Saudi Journal of Medical and Pharmaceutical Sciences **ISSN 2413-4929 (Print)**
Scholars Middle East Publishers **ISSN 2413-4910 (Online)**
Dubai, United Arab Emirates
Website: https://saudijournals.com/

Observational Study of Prescribing Pattern of Psychotropic Drugs Used in Department of Psychiatry at Tertiary Level Hospital

Priyanka Yadav[1*], Anshu Gupta[1], Manish Bathla[2], Rani Walia[1]
[1]Department of Pharmacology, Maharishi Markandeshwar Institute of Medical Sciences and Research, Mullana, Ambala, India
[2]Department of Psychiatry, Maharishi Markandeshwar Institute of Medical Sciences and Research, Mullana, Ambala, India

Original Research Article

***Corresponding author**
Priyanka Yadav

Article History
Received: 18.12.2018
Accepted: 28.12.2018
Published: 30.12.2018

DOI:
10.36348/sjmps.2018.v04i12.019

Abstract: Mental health disorder is one of the major health problems, which requires early & effective treatment. WHO global burden of disease 2001 estimates four main psychiatric causes leading to disability, which is Depression, Alcohol abuse, Schizophrenia & Bipolar disorder. Although current psychotropic medicines have remarkable effect on mental illnesses, their utilization in clinical practice needs to be done regularly hence, current study aims to observe the utilization and prescribing pattern of various drugs used in department of psychiatry, according to various WHO drug use indicators. It is a prescription based prospective, observational study conducted on 1200 prescriptions of patients attending department of psychiatry for 18 months. Total of 3632 drugs were prescribed in 1200 prescriptions analyzed, where 48.4% (581) were males and 51.6% (619) were females, majority of the patients 56.25% (675) belonged to age group of 21-40yr, 85.67% (1028) individuals were married. Out of total drugs prescribed 2971 (81.80%) were psychotropic drugs. Average no. of total drugs & psychotropic drugs prescribed per encounter was 3.03 & 2.48 respectively. 1680 (46.26%) drugs were prescribed from the WHO EDL formulary (2016), all the drugs were prescribed by brand names, percentage of prescriptions with injectable drugs accounted for 4.75%. Polytherapy (>5drugs) was observed only in few prescriptions 26 (2.17%). This study advocated an overall rational utilization of psychotropic drugs with fewer deviations due to the prescription practices of healthcare providers, which needs an improvement, to ensure rational use of drugs.

Keywords: prescription pattern, psychotropic drugs, polypharmacy, rationality, WHO drug use indicators.

INTRODUCTION

A mental disorder is one of the major health problems that significantly affects ones personal feelings, behavior, thinking, reasoning and interaction with others [1], it is defined as "a state of well being where the individuals recognize their abilities and are able cope with normal stress of life, work productively and fruitfully to make a significant contribution to their respective communities". WHO's global burden of disease 2001 estimates four main psychiatric causes leading to disability, which are Depression, Alcohol abuse, Schizophrenia & Bipolar disorder. Thus, early & effective treatment of various psychiatric disorders is must, which would involve combined psychosocial & pharmacological approach [2]. Although current psychotropic medicines have remarkable effect on mental illnesses, their utilization in clinical practice needs to be done regularly but very few surveys are conducted for prescribing pattern of psychotropic medicines from Asian country [3].

WHO & INRUD have recommended various standard drug use indices that allow assessment of written prescriptions and helps to find out the shortcomings, thus recognizing the areas that need improvement or change, here comes the role of DUS aiming to evaluate & increase rational use of drugs [4]. Our current study is Prospective DUS, which have direct and immediate effect on patient's care by analyzing various issues before hand.

MATERIALS & METHODS

Study Design

It was an observational, prospective, cross-sectional study carried out in department of pharmacology in collaboration with department of psychiatry at MMIMSR, Mullana, after obtaining the permission from ethics committee of the institute.

Duration of Study

18 months, from December 2016 to May 2018

Sample Size

Total of 1200 prescriptions were analyzed, patients visiting department of psychiatry for the first time were included in the study.

Inclusion Criteria

- Subjects who have given written informed consent to access their prescription.
- Subjects seeking treatment for the first time at department of psychiatry.
- Patients from all age groups and both gender were included.

Exclusion criteria

- Subjects not willing to give written consent.
- Patients being referred to higher center.
- Patients coming on subsequent visits and for follow up, to psychiatry department.

Data Collected & Analyzed

- Demographic data & disease morbidity pattern of the patients visiting the department of psychiatry.
- Prescribing trends of drugs used, with reference to WHO drug use indicators [5].
- Data was entered into M.S excel and analyzed using SPSS version 20.0.

RESULTS & DISCUSSION

Total of 3632 drugs were prescribed in 1200 prescriptions analyzed, where 48.4% (581) were males and 51.6% (619) were females, majority of the patients 56.25% (675) belonged to age group of 21-40yr, 85.67% (1028) individuals were married (Table-1).

Table-1: Demographic Profile

Gender	**Number**	**Percentage**
Male	581	48.4
Female	619	51.6
Marital status	**Number**	**Percentage**
Married	1028	85.67
Unmarried	172	14.33
Age (in years)	**Number**	**Percentage**
Up to 20	114	9.50
21 - 40	675	56.25
41 - 60	342	28.50
Above 60	69	5.75

Most common diagnosis was conversion disorder accounting for 15.17% (182), followed by depression 10.92 (131) and Substance abuse 9.59% (115) (Table-2).

Table-2: Morbidity pattern

Diagnosis	**Percentage (%)**	**Number (n=1200)**
1. Conversion disorder	15.17	182
2. Depression	10.92	131
3. Substance abuse	9.59	115
4. Schizophrenia	8.5	102
5. Bipolar mood disorder	8.5	102
6. Somatization disorder	6.83	82
7. Dysthymia (PDD)	5.08	61
8. Seizure disorder	4.92	59
9. OCD	4.75	57
10. Dementia	4.5	54
11. Other	21.24	205

Anxiolytics, hypnotics & sedatives 1124 (30.95%) was most commonly prescribed class of drug followed by anti-depressants & antipsychotics accounting for 704 (19.38) & 560 (15.42%) respectively. Most frequently prescribed sedative & hypnotic drug was Clonazepam 481 (13.24%). Most frequently prescribed antidepressant & anti-psychotic drug was (SSRI) Escitalopram 188 (5.18%) & olanzapine 123 (3.39%) respectively (Table 3-5 & Figure-1).

Table-3: Drug use pattern of Anxiolytics, Hypnotics & Sedatives

Class of drug	Drug		Total no. Of patients prescribed	Percentage of patients	Total prescribed drugs	Percentage of patients prescribed
Anxiolytics/hyp & syd	1. Propranolol		171	4.71	1124	30.95
	2. Clobazam		14	0.39		
	3. Alprazolam		228	6.28		
	4. Lorazepam		137	3.77		
	5. Clonazepam		481	13.24		
	6. Diazepam		15	0.41		
	7. Chlordiazepoxide		74	2.04		
	8. Zolpidem		4	0.11		
Class of drug	Drug		Total no. Of patients prescribed	Percentage of patients	Total prescribed drugs	Percentage of patients prescribed
Antipsycotics	Atypical	1. Olanzapine	123	3.39	560	15.42
		2. Respiridone	55	1.51		
		3. Quetiapine	85	2.34		
		4. Clozapine	32	0.88		
		5. Aripirazole	121	3.33		
	Classical	6.Chlorpromazine	42	1.16		
		7. Haloperidol	102	2.81		

Table-4: Drug use pattern of Psychoanaleptics

Class of drug		Drug	Total no. Patients prescribed	Percentage of patients		Total prescribed drugs in class	Percentage of patients prescribed
Psychoanaleptics	Antidepressants	TCA	Clomipramine	44	1.21	704	19.38
			Imipramine	23	0.63		
			Amitryptiline	134	3.69		
			Nortriptylene	35	0.96		
		SSRI	Escitalopram	188	5.18		
			Sertraline	64	1.76		
			Fluoxetine	57	1.57		
			Fluvoxamine	17	0.47		
		Atypical	Mirtazapine	38	1.05		
			Bupropion	104	2.86		
		Drug	Total no patients prescribed	Percentage of patients		Total prescribed drugs in class	Percentage of patients prescribed
	Anti dementia drugs	Memantine	24	0.66		109	3.00
		Donepezil	55	1.51			
		Galantamine	30	0.83			
	Anti parkinsonism	Syndopa	12	0.33		15	0.41
		Amphetamine	3	0.08			

Table-5: Drug use pattern of other Nervous system drugs

Class Of Drug		Drug	Total No Patients Prescribed	Percentage Of Patients	Total Prescribed Drugs In Class	Percentage Of Patients Prescribed
Other Nervous System Drugs	Alpha Agonist	Clonidine	32	0.88	459	12.64
	Anti-Epileptics	Carbamezapine	42	1.16		
		Sodium Valproate	155	4.27		
		Phenytoin Sodium	41	1.13		
		Phenobarbitone Sodium	14	0.39		
		Inj. Leveracetam	4	0.11		
	Mood Stabaliser	Lithium Carbonate	91	2.51		
	Opioid Analgesic	Tramadol	32	0.88		
		Buprenorphine	16	0.44		
	Anti-Migraine Drugs	Rizatriptan	32	0.88		

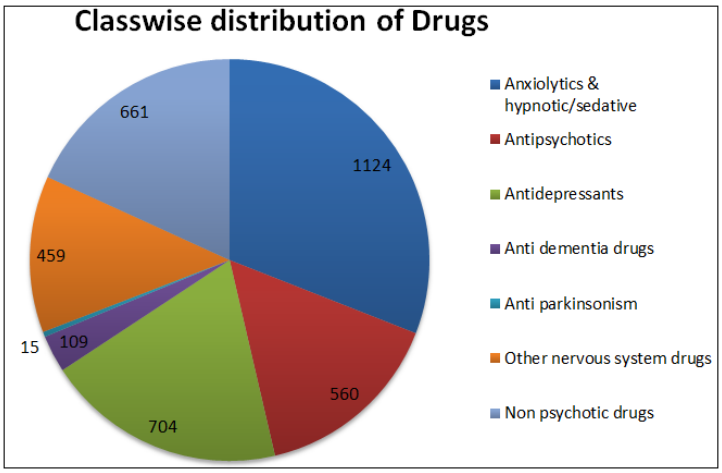

Fig-1: Classwise distribution of drugs

Present study shows, 550 (45.83%) prescriptions contained total of 2 drugs followed by 253 (21.08%) prescriptions containing 4 drugs, 251 (20.92%) had 3 drugs, 107 (8.92%) had 5 drugs, 21 (1.75%) with 6 drugs, 11 (0.92%) with 1 drug, 3 (0.25%) with 8 drugs and 2 (0.17%) had 7 drugs prescribed, single drug was used in 11 (0.92%) participants only, polytherapy (>5drugs) [6] was observed only in few prescriptions 26 (2.17%) (Table-6 & Figure-2).

Table-6: Drug per prescription

No. Of drugs prescribed per prescription	No. Of patients	Percentage
0	2	0.17
1	11	0.92
2	550	45.83
3	251	20.92
4	253	21.08
5	107	8.92
6	21	1.75
7	2	0.17
8	3	0.25

Out of total drugs prescribed 2971 (81.80%) were psychotropic drugs. Average no. of total drugs & psychotropic drugs prescribed per encounter was 3.03 & 2.48 respectively. 1680 (46.26%) drugs were prescribed from the WHO EDL formulary [7]. All the drugs were prescribed by their brand names, Percentage of prescriptions with injectable drugs accounted for 4.75% & percentage of prescription containing psychotropic FDC was 29.75% (357) (Table-7).

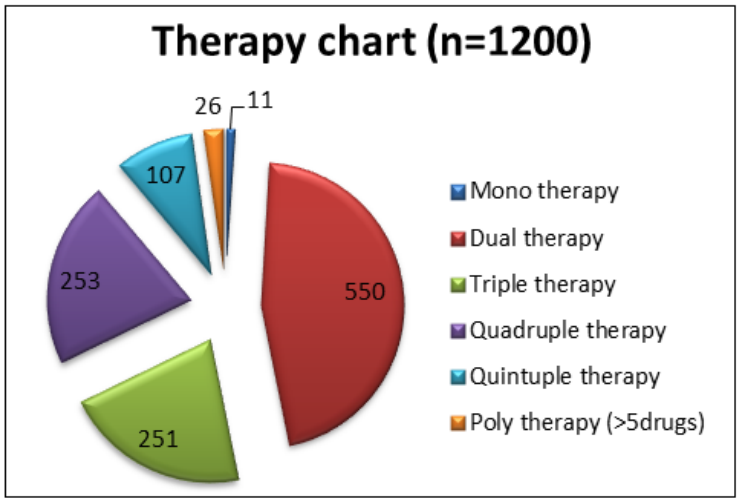

Fig-2: Drug therapy

Table-7: WHO drug use indicators

Drugs usage pattern (WHO)	Number/Percentage
Total no. Of prescription analyzed	1200
Total no. Of total drugs dispensed	3632
Average no. Of drugs per prescription	3.03
Average no. Of psychotropic drugs per prescription	2.48
Average no. Of non-psychotropic drugs per prescription	0.55
Percentage of psychotropic drugs prescribed from EDL	46.26%
Percentage of psychotropic drugs prescribed from hospital pharmacy	100%
Percentage of prescriptions containing psychotropic FDC	40.5%
Percentage of injectable drugs prescribed	1.57%
Percentage of psychotropic drugs prescribed by generic name	0%

Present study is conducted to understand and evaluate the prescription behavior of various medications used in department of psychiatry of MMIMSR medical college and hospital, Mullana, Ambala.

Social outcomes in rural cultures are always, clearly male dominance which leads to Physical & emotional abuse, domestic violence, hormone fluctuations, spectrum of severely damaging and traumatic events in women's life. The present study depicted that out of total of 1200 prescriptions analyzed, 581 (48.4%) were males and 619 (51.6%) were females, similar results were seen in the study carried by Thakkar KB *et al*., [8] on 600 prescriptions of subjects visiting the Psychiatry OPD, where the percentage of females were 51.8% as compared to males which were 48.2%.

In our study, maximum patients 675 (56.25%), including both genders were in age group of 21- 40 where 309 (53.2%) were males & 366 (59.1%) were females. Similar trend was seen in a study carried out by Goyal V *et al*.**,** [9] in Psychiatry Department, Ajmer. Total 810 prescriptions were studied where maximum number of patients 395 (48.77%) was in the age group of 21-40 years including both sexes.

Males of younger age group have to deal with mental burden to financially secure their family, while women in the reproductive age group are especially vulnerable to the occurrence of mental problems because of adverse reproductive health outcomes, psychiatric disorders were more common in married people 1028 (85.67%) as compared to 172 (14.33%) unmarried Similarly study conducted by Roopadevi HS *et al.,* [10] shows that psychiatric disorders are more common in married people as compared to unmarried, where 405 prescriptions were evaluated & majority of them 68% were married.

In our study most common diagnosis was conversion disorder, as it is mainly caused by emotional trauma, extreme stress or depression which are commonly seen here in rural population thus accounting for 15.17% (182), followed by depression 10.92 (131). Third most common disorder was Substance abuse 9.59% (115), However this result differ with the study conducted by Chaturvedi R *et al.,* [11] on 600 prescriptions, where most common diagnosis came out to be depression 36.33% (218) followed by anxiety disorder 27.5% (165) and schizophrenia 17% (102). Another study carried out by Sravan Kumar VDC *et al.,* [12] encountered schizophrenia 26.3% (136) as most common disorder in their study followed by depressive episode & anxiety disorder accounting for 11.4% (59) & 9.5% (49) respectively, out of total 518 prescriptions analyzed.

Present study shows that anxiolytics, hypnotics & sedatives 1124 (30.95%) was most commonly prescribed class of drug because of their quick onset of action, good efficacy and a favourable side effect profile followed by anti-depressants & antipsychotics accounting for 704 (19.38) & 560 (15.42%) respectively. Most frequently prescribed sedative & hypnotic drug was Clonazepam 481 (13.24%). Most frequently prescribed antidepressant & anti-psychotic drug was (SSRI) Escitalopram 188 (5.18%) & olanzapine 123 (3.39%) respectively. Similar results were seen with the study conducted by S. Chawla et al., [13] where Sedative and hypnotics (42.9 %) was the most commonly prescribed class of drug & Clonazepam (51.1 %) was most commonly prescribed drug under this category, followed by Antidepressants (31.76 %) where SSRIs use 352 (68.7 %) predominated. Third most common class was antipsychotics (19.6 %).

Total Percentage of prescriptions with injectable drugs accounted for 4.75%. Sonali B. Rode *et al*., [14] carried out a similar study on 520 prescriptions containing 1306 drugs, where the percentage of prescriptions with injectable drugs accounted for 6.92%. EDL is there to promote rational use of drugs with three important aspects, i.e., cost, safety, and efficacy. Our study suggests a Strong need for creating awareness in the prescribers regarding the Usage of generic drugs, as they are cost-effective compared to brand Drugs. In current study drugs prescribed from the WHO EDL accounted for 1680 (46.26%), which was much higher as compared to the results concluded by Chintan Madhusudan Doshi *et al.,* [15] where only 13

(39.39%) drugs were prescribed from WHO EDL [16] also Sonali B. Rode *et al*., [14] concluded that percentage of psychotropic medicine from EDL was 44.23% (483).

The present study shows that, percentage of prescription containing psychotropic FDC was 29.75% (357), which was quite similar to the study conducted by Mudhaliar MR *et al.*, [15] where psychotropic drugs as FDC's accounted for 26.36%.

Dual, triple, quadruple & quintuple therapy was prescribed in 550 (45.83%), 251 (20.92%), 253 (21.08%) & 107 (8.92%) patients, respectively. polytherapy (>5drugs) was observed only in few prescriptions 26 (2.17%) [17, 7]. These findings suggested low incidence of polypharmacy, which leads to better patient compliance, low incidence of drug-drug interactions, adverse drug reactions and medication errors, which clearly points out rational use of drugs in treatment of patients attending psychiatric department**.** Roopadevi HS *et al*., [10] conducted a study, which showed that monotherapy was instituted in 32.8% of cases and polytherapy (> 5 drugs) was prevalent in 2.75% of prescriptions. Most frequently 2 drugs were prescribed accounting for 133 (39.8%) of cases.

WHO guideline [5] states that number of psychotropic drugs per prescription should be within 1.6-1.8 per prescription, current study shows that average no. of drugs prescribed per encounter was 3.03, out of which psychotropic drugs were 2.48**.** Goyal V *et al*., [9] carried out a study where average number of drugs prescribed to a single patient accounted for 3.80, which closely matches to our current study. Another study also showed quite similar results, which was performed by Kumar S *et al*., [18] where an average of 3.12 (± 0.41) drugs were dispensed per prescription**.**

CONCLUSION

Total of 3632 drugs were prescribed to 1200 patients under the study, showing female preponderance, most of the participants receiving psychotropic drugs were in reproductive age group. Conversion disorder was the most common disorder encountered, followed by depression & substance abuse, Anxiolytics, sedatives & hypnotic was most frequently prescribed class of drug followed by antidepressant. Number of drugs prescribed from WHO-EDL was not so good, and the number should be increased. Low incidence of poly-pharmacy was noted, which is a good indicator of rational use of drugs, use of injectable drugs & FDC's was also very low, which again was a favourable indicator as it leads to better compliance & is cost effective to the patients. Thus current study provides information related to current prescribing trends in psychiatric department and baseline data, to further undertake the drug utilization studies by researchers.

DECLARATIONS

Funding: No funding sources
Conflict of interest: none declared
Ethical approval: not required

REFERENCES

1. What is mental illness. (2007). Australian Government under the National Mental Health Strategy. [http://www.health.gov.au/internet/main/ publishing.nsf/Content/ File/whatmen2.pdf]
2. WHO. (2003). Investing in mental health. The world health report, 11. Available from [http://www.who.int/mental_health/en/investing_in _ mnh_final.pdf].
3. The fundamental facts. (2007). The latest facts and figures on mental health. Mental Health Foundation. Available from [http://www.mental health.org.uk/publications/fundamental-facts/]
4. Ramadas, S., Kuttichira, P., Sumesh, T. P., & Ummer, S. A. (2010). A study of an antipsychotic prescription pattern of patients with schizophrenia in a developing country. *Indian journal of psychological medicine*, *32*(1), 13.
5. World Health Organization. (1993). How to investigate drug use in health facilities: selected drug use indicators.
6. Masnoon, N., Shakib, S., Kalisch-Ellett, L., & Caughey, G. E. (2017). What is polypharmacy? A systematic review of definitions. *BMC geriatrics*, *17*(1), 230.
7. World Health Organization. (2015). *The Selection and Use of Essential Medicines: Report of the WHO Expert Committee, 2015 (including the 19th WHO Model List of Essential Medicines and the 5th WHO Model List of Essential Medicines for Children)* (No. 994). World Health Organization.
8. Thakkar, K. B., Jain, M. M., Billa, G., Joshi, A., & Khobragade, A. A. (2013). A drug utilization study of psychotropic drugs prescribed in the psychiatry outpatient department of a tertiary care hospital. *Journal of clinical and diagnostic research: JCDR*, *7*(12), 2759.
9. Goyal, V., Munjal, S., & Gupta, R. (2016). Drug utilization pattern of psychotropic drugs prescribed in the psychiatric department of a tertiary care government hospital, Rajasthan. *Journal of Dental and Medical Sciences*, *15*(7), 80-87.
10. Roopadevi, H. S., Ramesh, K. N., & Nagabushan, H. (2015). Pattern of psychotropic prescription in a tertiary care teaching hospital: a critical analysis. *Asian J Pharm Clin Res*, *8*(5), 252-5.
11. Chaturvedi, R., & Sharma, P. (2016). Drug utilization study of psychotropic drugs prescribed in psychiatry OPD of LN Medical College associated JK Hospital, Bhopal District, Madhya Pradesh. *Depression*, *218*, 36-33.

12. 14V.D.C Sravan kumar, Galaba Sadasiva Rao, SK Faizan Ali. Drug utilization in the department of psychiatry at a teaching hospital. 2017; 6(2);67-91
13. Chawla, S., Agarwal, M., Sharma, S., & Jiloha, R. C. (2018). Drug Utilization Study of Psychotropic Drugs among Psychiatric Outpatients in a Tertiary Care Hospital. *Indian Journal of Pharmaceutical Sciences*, *79*(6), 1008-1013.
14. Rode, S. B., Ajagallay, R. K., Salankar, H. V., & Sinha, U. (2017). A study on drug prescribing pattern in psychiatry out-patient department from a tertiary care teaching hospital. *International Journal of basic & clinical pharmacology*, *3*(3), 517-522.
15. Doshi, C. M., Hedamba, R., Darji, N. H., Patel, B., Trivedi, H. R., & Tiwari, D. (2017). Drug utilization study of psychotropic drugs in outdoor patients in a tertiary care hospital attached with a medical college. *International Journal of Basic & Clinical Pharmacology*, *4*(6), 1220-1223.
16. 20WHO Expert Committee on Biological Standardization. Meeting, & World Health Organization. (2013). *WHO Expert Committee on Biological Standardization: Sixty-Third Report* (Vol. 980). World Health Organization.
17. De Vries, T. P. G., Henning, R. H., Hogerzeil, H. V., Fresle, D. A., Policy, M., & World Health Organization. (1994). Guide to good prescribing: a practical manual. Available at: http://apps.who.int/medicinedocs/en/d/Jwhozip23e
18. Mudhaliar, M. R., Ghouse, I. S. M., Sadubugga, P., Narala, S. R., Chinnakotla, V., & Yendluri, P. (2017). Psychotropic drug utilization in psychiatric outpatient department of a tertiary care teaching hospital in India. *International Journal of Research in Medical Sciences*, *5*(4), 1612-1616.