



A Detailed Survey On Prescribing Preference Of Psychotropic Drugs

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Abstract: The aim of this study was to probe the prescribing preference of psychotropic drugs. The study was a prospective, cross-sectional observational analysis, carried out in retail and wholesale pharmacies in Thrissur and Palakkad district. 75 patients were selected from the psychological disorder over a period of 3 months from March 2023 to May 2023 for this study. A total of 520 drugs are analyzed from 200 prescriptions of the 75 patients. The data like price distribution, prescribing pattern, disease prevalence, demographic details of the patients, were collected and the collected data was evaluated to determine the prescribing trends. With respect to the demographic profile of 75 patients, 44% were males and 56% were females. The average number of drugs given per prescription was more in the age group of >65 that is (33.3%) and less in the age group of 35-45 that is (9.3%). Out of these 75 patients, Depressive disorder was found to be the most common psychological disorder followed by schizophrenia. Among all the categories of drug, anti-depressants, anxiolytics and hypno-sedatives and anti-psychotics were most commonly prescribed, then followed by anti-epileptics, anti-Parkinson and supplements. Alprazolam (34.61%), Escitalopram oxalate (21.15%), Clonazepam (13.46%), Olanzapine and Zolpidem (7.69%) are the top five prescribed psychotropic drugs. On the 520 drugs 85 were prescribed by generic name and 435 were prescribed by brand names.

In this study it is found that different brand of the drugs is prescribed at disparate rates. Promotional activities of psychotropic drugs are limited to an extent. Among the prescribed drugs gimmicks is most commonly used promotional tool in the marketing of psychotropic medications that is 71 %, then followed by sales promotion that is 29%.

Index Terms - Psychological disorders, Schizophrenia, Anti-depressants, Anti-psychotics, Anxiolytics and Hypno-sedatives, Anti-epileptics, Anti-Parkinson.

I. INTRODUCTION

Psychiatric disorders are one of the major causes of morbidity. It forms an important public health priority. Of the top ten health conditions contributing to the Disability Adjusted Life Years (DALYs), four are psychiatric disorders. Mental illness is associated with high level of health service utilization and associated costs, and in developing countries these costs are mostly paid by patients. For the treatment of psychiatric disorders, wide arrays of psychotropic drugs are available. During the past two decades the development of selective serotonin reuptake inhibitors (SSRIs) and atypical anti-psychotics have drastically changed the drug therapy protocols [1].

The CNS is responsible controlling and coordinating all body functions such as movement, sensation, memory, emotions and cognitions. It is composed of brain and spinal cord which are derived from the neural tube during embryonic development. The function of CNS depends on the communications between neuron which is achieved through electrical and chemical signals. Neurons are specialized cells that receive process and transmit information in the form of action potential which are generated by the influx of ions across the

cell membrane. Neuro transmitters are chemicals that are released by neurons and bind to receptors on other neurons, muscles or glands there by transmitting between cells.

Disorders of CNS can result from genetic, environmental or infectious factors and can affect various aspects of CNS functions. For example, neurodegenerative disorders such as Alzheimer's disease, Parkinson disease are characterized by progressive loss of neurons and synapses in specific brain region, leading to cognitive impairment and motor deficits. Psychiatric such as depression, anxiety and schizophrenia are associated with alterations in neurotransmitter system and brain circuits that regulate mood, emotions and cognition [2].

Major psychiatric disorders are as follows:

- 1) Clinical depression: It is a mental health characterized by persistently depressed mood or loss of interest in activities, causing significant impairment in daily life.
- 2) Anxiety disorders: A mental health disorder characterized by feeling of worries, anxiety or fear that are strong enough to interfere with once daily activities.
- 3) Schizophrenia: A disorder that affect a person ability to think, feel and behave clearly.
- 4) Bipolar disorders: It is a disorder associated with episodes of mood swings ranging from depressive lows to manic highs.
- 5) Dementia: A group of thinking and social symptoms that interfere with daily functions.[6]

Psychotropic drugs are medications that alter mood, perceptions, and behavior. Particularly when used in combination with psychotherapy, psychotropic drugs can be powerful tool in managing conditions like anxiety, bipolar disorder, depression and schizophrenia. Psychotropic drugs help in controlling symptoms of mental illness such as moods swings, explosive anger, hallucinations and other issues that can interfere with therapy [3]. these drug work by altering the balance of neurotransmitter such as serotonin, dopamine and GABA. In the brain the signals from these help neurons to communicate with each other to control mood, concentration and other aspect of brain functions [4].

TYPES OF PSYCHOTROPIC MEDICINES

Depending on your health conditions and symptoms your doctor might prescribe the following psychotropics,

- 1) Anti-depressants: five main categories of antidepressants are;
 - Selective serotonin reuptake inhibitors- escitalopram, sertraline
 - Serotonin and norepinephrine reuptake inhibitors-duloxetine
 - Tricyclic antidepressants- amitriptyline, nortriptyline
 - Monoamine oxidase inhibitors- selegiline
 - Atypical antidepressants
- 2) Anti-psychotics: These are prescribed to treat symptoms of psychosis; they are of two types;
 - Atypical antipsychotics-clozapine, olanzapine
 - Typical antipsychotics- chlorpromazine, trifluoperazine
- 3) Anxiolytics: These are used to treat or prevent anxiety. They are;
 - Benzodiazepines- zolpidem
 - Beta-blockers
- 4) Mood stabilizers: These are typically used to treat bipolar disorder, BPD, and depression. They include,
 - Risperidone
 - Quetiapine

SIDE EFFECTS OF PSYCHOTROPIC MEDICINES

- Cardiac issues
- Dizziness
- Drowsiness
- Fatigue
- Sleep disturbances
- Weight gain
- Sexual side effects

All those psychotropic drugs have adverse impact on your emotions.[5]

Marketing is the science and art of exploring, creating and delivering value to satisfy the need of target market profit. Market identifies unfulfilled needs and desire. The use of marketing provides a competitive edge, penetration into new market, that acquiring of new customers and ultimately achievement of business objectives [6]. Most pharmaceutical companies spend more than one third of their sales revenue on market, approximately double the amount they spend on research and development, in an attempt to retain and maximize their market share. Pharmaceutical is a unique and diverse compared to other form of general marketing.[7] Pharmaceutical companies have used different marketing tool to draw physicians to pharmaceutical products and influence the decisions made regarding adopting and using these products [8]. Some of the traditional marketing tools include product promotion, price, different and other incentives [9]. As an effective way of promoting specific drugs, companies use drug advertisements mainly in formulary and medical journals other promotional tools used include presentation of new drugs at workshops and conference, sending direct mails to physicians sending MRs and giving physicians free samples to distribute to patients [10].

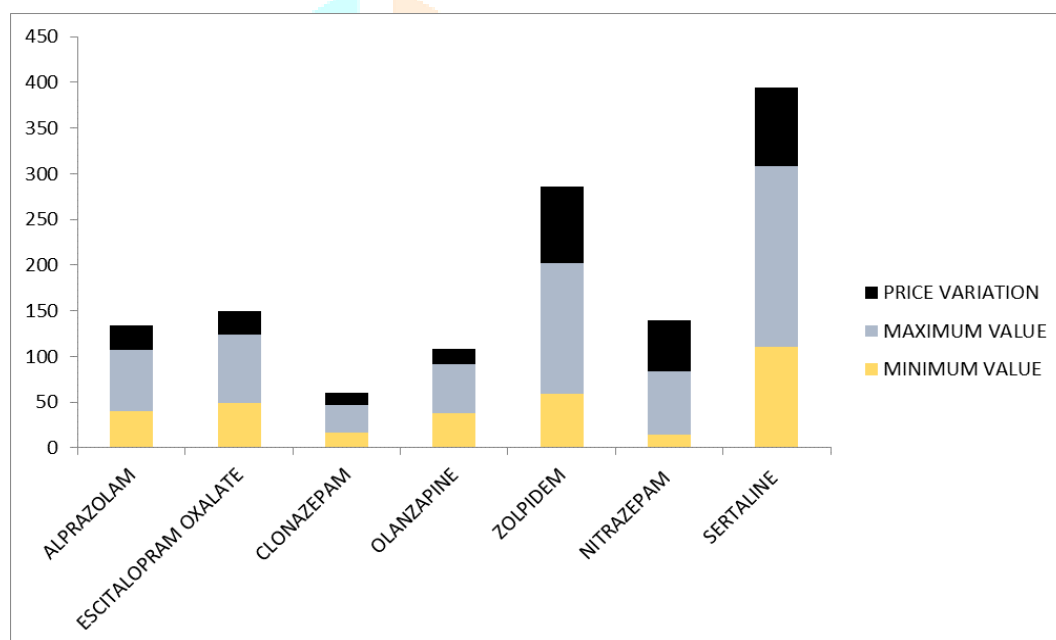
Study of prescriptions is considered as part of “Drug utilization” which encompasses the study of marketing, distribution and prescription of various drugs in society, along with evaluation of its medical, social, and economic consequences. The basic aim of studying drug prescription pattern is to encourage and facilitate rational use of medication [11]. psychotropic prescription plays an important role in the management of various psychiatric disorders. Considering the importance of psychotropic medication, the management of various psychiatric disorders, almost all treatment guidelines formulated by various scientific organizations provide information’s about how to use psychotropic agents in the management of a particular diseases. However, it is often discussed that many patients receive irrational prescriptions, which either do not provide any benefit to the patients or actually harm them. Accordingly, understanding the prescriptions can partly provide as information about the type of care received by patients [12].

“THE GLOBAL PSYCHOTROPIC DRUG MARKET” is estimated to exhibit growth at a CAGR of around 6%-7% over the forecast period 2022-2032. Growing awareness regarding the severity of mental illness and increasing introduction of new psychological drugs for safe and effective treatment of psychological disorder is expected to propel the demand for psychotropic drug in global market. Increased stressed lifestyle of the population and excess use of alcohol has resulted in a substantial rise in prevalence of mental disorders and illness such as epilepsy, depression, dementia, and schizophrenia among others across the globe, creating strong demand for associated therapeutics. As psychotropic drugs are extensively used for the treatment of aforementioned illness, growing burn of such mental disorder is estimated to create high revenue generation opportunities in the global market. In addition to this several international, governmental, and regulatory organizations are emphasizing on launching numerous initiatives for the awareness and treatment of mental illness to curb the overall burden.

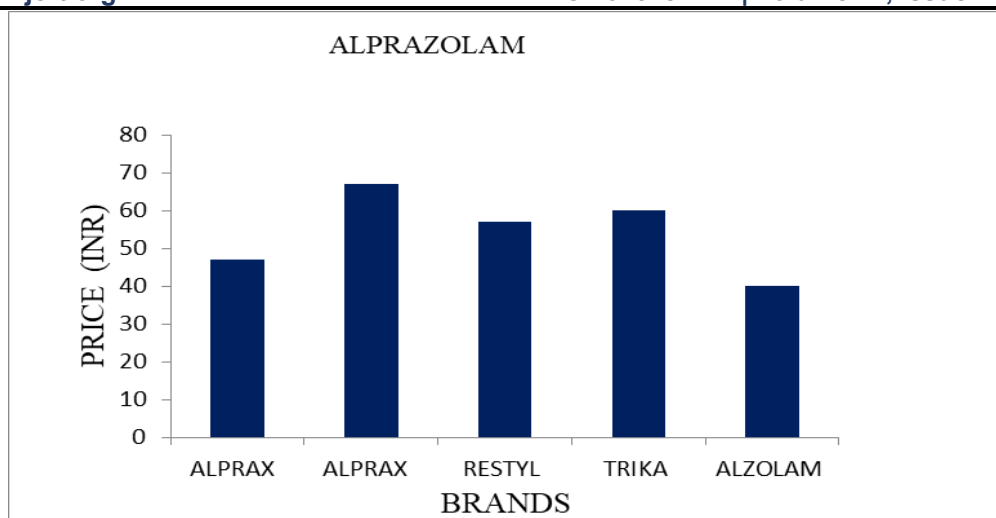
For instance, in 2019, the World Health Organization (WHO) announced launching a special initiative for mental health, “Universal Health Coverage for Mental Health” for ensuring access to affordable and quality care for mental health disorder for around 100 million people across 12 countries. A slew of such initiative is estimated to accelerate the sales of mental health treatment medications such as psychotropic drugs across the globe. Some of the leading players in the psychotropic drug markets are Forest Laboratories, Sun pharmaceutical industry ltd, Fujifilm Wako pure chemical corporation, Randox Laboratories ltd, Pfizer Inc., Ely Lilly and Company, Mylan N.V, and others. The market for psychotropic drugs is highly competitive, due to the large presence of market players, increasing new product launches, and adoption of collaborations, agreements and acquisitions strategies [13].

II. OBSERVATIONS**1. RATE DIFFERENCE**

SL NO:	DRUG	MIN VALUE	MAX VALUE	PRICE VARIATION
1	ALPRAZOLAM	40	67	27
2	ESCITALOPRAM OXALATE	49	75	26
3	CLONAZEPAM	17	30	13
4	OLANZAPINE	38	54	16
5	ZOLPIDEM	59	143	84
6	NITRAZEPAM	14	70	56
7	SERTRALINE	111	197	86

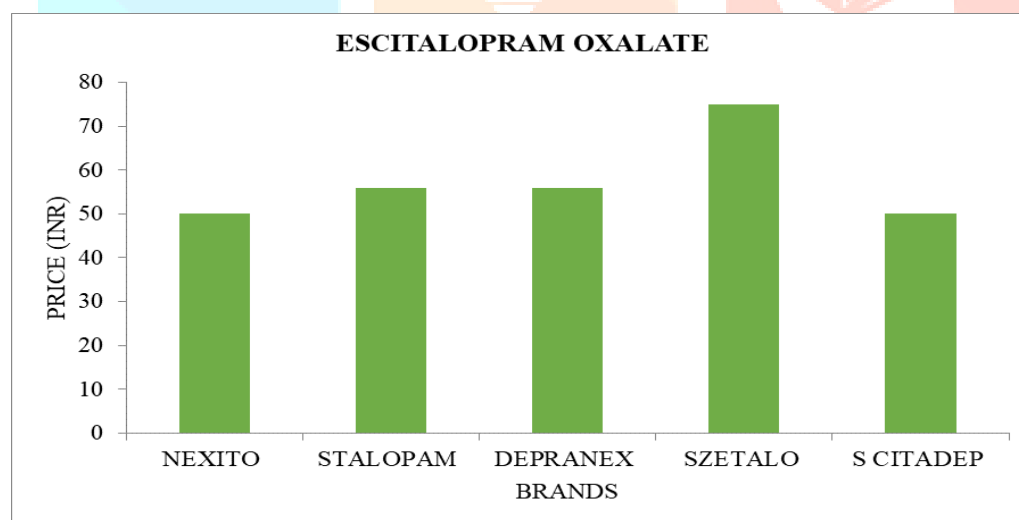
**1 A. ALPRAZOLAM**

SL.NO	BRAND NAMES(0.5mg)	PRICE (10 TAB)
1	ANXIT	47
2	ALPRAX	67
3	RESTYL	57
4	TRIKA	60
5	ALZOLAM	40



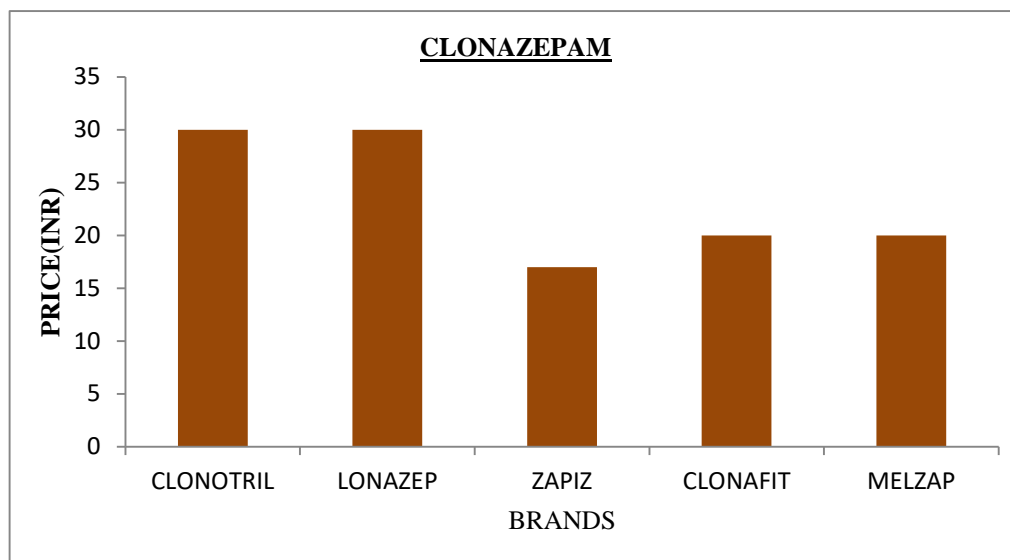
1B. ESCITALOPRAM OXALATE

SL.NO	BRAND NAMES (5 mg)	PRICE (10 TAB)
1	NEXITO	56
2	STALOPAM	56
3	DEPRANEX	56
4	SZETALO	75
5	S CITADEP	50



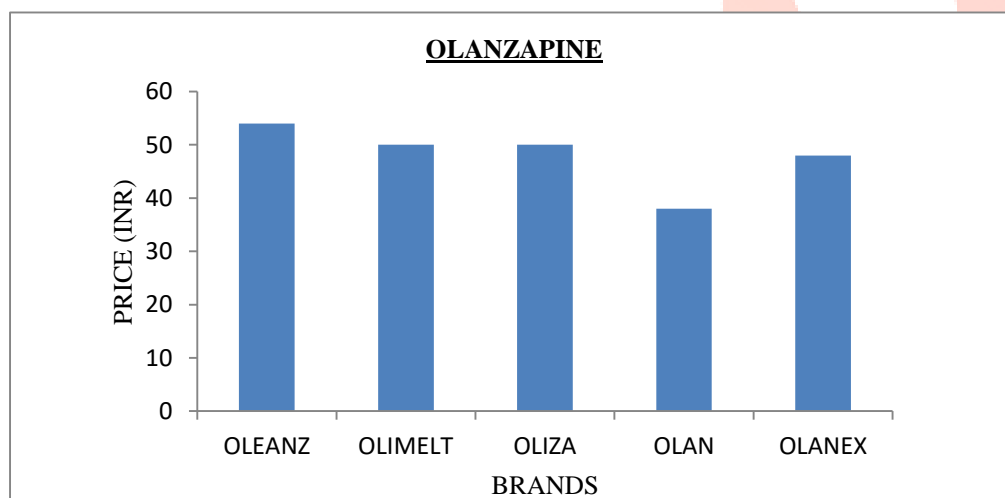
1C. CLONAZEPAM

SL.NO	BRAND NAMES (0.25 mg)	PRICE (10 TAB)
1	CLONOTRIL	30
2	LONAZEP	30
3	ZAPIZ	17
4	CLONAFIT	20
5	MELZAP	20



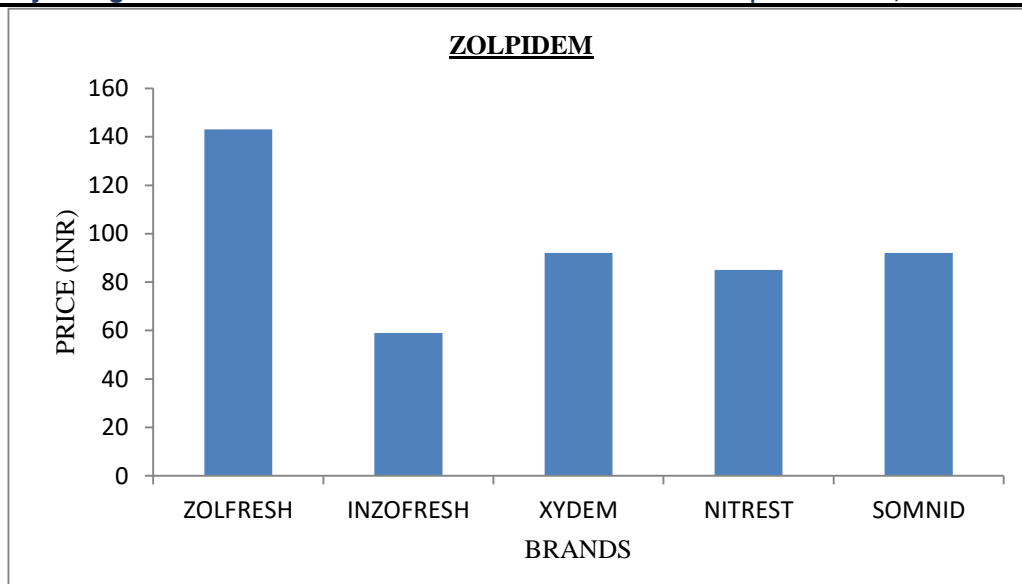
1D. OLANZAPINE

SL.NO	BRAND NAMES (5mg)	PRICE (10 TAB)
1	OLEANZ	54
2	OLIMELT	50
3	OLIZA	50
4	OLAN	38
5	OLANEX	48



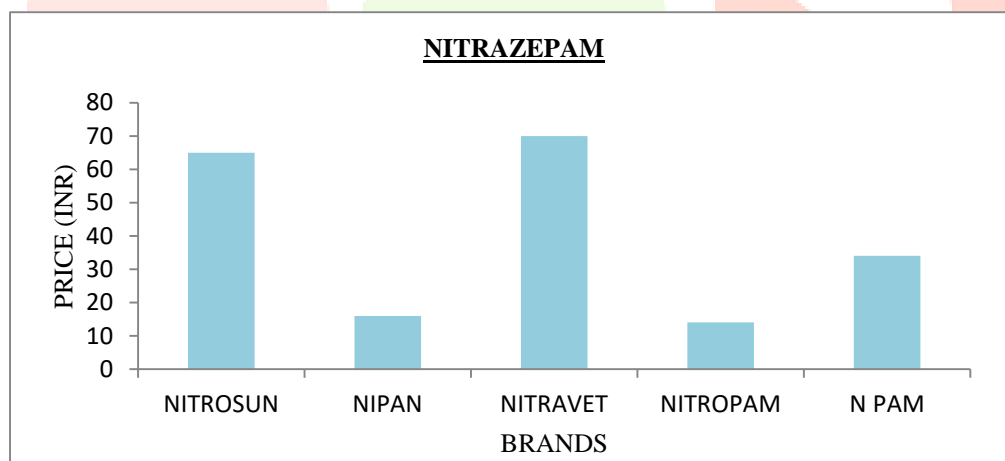
1E. ZOLPIDEM

SL.NO	BRAND NAMES (10mg)	PRICE (10 TAB)
1	ZOLFRESH	143
2	INZOFRESH	59
3	XYDEM	92
4	NITREST	85
5	SOMNID	92



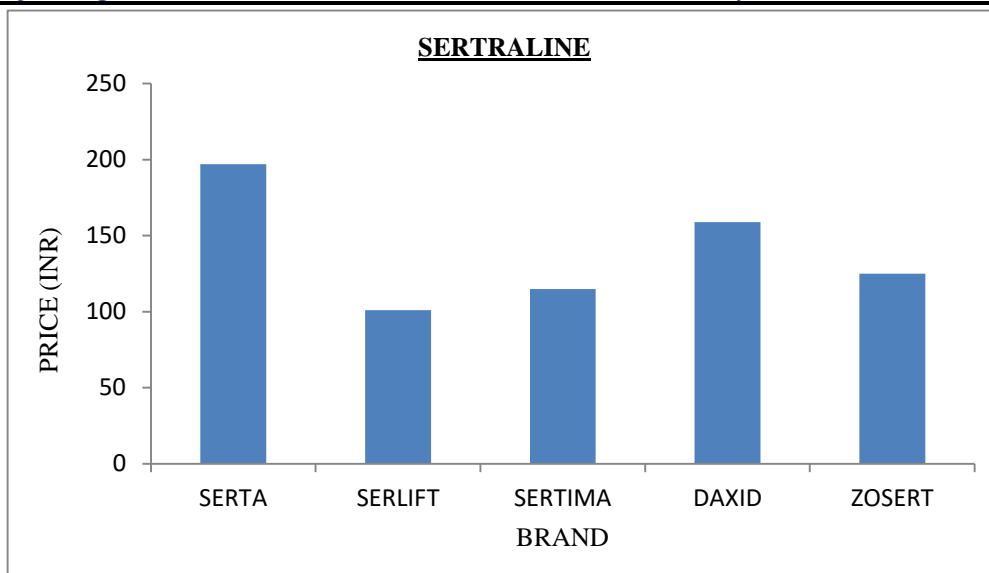
1F. NITRAZEPAM

SL.NO	BRAND NAMES (10 mg)	PRICE (10 TAB)
1	NITROSUN	65
2	NIPAN	16
3	NITRAVET	70
4	NITROPAM	14
5	N PAM	34



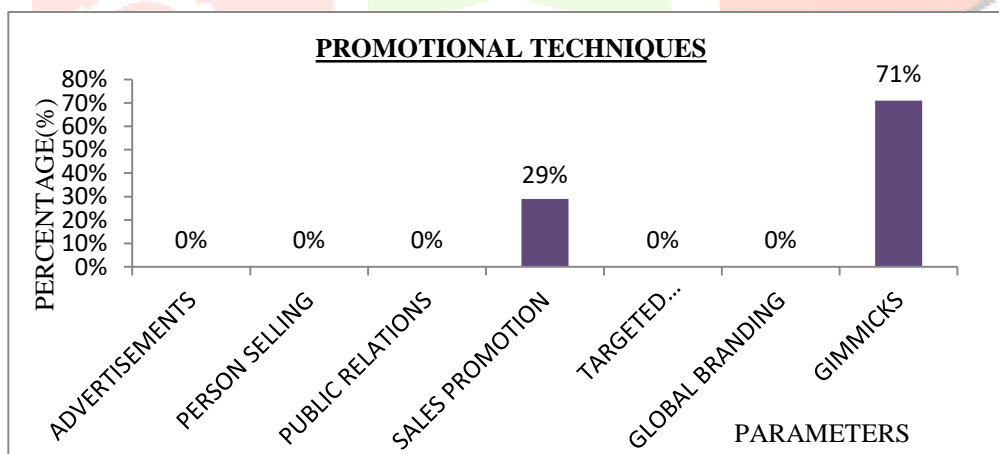
1G. SERTRALINE

SL.NO	BRAND NAMES	PRICE (10 TAB)
1	SERTA	197
2	SERLIFT	101
3	SERTIMA	115
4	DAXID	159
5	ZOSERT	125



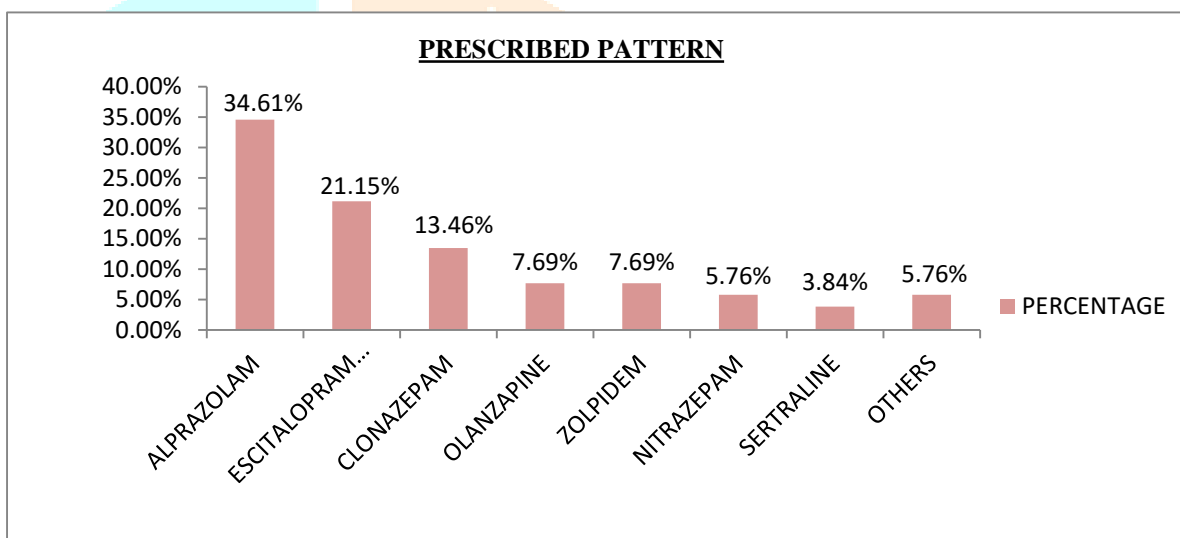
2.PROMOTIONAL TECHNIQUES

SL.NO	PARAMETERS	PERCENTAGE (%)
1	ADVERTISEMENTS	0 %
2	PERSON SELLING	0%
3	PUBLIC RELATIONS	0%
4	SALES PROMOTION	29%
5	TARGETED AUDIENCE	0%
6	GLOBAL BRANDING	0%
7	GIMMICKS	71%

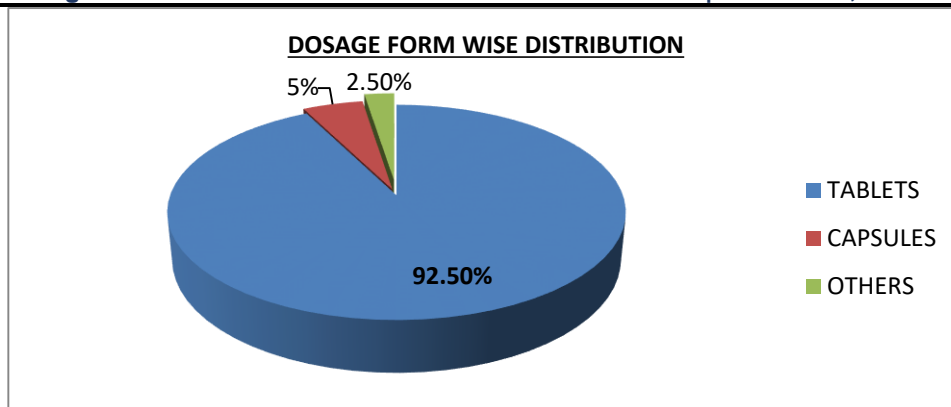


3.DOCTORS PRESCRIPTION RATE

SL.NO	DRUGS	NO. OF DRUGS(N=520)	PRESCRIBED RATE
1	ALPRAZOLAM	180	34.61%
2	ESCITALOPRAM OXALATE	110	21.15%
3	CLONAZEPAM	70	13.46%
4	OLANZAPINE	40	7.69%
5	ZOLPIDEM	40	7.69%
6	NITRAZEPAM	30	5.76%
7	SERTRALINE	20	3.84%
8	OTHERS	30	5.76%

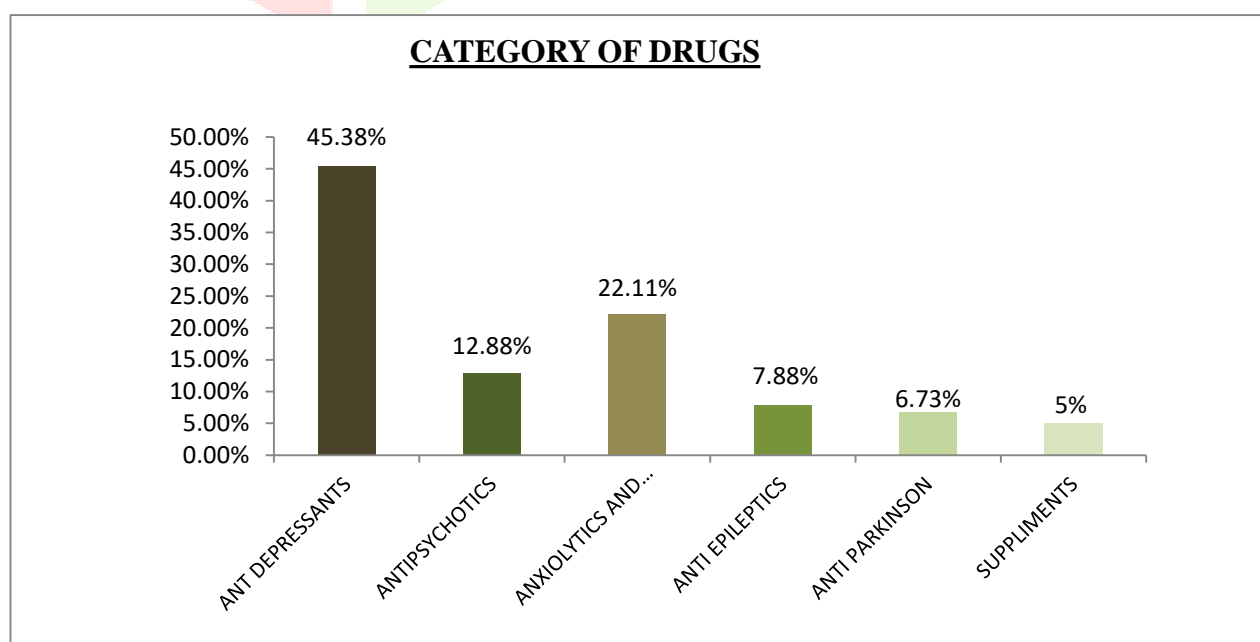
**4.DOSAGE DISTRIBUTION IN MARKET**

SL.NO	DOSAGE FORM	NO. OF PATIENTS (%)
1	TABLETS	92.5%
2	CAPSULES	5%
3	OTHERS	2.5%



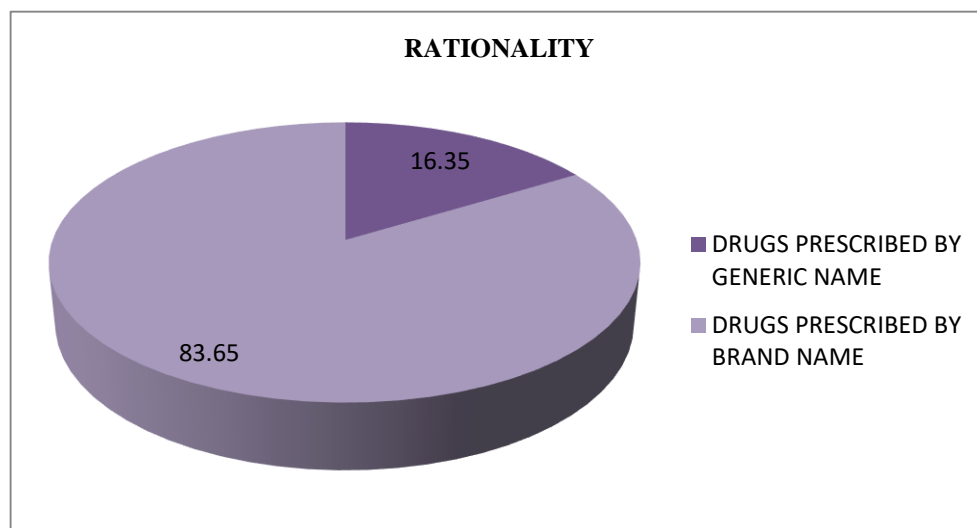
5. CATEGORIES OF DRUGS

SL.NO	CATEGORIES OF DRUGS	TOTAL NO. OF DRUGS(N=520)	PERCENTAGE (%)
1	ANTI DEPRESSANTS	236	45.38%
2	ANTI PSYCHOTICS	67	12.88%
3	ANXYIOLYTICS AND HYPNOSEDATIVES	115	22.11%
4	ANTI EPILEPTICS	41	7.88%
5	ANTI PARKINSON	35	6.73%
6	SUPPLEMENTS	26	5%

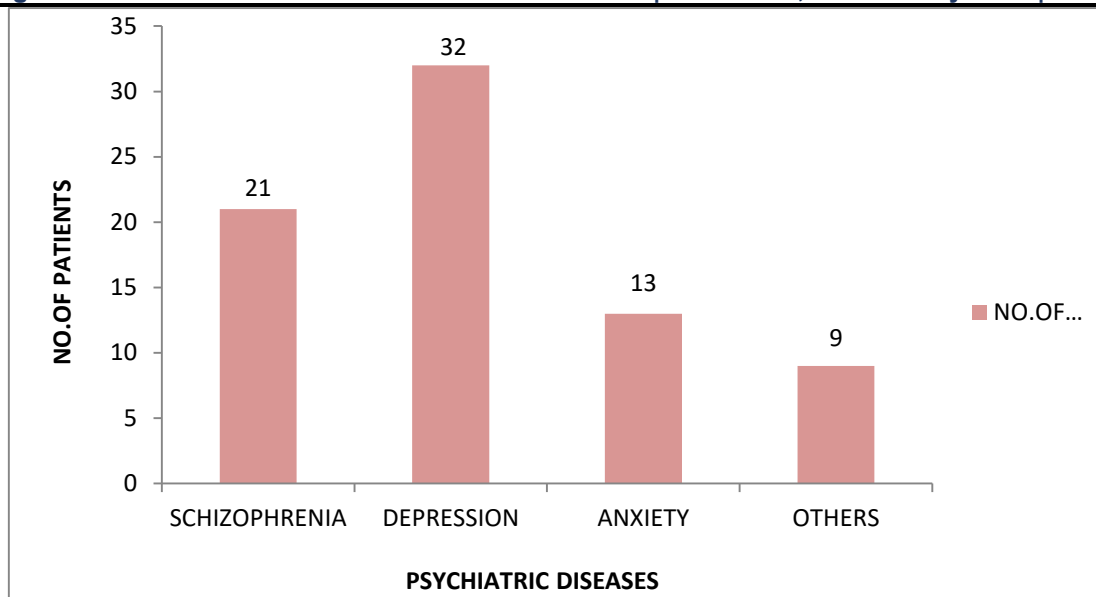


6. RATIONALITY

SL.NO	PARAMETERS	TOTAL NO. OF DRUGS (N=520)	PERCENTAGE
1	DRUGS PRESCRIBED BY GENERIC NAME	85	16.35%
2	DRUGS PRESCRIBED BY BRAND NAME	435	83.35%

**7. COMMON DISEASES FOR WHICH PSYCHOTROPIC DRUGS ARE PRESCRIBED**

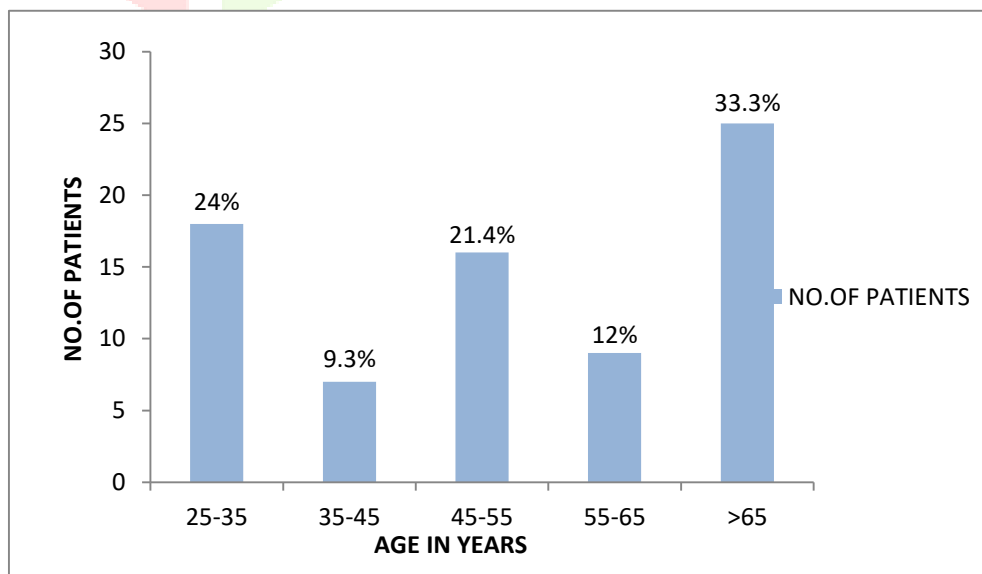
SL.NO	PSYCHIATRIC DISEASES	NO. OF PATIENTS
1	SCHIZOPHRENIA	21
2	DEPRESSION	32
3	ANXIETY	13
4	OTHERS	9



The Fig.shows that out of 75patients; the most common psychiatric disease was depression in 32(42.6%) patients followed by schizophrenia in 21 patients (28%), Anxiety in 13 patients (17.3%) and others in 9 patients (12%).

8. AGE WISE DISTRIBUTION

AGE	NO OF CASES(N=75)	PERCENTAGE
25-35	18	24%
35-45	7	9.3%
45-55	16	21.4%
55-65	9	12%
>65	25	33.3%



The fig. shows that; out of patients 75 patients 33.3% belong to the age group of >65 years which is considered to be highest percentage when compared to all other age groups and 9.3% of patient present in the age group of 35-45 years and which is considered to be the lowest percentage among all age groups.

9. GENDER WISE DISTRIBUTION

Total number of patients 75. From the demographic profile, it was observed that 33(44%) were males and 42(56%) were females.

GENDER	NO. OF PATIENTS(N)	PERCENTAGE (%)
MALE	33	44%
FEMALE	42	56%
TOTAL	75	100%

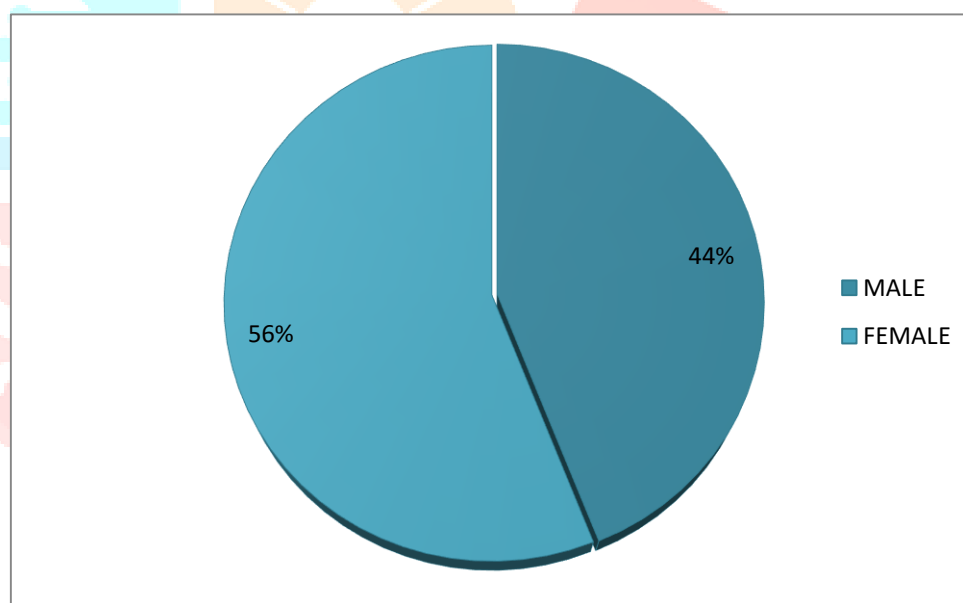


FIGURE: Gender wise distribution of psychotropic drug intake.

The figure: shows that the female patients (56%) had high frequency of psychotropic drug intake, when compared to male (44%) patients.

III. RESULTS

On the basis of inclusion and exclusion criteria, 75 patients were selected from the inclusion criteria over a period of 3 months for the study. Out of these 75 patients. The average no: of drugs given per prescription was 2.6 out of 200 prescriptions in the age group >25-35 years>35-45yrs>45-55 years>55-65yrs< respectively.

Among these diseases there include certain patients with Schizophrenia, patients diagnosed with Depression, Anxiety, Parkinsonism and Epilepsy. Among all the drugs, tablet form of drug was prescribed commonly (92.5%), capsules (5%), others (2.5%) distribution of drugs according to various dosage form [table.10].

Among all the category of drugs, Anti-depressants were most commonly prescribed 236 (45.38%) then followed by Anxiolytics and hypno-sedatives 115(22.11%), Anti-psychotics 67(12.88%), Anti-epileptics 41(7.88%), Anti-Parkinson 35(6.73%) and supplements 26(5%) are prescribed in the prescription [table.11].

On the 520 drugs prescribed 85 were prescribed by generic and 435 were prescribed by brand names [table 13]. Among all the drugs prescribed by the Doctors- Alprazolam 180(34.61%) was most commonly prescribed followed by Escitalopram Oxalate 110(21.15%), Clonazepam 70(13.46%), Olanzapine 40(7.69%), Zolpidem 40(7.69%), Nitrazepam 30(5.56%), Sertraline 20(3.84%) and other drugs 30(5.76%) respectively [table.9].

Among all the drugs prescribed Alprazolam have a price variation of (Rs.27), when compared between their minimum and maximum value Escitalopram Oxalate (Rs. 26), Clonazepam (Rs.13), Olanzapine (Rs.16), Zolpidem (Rs.84), Nitrazepam (Rs.56), Sertraline (Rs.86) [table.1].

Among the prescribed drugs Gimmicks is most commonly used promotional tools in the marketing of the psychotic medication (71%), sales promotion (29%), global branding (0%), targeted audience (0%), personal selling (0%), advertisement (0%) and public relations by (0%) [table.8].

IV. DISCUSSIONS

A prescription pattern of study was conducted to analyze the usage of different psychotropic drugs in community pharmacy.

We obtain 200 prescriptions from various community pharmacies and analyzed them for the drug being prescribed to them.

The prescription issued by a physician can be regarded as an expression of the medical practitioner's approach towards the specific disease, considerations of economic benefits, and the role of medications in the overall treatment process. It also reflects the descriptive nature of the healthcare delivery system. The occurrence of irrational drug use and inappropriate prescribing practices among healthcare professionals is a widespread phenomenon. Consequently, ensuring the accurate administration of appropriate medications to suitable individuals at the optimal time is a fundamental priority in the field of healthcare. Rational drug use aims to address issues that can have severe consequences for patients if they do not receive proper treatment. This approach seeks to minimize the misuse of drugs through the deliberate selection of essential medications and the careful estimation of the community's drug requirements.

It is found that majority of the patients were in the age group of >65(33.3%) and the lowest percentage were in the group 35-45(9.3 %) [fig 2]. This data obtained from the various prescriptions also proved the statement.

From the different categories of drugs prescribed in Psychotropic medications, it is found that the most commonly prescribed supplements were Vitamin supplements to suppress the weakened state and sedation that comes along with the medication. The drugs were mostly prescribed in the form of tablets 92.5% and capsules (5%) Drugs in other forms (2.5%) were also prescribed.

In the study it is found that the different brands of the medicines are prescribed at different rates. The difference brand rates of Alprazolam were prescribed as Anxit (47), Alprax (67), Restyl (57), Trika (60), and Alzolam (40) respectively for 10

tablets. It is found that the price variation between the maximum and minimum rate was found to be RS.20. Similarly, Escitalopram Oxalate (26), Clonazepam (13), Olanzapine (16), Zolpidem (84), Nitrazepam (56), Sertraline (86) [Fig:9].

In the present study, there is very little promotional patterns for psychotropic drugs in which gimmicks were the most used method of promotion (71%), followed by Sales Promotion (29%). Other promotional techniques like Advertisements, Person Selling, Public Relations, Targeted Audience, Global Branding were all in minimal numbers (0%).

The result from the study reveals, that nowadays drugs were more commonly prescribed in their brand names. Only least number of drugs was prescribed by generic names. Almost 84% of drugs were prescribed in Brand names. Jan Aushadhis and Public Mental Health Hospital's pharmacies were selling generic names. [Fig: 4]

V. CONCLUSION

Psychotropic drugs are used to treat mental disorders like Depression, Schizophrenia, Anxiety. The current study was focused on the prescription pattern of drugs in psychiatry department. This study helps us to focus on the deviations from rational prescribing standards by prescriber. Such periodic evaluation may lead to rational practice hence improves the quality of prescription. Therefore, the prescriber should be trained and talked about the result of such studies so that the quality of the prescription will keep improving. A major shift in lifestyle and working conditions of people led to rise in the prevalence of psychological disorders affecting the functioning of CNS. As a result, a steep rise in advancement in the treatment of these disease was observed in recent years to address their healthcare needs creating opportunities for drug manufacturers fueling the psychological therapeutics.

There was very wide price variation of different brands of the same generic drug of most commonly prescribed psychotropic drugs. For long term adherence to the treatment, cost of drug plays an important role for successful drug therapy. This can be done by changing in the government policies and regulations, integrating Pharmacoeconomics as a part of medical education curriculum, and creating awareness among treating physician for switching to cost effective therapy.

This study conclude that Anti-depressants and Anti-psychotics drugs hold the major market share in Psychotropics drug market. After the survey, it was noticed that a very few promotional techniques were used to promote Psychotropic drugs. It was also observed that Psychotropic drugs have a very limited dosage distribution knowing that tablets are most commonly prescribed dosage forms.

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