IJBPAS, March, 2024, 13(3): 1280-1290

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

A STUDY ON PRESCRIPTION PATTERN OF DRUGS IN THE DEPARTMENT OF PSYCHIATRY IN A TEACHING HOSPITAL

JOY J[1], MATHEW BE[1], MATHEW BA[1], JOSE PS[1], NITHIN MR[*1], JOSEPH JG[2] AND MATHEWS SM[2]

Department of Pharmacy Practice, Pushpagiri College of Pharmacy, Thiruvalla

***Corresponding Author: Dr. Nithin Manohar R: E Mail: ntnmanohar@yahoo.com**

Received 15th Feb. 2023; Revised 25th April 2023; Accepted 14th July 2023; Available online 1st March 2024

https://doi.org/10.31032/IJBPAS/2024/13.3.7862

ABSTRACT

Study objective: Psychiatric disorders are a significant public health concern. The study aims to evaluate the prescription pattern of drugs in the psychiatric department, assess the distribution of psychiatric illness in the given population, identify the comorbidities associated with psychiatric illness and investigate the potential drug-drug interaction to improve the safety of patients.

Methodology: A retrospective observational study was conducted in a tertiary care hospital for the 6-month duration in the Department of Psychiatry.

Result: A total of 188 patients medical records were assessed to analyze the prescription pattern. In this study, most of the patients were males (55%) than females (45%). The majority of patients are from the age group 35-54 years. Bipolar affective disorder (25%) was the prominent psychiatric disorder in the study population. The most common comorbid condition associated with these patients was Diabetes mellitus (30%) followed by hypertension (25%). Chlorpromazine (13%) is the most frequently prescribed drug in psychiatric patients. Drug interactions are mainly observed between haloperidol and promethazine combinations.

Conclusion: The study of drug use patterns is necessary to promote rational drug use. The analysis of prescription patterns might be informative for prescribers. This study also concluded the importance of pharmacist role in ensuring the safe and effective use of medications.

Keywords: Psychiatric illness, Prescription pattern, Comorbidities, Potential drug-drug interactions

INTRODUCTION

Psychiatric illnesses are serious public health concerns that place a tremendous social and financial burden on those who suffer from them and their families. Psychiatric illnesses are treated with psychopharmacological medicines and nonpharmacological techniques. The setting, professional opinions, treatment recommendations, financial ability, availability, comorbid conditions, specific clinical symptoms, past medical history, associated adverse effects of medication, and the risk of drug-drug interactions all influence therapy decisions **[1]**. The developing and challenging discipline of psychopharmacology is always in search of new and better medications to treat psychiatric diseases. Drug utilization pattern studies are conducted to monitor and analyse prescription patterns to rationalize and reduce the expense of medical treatment. It is essential to be aware that the improper use of medications creates a risk to the health of patients and an unnecessary financial burden **[2]**. Prescription pattern research aims to observe and analyze treatment trends and provide appropriate modifications in prescribing to make medical care more efficient and inexpensive **[3]**.

At least fifty percent of people with a mental health condition, and it is widely assumed that medical comorbidities are misdiagnosed and inadequately treated. Major mental diseases are linked to a substantial increase in physical comorbidity and death. The medical condition could be the outcome of psychiatric syndromes, the impact of psychiatric illnesses, the side effects of psychotropic medications, or co-existing incidental medical disorders **[4]**.

For the treatment of psychiatric diseases, numerous psychotropic medications are available. The emergence of newer medications, such as selective serotonin reuptake inhibitors and atypical antipsychotics, has significantly changed pharmacological therapy regimens over the past two decades. Only a relatively small number of studies have been conducted that analyze the patterns of psychotropic prescriptions in India **[5]**.

Antipsychotics and other concomitant pharmaceuticals might cause potential drug-drug interactions (pDDIs) since patients may take many medications due to comorbidities. Drug interactions can have a negative impact on morbidity, mortality, length of stay in the hospital, healthcare costs, and overall quality of life. When risk factors are identified and efforts are made to mitigate them, there is a considerable reduction in drug interactions **[6]**.

METHODOLOGY

Study design

A retrospective observational study was conducted in the Department of Psychiatry at tertiary care hospital consisting of 900 beds and offering a complete range of health care services.

Study Population

All the patients who received drugs in the psychiatric department and those who satisfied the inclusion and exclusion criteria were selected for the study.

Sample size

Using the Cochran's formula, the sample size was found to be 188.

$$N=Z^2_{1-\alpha/2} P(1-P) / d^2$$

Where, N: number of patient, Z is coefficient of significance, P is the estimated proportion of the population, q is 1-P, d is absolute precision and 1-α/2 is desired confidence level.

Inclusion Criteria

The study included patients of both genders and ages over 15 years with psychiatric diseases and comorbid patients.

Exclusion criteria

Subjects with mental retardation, serious physical illness, Pregnant and lactating women and those with incomplete data were excluded from the study.

Data Collection

Data were collected through direct examination of the patient's medical records. The study protocol was approved by Institutional Ethics Committee before screening of patients for enrolment. A well-designed data collection form was utilized to gather adequate information such as demographic details, medical history, diagnosis, comorbidity, duration of treatment. Potential drug-drug interaction was examined using MICROMEDEX.

Data Analysis: The data was entered from the data collection forms into an Excel spreadsheet and examined. The results are presented as percentages and graphs.

RESULTS

DEMOGRAPHIC CHARACTERISTICS

Out of 188 study participants, 104 (55%) were males and 84 (45%) were females. The age-wise distribution of psychiatric patients is shown in **Table 1**. Patients in the age group of 15-94 years were found in the study. Most psychiatric patients belong to the age group 35-54years (41%). Gender wise distribution of psychiatric illness **(Figure 1)**. Based on the occupation wise distribution in the study population, employed subjects (52%) are more common than unemployed subjects (48%) as shown in **Table 2**.

PATTERN OF PSYCHIATRIC ILLNESS

According to the study, the morbidity pattern of psychiatric disorders identified as bipolar affective disorder (25%), %), followed by Depressive disorder (22%), substance-related disorder (21%) and schizophrenia (18%). The diseases like dementia, adjustment disorder, delusional disorders, anxiety were grouped as Others which accounted for 13%. The pattern of psychiatric illness in the study population is shown in **Figure 2**.

PSYCHOTROPIC DRUGS PRESCRIBED

The most frequently prescribed psychotropic drugs were Chlorpromazine (13%) followed by Clonazepam (11%), Haloperidol (10%) and Olanzapine (10%), as shown in **Figure 3**. Antipsychotics were prescribed frequently among psychotropic medicines. From the psychotropic combinations prescribed, the most prescribed psychotropic combination is Risperidone with Trihexyphenidyl (49%), followed by Trifluoperazine with Benzhexol (29%) and Sodium valproate with valproic acid (22%).

COMORBIDITIES ASSOCIATED WITH PSYCHIATRIC PATIENTS

Among the study population, 32% of patients do not have any comorbid conditions, while 68% of patients do have comorbid conditions. Diabetes mellitus (30%) was the most prevalent comorbidity observed in the psychiatric patients followed by Hypertension (25%), Hypothyroidism (11%), Dyslipidaemia (10%), seizure (6%), asthma (5%), anaemia (5%), CAD (4%) and obesity (4%) **(Figure 4)**.

DISTRIBUTION OF DRUG-DRUG INTERACTION

According to the study of drug-drug interactions, most interactions are of major severity (72%), followed by those of moderate severity (28%), as shown in **Figure 5**. A total of 188 prescriptions were analysed revealed that the interaction between Haloperidol and Promethazine (n=34) was observed most common drug interaction, followed by Chlorpromazine with Haloperidol (n=32) and Chlorpromazine with Lithium (n=31).

Table 1: Age Wise Distribution Pattern

AGE GROUP (in years)	FREQUENCY(n=188)	PERCENTAGE (%)
15-34	67	36%
35-54	77	41%
55-74	41	22%
75-94	3	2%

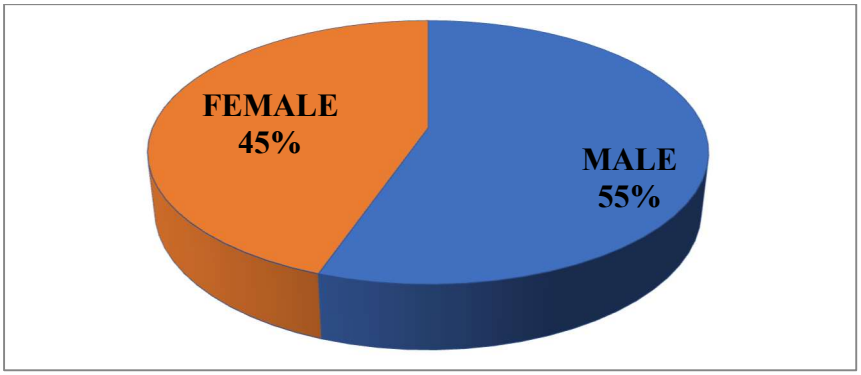

Figure 1: Gender Wise Distribution Pattern

Table 2: Occupation Wise Distribution

OCCUPATION	FREQUENCY(n=188)	PERCENTAGE (%)
EMPLOYED	98	52%
UNEMPLOYED	90	48%

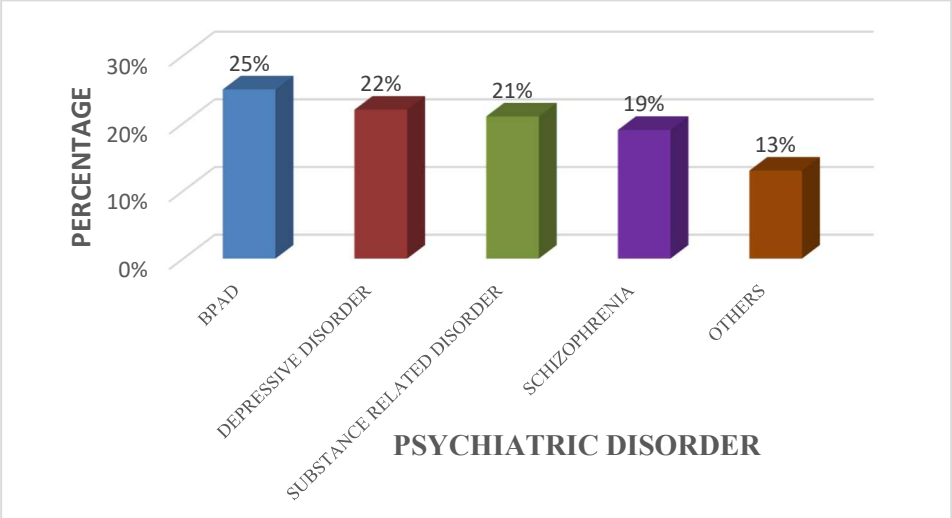

Figure 2: Pattern of Psychiatric Illness

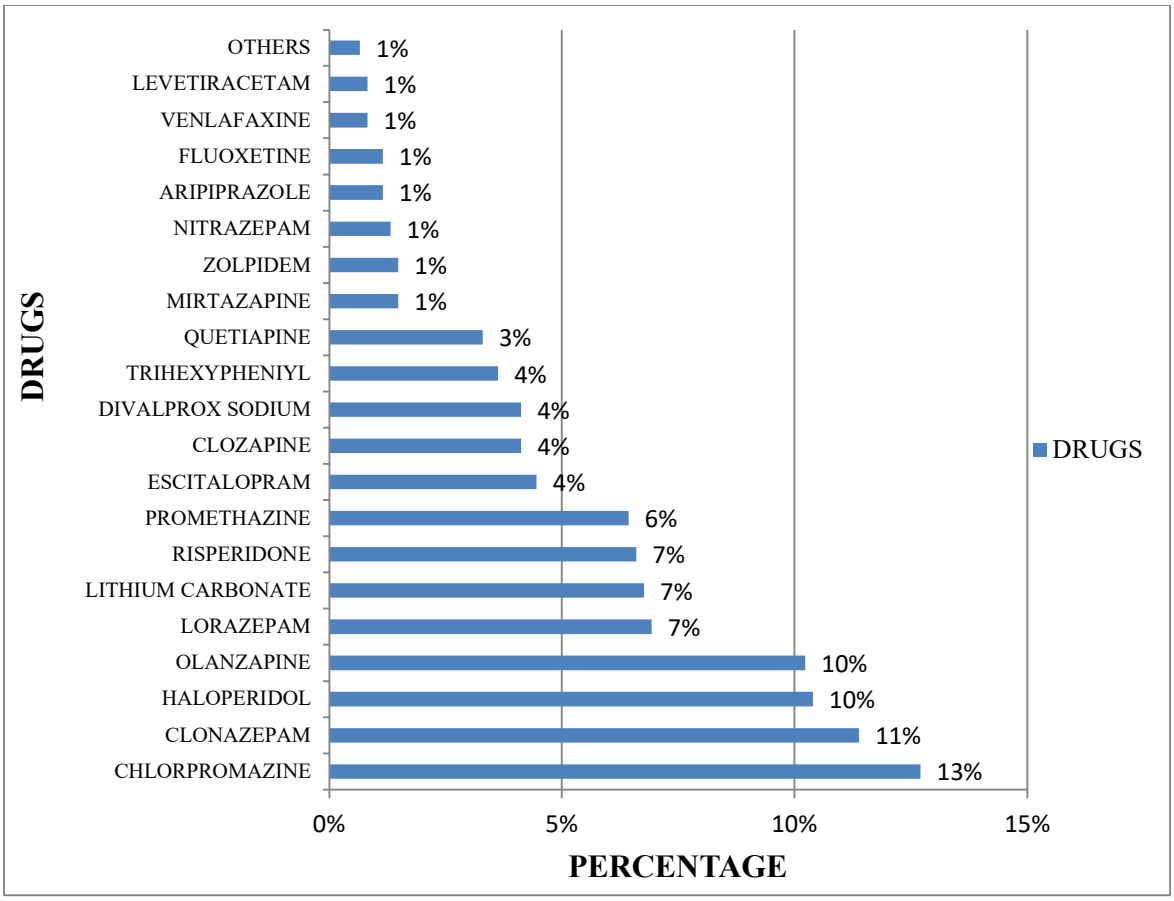

Figure 3: Pattern of Psychotropic Drugs Prescribed

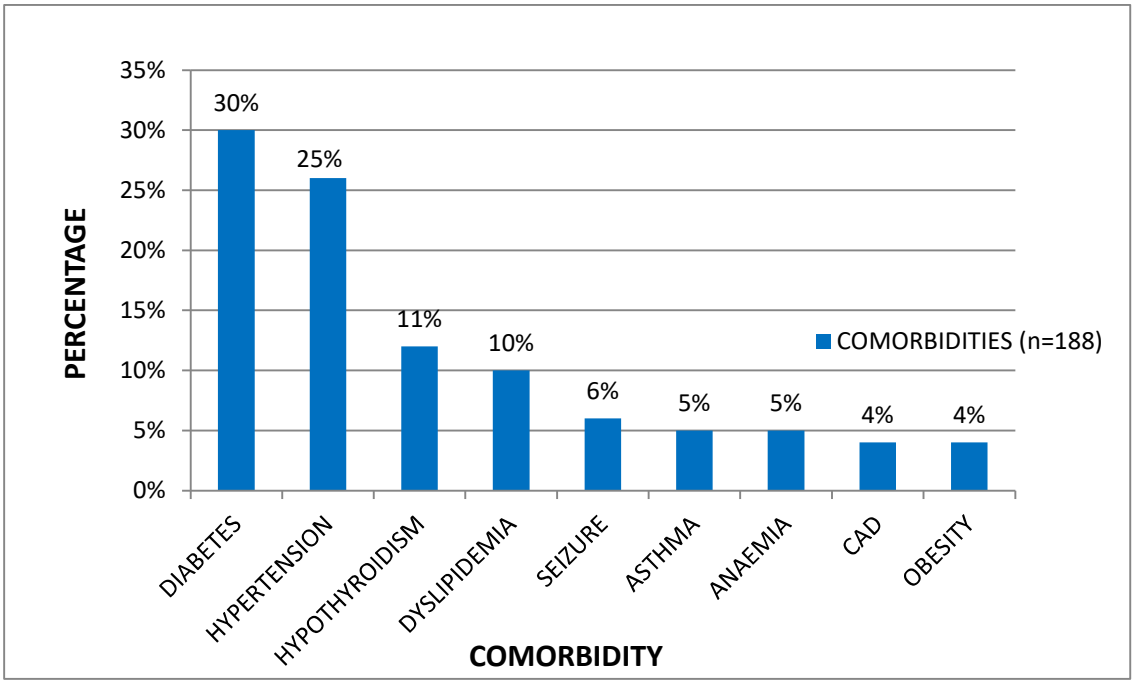

Figure 4: Distribution of Comorbidities

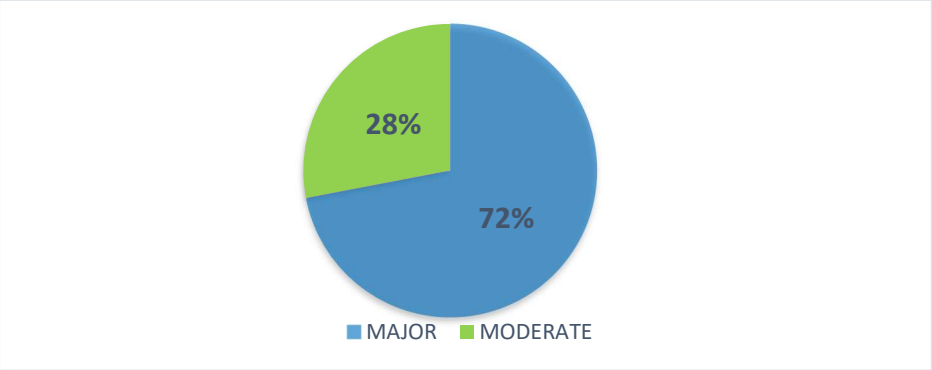

Figure 5: Based on The Severity of Drug-Drug Interactions

DISCUSSION

This study evaluates the prescription pattern of drugs in patients suffering from psychiatric disorders. The prevalence of psychiatric problems and behavioural disorders in our society is remarkable. In the present study, an analysis of 188 prescriptions shows males (55%) are more affected by psychiatric disorders than females (45%). The male preponderance can be attributed to stress at work, pressure from family, financial burden and substance abuse. This result is comparable to that found in the study carried out by Roopadevi HS *et al*. (2015) **[7]** in which the majority of patients were males compared to females. The majority of the patients with psychiatric illness belonged to the age group 35-54 years. This finding is analogous to the study of Nivetha *et al*. (2019) **[8]** where majority of the patients were from the age group 36-45 years. This could be due to socioeconomic or occupational pressure. In this study, most of the patients were employed (52%) than unemployed (48%) patients. It may be because stressful work environments increase the likelihood of psychiatric illness. The findings correspond to research conducted by Swapana S *et al*. (2015) **[9]** shows that most psychiatric patients are employed. Bipolar affective disorder (25%) was the most common psychiatric disorder found in the study population. The results closely matched with a study conducted by Swapana S *et al*. (2015) **[9]** and this may be due to many burdens in their daily life, social pressure, and economic insecurity. Among the study population of 188 patients, Chlorpromazine (13%) was the most usually prescribed drug that belongs to the class of Typical antipsychotics followed by Clonazepam (11%). Chlorpromazine is a low potency drug with low chances of causing neurological side effects compared to other drugs in the Typical antipsychotics. Most of the patients received atypical antipsychotics. This is primarily due to their greater tolerance,

low relapse rate, efficacy against refractory cases, and safer adverse effect profile **[10]**. Chiefly prescribed FDCs of psychotropic drugs is the combination of Risperidone (atypical antipsychotics) + Trihexyphenidyl (anticholinergic) (49%), which is followed by the combination of Trifluoperazine (typical antipsychotics) + Benzhexol (central anticholinergic) (29%). This is similar to the findings of the study conducted by Shweta Oommen *et al*. (2019) **[11]**, where atypical antipsychotics and anticholinergic combinations are frequently used in fixed drug combinations. To prevent extrapyramidal side effects (EPS), it is relatively common to prescribe central anticholinergics with both typical and atypical antipsychotics.[10] The most prevalent comorbidity in our research populations is Diabetes mellitus (30%). These findings correlate with the study carried out by Monica Zolezzi *et al*. (2017) **[12]**. It shows that patients with psychotic disorders had the highest prevalence of diabetes mellitus which could be related to the effects of medication used by the patient. Out of total drug-drug interactions, haloperidol and promethazine were the most common interacting pair followed by Chlorpromazine and Haloperidol. The results are similar to the study of Oleg O Kirilochev *et al*. (2019) **[13]**. The former combination is linked to an increase in antidopaminergic effects, including extrapyramidal symptoms and neuroleptic malignant syndrome, whereas the latter is linked to a prolongation of the QT interval on an electrocardiogram. Continuous monitoring of treatment response and prompt pharmacist interventions can help limit the incidence of drug-drug interactions.

CONCLUSION

A psychiatric disorder or mental illness is a condition that affects a person's thinking, feeling, behaviour, or mood. It has an impact on the individual's capacity to participate in day-to-day activities. A retrospective study was conducted in the psychiatric department to analyze the prescription pattern of drugs. Among prescribed drugs, Antipsychotics are the most effective treatment in the management of psychiatric illness. Out of 188 patients, majority of patients were males and the age group affected was between 35-54 years. Bipolar affective disorder is the most prominent psychiatric illness. To implement appropriate drug use, it is essential to examine drug usage patterns. It will provide an opportunity to improve the quality of mental health care and provide baseline information for future utilization research. The study reveals that controlling the occurrence of undesirable drug interactions requires careful

monitoring of patients. The analysis of prescription patterns might be informative for prescribers. Clinical pharmacists have an important role in ensuring the safe and effective use of medications, hence pharmacists should conduct frequent monitoring to rationalize, reduce medication errors and recommend cost-effective management strategies.

ACKNOWLEDGEMENT

The authors are grateful to thank the research guide Dr. Nithin Manohar R, Professor and Head of the Department, Department of Pharmacy Practice, Pushpagiri College of Pharmacy, Thiruvalla, for his valuable support and supervision. We extend our gratitude to co-guide Dr.Jomin George Joseph**,** Assistant Professor**,** Department of Pharmacy Practice, Pushpagiri College of Pharmacy, Thiruvalla and also thanks to Prof. Dr.Santhosh M Mathews**,** Principal, Pushpagiri College of Pharmacy.

Conflict of interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

Ethical consideration

Institutional Ethics/Human Ethics Committee approval was obtained with IEC number: PCP/IEC-01B/13/PD-2021, PCP/IEC-01B/11/PD-2021, PCP/IEC-01B/12/PD-2021, PCP/IEC-01B/14/PD-2021.

REFERENCES

[1] Grover, Sandeep & Nebhinani, Naresh & Chakrabarti, Subho & Avasthi, Ajit & Mattoo, Surendra & Basu, Debasish & Kulhara, Paramanand & Malhotra, Savita. (2016). Evaluation of psychotropic prescription patterns at the time of discharge from inpatient unit of a tertiary care general hospital psychiatric unit. Journal of Mental Health and Human Behaviour. 21. 48. 10.4103/0971-8990.182090.

[2] Rode, S., Ajagallay, R., Salankar, H., & 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. https://www.ijbcp.com/index.php/ijbcp/article/view/1019/913.

[3] Alam, Mohammad & Maruf, Mohammad & Sarkar, Mekhala & Ahmed, Helal & Akhter, Mahfuza. (2017). Pattern of prescribing psychotropics in the outpatient

department of a tertiary psychiatric hospital. Bangladesh Journal of Psychiatry. 29. 10. 10.3329/bjpsy.v29i1.32745.

[4] Manuel CM, Rao PP, Rebello P, Safeekh A T, Mathai P J. Medical comorbidity in in-patients with psychiatric disorder. Muller J Med Sci Res 2013; 4: 12-7.

[5] Rathinavelu, Mohanraj. (2017). Psychotropic drug utilization in psychiatric outpatient department of a tertiary care teaching hospital in India. International Journal of Research in Medical Sciences. 5. 1612-1616. 10.18203/2320-6012.ijrms20171274.

[6] Aburamadan HAR, Sridhar SB, Tadross TM. Assessment of potential drug interactions among psychiatric inpatients receiving antipsychotic therapy of a secondary care hospital, United Arab Emirates. J Adv Pharm Technol Res. 2021 Jan-Mar;12(1):45-51.
doi: 10.4103/japtr.JAPTR_110_20. Epub 2021 Jan 9. PMID: 33532354; PMCID: PMC7832178.

[7] Roopadevi, H.S. & Ramesh, K.N. & Nagabushan, H. (2015). Pattern of psychotropic prescription in a tertiary care teaching hospital: A critical analysis. Asian Journal of Pharmaceutical and Clinical Research. 8. 297-300.

[8] Nivetha D., Nirmala P., Asok Kumar M. & Vanitha Samuel (2019). An observational study on prescription pattern of drugs in anxiety disorders. Journal of medicine science and clinical research, Volume 07 Issue 08 August 2019.
https://dx.doi.org/10.18535/jmscr/v7i8.81

[9] Naik, Vaishnavi. (2015). Prescription Patterns of Psychotropic Drugs. World Journal Of Pharmacy And Pharmaceutical Sciences. 4. 725-730.

[10] Kaul, Vijay & Beg, Mirza & Dutta, Shakti & Bawa, Shalu & Singh, Nand & Dutta, Sri. (2016). Recent scenario on psychotropic drug usage pattern among patients attending psychiatric outpatient department of a tertiary care teaching hospital in Nepal. International Journal of Basic and Clinical Pharmacology. 5. 2649-2652.
10.18203/2319-003.ijbcp20164140.

[11] Oommen S, Elango P, Alwar MC, Solomon S. Assessment of drug prescribing pattern in schizophrenia in a tertiary care hospital in South

India. National Journal of physiology, -pharmacy and pharmacology. 2019; 9(8): 708-13.

[12] Zolezzi, Monica & Abdulrhim, Sara & Isleem, Nour & Zahrah, Farah & Eltorki, Yassin. (2017). Medical comorbidities in patients with serious mental illness: A retrospective study of mental health patients attending an outpatient clinic in Qatar. Neuropsychiatric Disease and Treatment. 13. 2411-2418. 10.2147/NDT.S14144.

[13] Kirilochev, Oleg & Dorfman, Inna & Umerova, Adelya & Bataeva, Svetlana. (2019). Potential drug-drug interactions in the psychiatric hospital: Frequency analysis. Research Results in Pharmacology. 5. 10.3897/rrpharmacology.5.39681.