD was more in number and some other studies like Mukherjee et al has also shown the most common psychiatric disorder as depression.<sup>15,16</sup> A study done by Nazroo et al has suggested that in spite of total number of male patients were more than females but depression was seen more in females.<sup>17</sup>

The cost of the psychotropic drugs plays a major role in the prescription pattern. As the overall cost of SSRI and newer anti-psychotic drugs are more as compared to conventional tricyclic anti-depressants (TCAs) and antipsychotics, they are prescribed more so to decrease overall financial burden to the patients.

None of the patients received any drug by parenteral route this may be due to only oral drugs are given in OPD patients and if the condition of the patients demands injectable then they admit the patient. If more than two

drugs are prescribed in a prescription then it is considered as polypharmacy.<sup>5</sup> In this study average number of drugs prescribed was 2.92.

## CONCLUSION

The drug use pattern from the study largely conforms to the standard recommendations of WHO. Continuous monitoring of the prescription flashes a light of present trends in prescribing patterns of psychotropic drugs in hospital settings. The commonly used psychotropic drug in the present study was olanzapine. The incidence of polypharmacy was in the normal limits as per WHO recommendation. The generic drug usage is a rational prescribing indicator, and in this study almost all the drugs was prescribed in generic name. Our study suggests a strong need for the use of newer psychotropic drugs such as SSRIs. Our study was carried out for a short duration and study subjects was confined to OPD. Thus, the present study provides a baseline to conduct drug utilization studies periodically for a longer duration in a larger sample size to influence the overall improvement of patients on psychotropic drugs in different mental health care settings.

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*Conflict of interest: None declared*

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

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