

## Original Research Article

# Study of the prescription pattern of anti-depressants in a tertiary care hospital: a prospective observational study

Vishal A. Kulkarni<sup>1</sup>, Mirza S. Baig<sup>1\*</sup>, Prasad Deshpande<sup>2</sup>

<sup>1</sup>Department of Pharmacology, <sup>2</sup>Department of Psychiatry, Government Medical College, Aurangabad, Maharashtra, India

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### \*Correspondence:

Dr. Mirza S. Baig,

E-mail: shirazdoctor@yahoo.com

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## ABSTRACT

**Background:** One of the most important public health priorities are psychiatric disorders. Prescribing medications play a crucial role in providing good health care. Therefore, there is a need to understand prescription patterns at regular intervals.

**Methods:** This was a prospective, cross-sectional, observational study conducted at the psychiatry department OPD of Government Medical College, Aurangabad (Maharashtra, India) from January 2021 to June 2022. Records of prescriptions were collected from the hospital management information system.

**Results:** N=417 prescriptions were analysed. The male: female ratio was 1.25. Among total prescriptions analysed, selective serotonin reuptake inhibitors (SSRIs) were the most prescribed drug class (32.18%) followed by benzodiazepines (25.19%) and atypical antipsychotics (19.97%). Drugs prescribed as fixed dose combinations (FDC) were 2.10%. Most of the patients received polytherapy in which most patients constituted of two drug therapy (46.28%) and 34.53% of patients received monotherapy. In the patients managed by monotherapy, SSRIs were the most prescribed (29.16%), followed by atypical anti-psychotics (26.38%) and benzodiazepines (24.30%). Prescriptions with generic names were 93.12%. The average number of drugs per encounter was 1.88. Drugs prescribed from the essential drugs list (India) were 41.66%. Drugs prescribed from the essential medicines list (WHO) were 47%. The total number of prescriptions with injections 0.23%.

**Conclusions:** Prescribing patterns were according to the WHO-DUS parameters. Most patients were prescribed generic medicines. SSRIs, benzodiazepines and tricyclic antidepressants were the most prescribed drug class.

**Keywords:** Drug utilization studies, Prescription patterns, WHO-DUS prescribing indicators, Generic names, SSRIs

## INTRODUCTION

Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their individual requirement for an adequate period and at the lowest cost to them and their community.<sup>1</sup> Standard prescribing patterns have been designed by WHO for evaluating prescription trends in health care facilities. They are used to describe current treatment practises, comparing prescribers and healthcare facilities.<sup>2</sup>

One of the most important public health priorities are psychiatric disorders. They utilise high level of health service costs. As the arena of psychopharmacology is volatile, with new drugs challenging traditional concepts, a handful of studies have been carried in India evaluating prescribing pattern of these medications.<sup>3</sup> Psychiatric disorders bag fourth place for disability adjusted life years (DALY's) in top 10 health conditions of world.<sup>4</sup>

Number of antidepressants have increased over the years in India, also these drugs form the main groups for

treatment against depression. Although, most of the antidepressant drugs present in the world are present in India, there is a relative lack of data of prescription patterns of psychiatrists as compared to the vast literature on the use of antidepressants in USA and in Europe.<sup>5-7</sup>

Many factors like patient's demographic characteristics, side-effects of medication and illness profile can help in selection of anti-depressant drugs.<sup>8</sup> For treatment, antidepressants monotherapy is used as initial treatment followed by combination therapy. The details of antidepressant prescriptions are of importance for practitioners and health policy makers for depression treatment.<sup>9</sup> It was found out that different antidepressants have comparable efficacy in majority of patients with depression by use of systematic reviews and meta-analyses.<sup>10</sup>

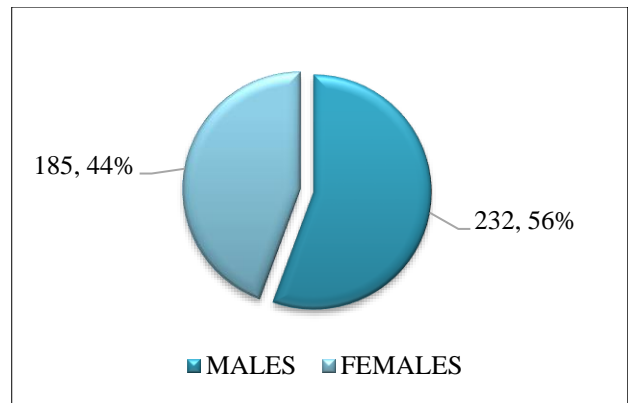
In these days more drugs are added to the market, but SSRIs still dominate and are being prescribed in an increased frequency.<sup>11</sup> All these factors suggest a necessary question about performing routine prescription surveys, therefore, this study was planned to understand the prescription pattern in psychiatry department of Government Medical College and Hospital, Aurangabad providing services as a tertiary care hospital in Marathwada region of Maharashtra.

**METHODS**

This was a prospective, cross-sectional, observational study conducted at department of psychiatry, Government Medical College, Aurangabad (Maharashtra). All diagnosed patients with depression and on anti-depressant therapy attending psychiatry department OPD between January 2020 to June 2021 were inducted in study. Informed consent was not applicable as there was no direct involvement of patients, however, a blanket consent was obtained from the Head of the department of psychiatry to use available data for DUS. Prescriptions having provisional diagnosis and with unstable medical conditions were excluded. Digital records from hospital management information system (HMIS) were obtained for evaluation after necessary permissions from Nodal Officer for HMIS and permission of head of department, psychiatry. The study was started after the institutional ethical committee's approval. All case records coming under inclusion criteria were studied. For investigating drug use in health-care facilities the WHO guidelines recommend at least 300 encounters in a cross-sectional study. A total of n of 417 prescriptions were analysed. The data obtained was tabulated and analysed in Microsoft excel with categorical data expressed as percentage.

**RESULTS**

A total of n=417 prescriptions were analysed. The male: female ratio was 1.25 as depicted in (Figure 1).

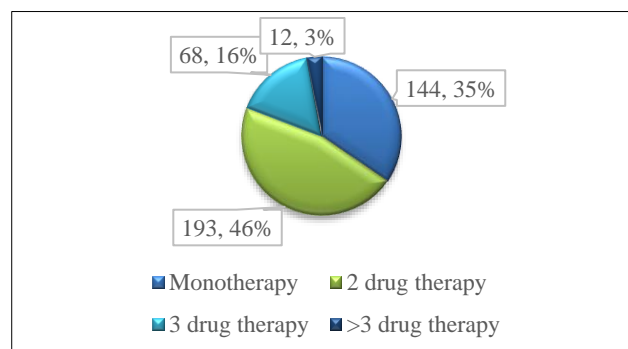


**Figure 1: Gender distribution.**

Details of age-wise gender distribution of patients are mentioned in (Table 1). 18 to 50 years' age group consisted of 83.92% of patients. Pattern of antidepressant drug classes and drugs according to standard classification were noted in which, (491) 62.46% of total drugs prescribed were according to standard antidepressants drug classes (detailed with drugs in Table 2) and other (295) 37.53% of drugs were prescribed either as adjuvants or as drugs having anti-depressant properties. Range of drug classes prescribed are mentioned in Table 2. In patients receiving polytherapy (65.45%), two drug therapy was 46.28% and 34.53% of patients received monotherapy, depicted in (Figure 2). In the patients managed by monotherapy, SSRIs prescribed were 29.16%, followed by atypical anti-psychotics 26.38%, the details of the most common single drug prescriptions are given in (Table 3).

In two-drug prescriptions, BZDs and SSRIs were prescribed to 46.63% patients, followed by tricyclic antidepressants and SSRI's combination as described in (Table 4). Also, two drug therapy data is mentioned in Table 5, wherein, tablets clonazepam and sertraline combination was prescribed for 30.05% of patients.

Prescription pattern of three drug therapy was also observed, where SSRIs + BZDs class were given along with atypical anti-psychotics in 13.68% patients. Details mentioned in Table 6.



**Figure 2: Details of management approach.**

**Table 1: Age wise gender distribution.**

Age groups	Number	Percentage	Males	Percentage	Females	Percentage
<18	12	2.87	5	41.66	7	58.33
18-35	226	54.19	129	57.07	97	42.92
36-50	124	29.73	69	55.64	55	44.35
51-65	40	9.59	18	45	22	55
65-80	15	3.59	11	73.33	4	26.66
<b>Total</b>	<b>417</b>	<b>100</b>	<b>232</b>	<b>100</b>	<b>185</b>	<b>100</b>

**Table 2: Range of drug classes prescribed.**

Drug classes and anti-depressant drugs (mg) (n=417)	Frequency (mg)	Percent column for separate drugs (%)	Percent of drug classes (%)
<b>Selective serotonin reuptake inhibitors</b>			
Tab. Sertraline 50	188	74.30	32.19
Tab. Fluoxetine 20	33	13.04	
Tab. Escitalopram 10	25	9.88	
Tab. Paroxetine 25	7	2.7	
Total	253	100	
Benzodiazepines	198		25.19
<b>Atypical antipsychotics</b>			
Tab. Olanzapine 5	105	66.87	19.97
Tab. Risperidone 2	38	24.20	
Tab. Clozapine 25	5	3.18	
Tab. Quetiapine 25	5	3.18	
Tab. Aripiprazole 5	3	1.91	
Tab. Amisulpiride 100	1	0.63	
Total	157	100	
<b>Tricyclic Antidepressants</b>			
Tab. Amitriptyline 25	74	97.36	9.67
Tab. Imipramine 25	1	1.3	
Tab. Dosulepin 50	1	1.3	
Total	76	100	
Mood stabilizers	50	100	6.36
FDCs	19	100	2.42
Anti-cholinergic drugs	12	100	1.53
Anti-convulsant drugs	7	100	0.89
Beta adrenergic blockers	5	100	0.64
<b>Atypical antidepressants</b>			
Tab. Mirtazapine 7.5	3	60	0.64
Tab. Desvenlafaxine 50 (SNRI)	1	20	
Tab. Bupropion 150 (NDRI)	1	20	
Total	5	100	
Typical anti-psychotics	3	100	0.38
Serotonin receptor agonists	1	100	0.13
Total			100

**Table 3: Drug classes and most drugs prescribed in monotherapy.**

Drug Class	Count	Percentage (%)	Drug (mg)	Count	Percentage (%)
<b>Selective serotonin reuptake inhibitors</b>	42	29.16	Tab. Sertraline 50	31	73.80
			Tab. Fluoxetine 20	10	23.80
			Tab Paroxetine 12.5	1	2.30
			<b>Total</b>	<b>42</b>	<b>100</b>
<b>Atypical antipsychotics</b>	38	26.38	Tab. Olanzapine 5	28	73.68

Continued.

Drug Class	Count	Percentage (%)	Drug (mg)	Count	Percentage (%)
			Tab. Risperidone 2	7	18.42
			Tab. Quetiapine 25	2	4.76
			Tab. Clozapine 25	1	2.63
			<b>Total</b>	<b>38</b>	<b>100</b>
<b>Benzodiazepines</b>	35	24.30	Tab. Clonazepam 0.5	28	82.35
			Tab. Lorazepam 2	6	17.64
			<b>Total</b>	<b>34</b>	<b>100</b>
<b>Tricyclic antidepressants</b>	15	10.41	Tab. Amitriptyline 25	15	100
<b>FDCs</b>	6	4.16	Escitalopram and Clonazepam FDCs	4	66.66
<b>Mood stabilizers</b>	3	2.08	Tab. Sodium Valproate 200	2	66.66

Table 4: Most prescribed drug classes of two drug prescriptions.

Drug class	Combination used	Count	Percentage
<b>Benzodiazepines</b>	Selective serotonin reuptake inhibitors	90	46.63
<b>Tricyclic antidepressants</b>	Selective serotonin reuptake inhibitors	28	14.50
<b>Atypical antipsychotics</b>	Selective serotonin reuptake inhibitors	24	12.43
<b>Mood stabilizers</b>	Atypical antipsychotics	13	6.73
<b>Atypical antipsychotics</b>	Benzodiazepines	12	6.21

Table 5: Most prescribed two drug prescriptions.

Drug 1 (mg)	Drug 2 (mg)	Count	Percentage
<b>Tab. Clonazepam 0.5</b>	Tab. Sertraline 50	58	30.05
<b>Tab. Amitriptyline 25</b>	Tab. Sertraline 50	27	13.98
<b>Tab. Olanzapine 5</b>	Tab. Sertraline 50	12	6.21
<b>Tab. Clonazepam 0.5</b>	Tab. Escitalopram 10	11	5.69
<b>Tab. Lorazepam 2</b>	Tab. Sertraline 50	9	4.66

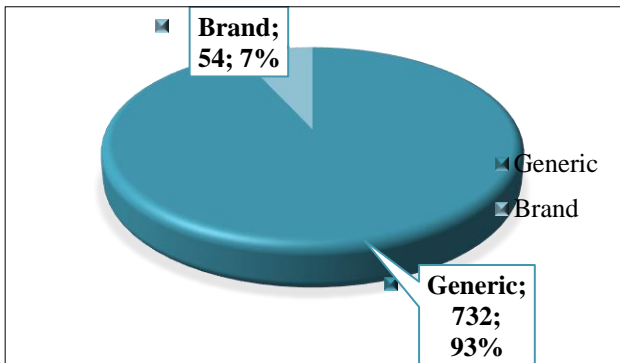
Table 6: Common 3 drug prescriptions.

Drug class 1	Drug class 2	Drug class 3	Count	Percentage
<b>Atypical antipsychotics</b>	Selective serotonin reuptake inhibitors	Benzodiazepines	16	23.52
<b>Atypical antipsychotics</b>	Selective serotonin reuptake inhibitors	Tricyclic antidepressants	8	11.76
<b>Benzodiazepines</b>	Selective serotonin reuptake inhibitors	Tricyclic antidepressants	8	11.76

Table 7: WHO-DUS prescribing indicators.

Prescribing indicators	Counts and percentages
<b>Total number of prescriptions analysed</b>	417
<b>Total number of drugs prescribed</b>	786
<b>The average number of drugs per encounter</b>	1.88
<b>Drugs prescribed by generic name</b>	93.12
<b>Drugs prescribed from the essential drugs list (India)</b>	41.66
<b>Drugs prescribed from the essential drugs list (WHO)</b>	47
<b>Total number of prescriptions with an injection</b>	0.23
<b>Total number of prescriptions with FDC's</b>	2.41

Generic drugs details are mentioned in Figure 3.



**Figure 3: Prescription type.**

Prescriptions were analysed according to WHO-DUS prescribing indicators, with results tabulated in Table 7.

## DISCUSSION

In our study, it was found that the prevalence of depression was more in males (55.63%) than in females (44.36%). Similar results were found in studies done by Mohammed et al and Ghosh et al where the percentage of males was 51.8% and 54.67% and the percentage of females were 48.2% and 45.33% respectively.<sup>12,13</sup> The peak age of prevalence of depression was found out to be in the age group of 18 to 35 years which was 54.19% followed by 36 to 50 years (29.73%). Similar results were found in study by Ghosh et al.<sup>12</sup>

SSRIs (32.18%) were the most common class of antidepressants prescribed in comparison to other antidepressant classes same as results found in most of the studies.<sup>8,14-18</sup> Lesser drug interactions and a relatively safer side effect profile makes SSRIs as first choice of drugs to be prescribed.<sup>8</sup> In our study, it was noted that sertraline was the most prescribed drug (23.91%) followed by fluoxetine (4.19%) and escitalopram (3.18%). Similar results were found in study done by Nayak et al whereas contrast results were found in studies done by Laxmi et al and Mishra et al where fluoxetine and escitalopram were most prescribed drugs.<sup>14,16,17</sup> These differences in results could be due to the difference in pattern of prescriptions of various centres and does not necessarily reflect national trends.

Atypical antipsychotics and TCAs were the next classes of drugs prescribed followed by SSRIs in current study. Among atypical antipsychotics, olanzapine was most prescribed drug which also accounted for 13.35% of the total prescriptions. Amitriptyline was the most prescribed TCA. Similar trends of prescription were noted in study done by Venkataraman et al.<sup>19</sup> In present study, two drug therapy prescriptions included BZDs with SSRIs (clonazepam and sertraline). Similar results were found in studies done by Adarsh et al and Laxmi et al.<sup>8,16</sup> In study of Trivedi et al, 83% and 17% patients were prescribed

mono and polytherapy's, in contrast our study found 34.53% and 65.45% of patients receiving mono and polytherapy. Clonazepam might have been preferred benzodiazepine with antidepressants as evidence from studies has suggested that it has the potential to increase the effects of SSRI and can partially suppress the adverse effects of SSRI (in case if its clonazepam).<sup>8</sup>

Benzodiazepines are addictive and should be prescribed with caution. These are helpful only upto early two weeks in the treatment of depression, particularly if combined with SSRIs as acknowledged by National Institute for Health and Clinical Excellence (NICE) guidelines. Therefore, prescribers should emphasize on reducing the time span as well as the dosage of BZDs.<sup>5</sup>

The WHO-DUS parameters analysed in our study showed 1.88 as average number of drugs per prescription in our study, it was in line with study conducted by Tejus et al 2.35 medicines per prescription and a small percentage of drugs were prescribed as FDC's and injectables in our study which were 2.41% and 0.23% quite like Tejus et al.<sup>3</sup> Number of drugs from EML-WHO and NLEM were found to be 100% and 90% respectively in a study by Thakkar et al and contrasting evidence was found in a study by Lahon et al wherein percentage of drugs from WHO-EML was 1.56%, our study had 41.66% and 47% from NLEM and WHO-EML.<sup>4,20</sup> Also, our study had medications prescribed by generic names at 93.12% which were in line to the Lahon et al study and in Thakkar et al it was 76.01%.<sup>4,20</sup>

The strength of study prescription digital data (HMIS).

## Limitations

This is an institutional based analysis of anti-depressant prescriptions. Further periodic multi-centric studies are required for collaborative analysis.

## CONCLUSION

SSRIs were the most used antidepressants. The prescribing patterns were in the order of WHO-DUS prescribing indicators. Maximum patients were prescribed generic drugs. They were also prescribed from NLEM as well as WHO-EML, these numbers can be increased further with the help of DU studies and more such studies could help in analysing current trends in choice of drug prescription.

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