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Drug Prescription Pattern of Psychiatric Out Patients in Level 1 Government Hospital: Retrospective Study

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ABSTRACT

This study aimed to determine the Drug Prescription pattern of Psychiatric Out Patients in Level 1 General Hospital. This study employs a retrospective research method using descriptive statistical analysis to present and summarize demographic characteristics and drug prescription patterns. The data used in the study is obtained from the Pharmacy Department of Mariveles Mental Wellness and General Hospital in Mariveles, Bataan. The prescriptions from January 2020 - June 2024 were selected using a systematic random sampling method until the desired sample size was achieved. The findings show that there is no significant relationship between demographic profile and drug prescription pattern of psychiatric patients in Level 1 General Hospital in Mariveles, Bataan. Studies on drug dispensing patterns and behaviors are limited in the Philippines. This study could establish the baseline data for future studies with descriptive analysis. The findings of this study underscore the need for further research to improve our understanding of drug prescription patterns and guide future policy decisions. Conducting multicentric studies with high-caliber research designs and larger sample sizes could provide more robust evidence that can guide the refinement of existing guidelines on rational prescribing and drug use in the country and improve clinical practice.

Keywords: Prescription, Prescription Pattern, Psychiatric Patient

INTRODUCTION

Every person has the fundamental right to access medications. Modern healthcare would not be feasible without the availability of drugs, which are an essential part of healthcare. They improve health, save lives, and stop disease and epidemics. (Dwivedi, et al 2022). The government's approach to health care has focused on providing suitable pharmaceuticals in terms of kind, quality, and quantity ever since the Generics Act and the National Drug Policy legislation were drafted. (Aquino, et al 2023) One of the prescribing guidelines used to encourage the responsible use of medications is the prescription. The prescriber and dispenser are engaged in written medical communication. The prescription specifies how the medication will be given in writing, and this order is sent to the dispenser. (Kebede, et al 2021) Misuse of prescription drugs can result in overspending, unsafe and inadequate treatment, and worsening or prolonging the patient's illness. Before any medication is dispensed, the patient must show the pharmacist the prescription. This prevents the patient from occasionally consuming hazardous or inappropriate drugs. (Tefera, et al 2021)

Examining the prescription pattern for drugs is a crucial part of patient care and a way to gauge the standard of treatment received. (Aldabagh, et al 2022) An effective and efficient healthcare system depends on the careful administration of medications. The pattern of prescribing pharmaceuticals varies greatly between different geographic areas. It is impacted by patient characteristics, the most common ailment, cultural and environmental factors, socioeconomic level, the availability of newer drugs, and professional prescribing habits. (Fadil, et al 2022) In order to guarantee safe and effective therapy and rational drug use, it is vital to assess the drug prescription pattern routinely. This will improve the quality of prescriptions and the sensible use of drugs. The patients must be given drugs that are suitable for their medical requirements and in doses that are effective for a sufficient period to satisfy their medical needs (Jafer, et al 2023, Gupta, et al 2023, Al Zaabi, et al 2024)

A significant public health problem, psychiatric illnesses rank among the top 10 medical conditions that affect Disability Adjusted Life Years. Patients in developing nations bear the bulk of the costs of mental health care and related expenditures. The fast development of new medications with promises of safety and efficacy presents a constant challenge to psychiatrists. (Byrne, et al 2019) The majority of adult mental health illnesses have their origins in childhood or adolescence and have a severe, chronic course that can gravely impair critical developmental stages and have negative effects that last a lifetime into adulthood. (Gallinela, et al 2024) Often used to treat mental health conditions, psychotropic medications mainly affect the brain. Anything that has the ability to affect behavior, emotion, or perception is considered a psychotropic substance. Psychopharmacology, a rapidly evolving field of study, has completely changed how mental diseases are investigated and treated. Antipsychotics were recommended more often than other drugs, with the exception of mood and anxiety disorders. Apart from mood stabilizers and tranquilizers, almost always some kind of psychotropic medicine was given. Three main categories of psychotropic medications are used: antipsychotics, antidepressants, and anxiolytics/hypnotics (benzodiazepines, which

are often recommended to treat anxiety and insomnia). Using high-dosage antipsychotics has not been shown to be therapeutically effective, and doing so is associated with side effects like an increased chance of unexpected death. (Kumar, et al 2023)

In addition to treating patients' illnesses, many drugs can have long-term, potentially harmful adverse effects on the central nervous system if they are not administered correctly. Prescription patterns for mental health patients are influenced by various factors such as the patient's characteristics, the type of illness, cultural and environmental context, the patient's financial situation, the accessibility of medications, and the psychiatrist's preferences. (Jafer, et al 2023, Murshid and Mohaidin, 2020)

METHODOLOGY:

Study Design

This study employs a retrospective research design to assess the drug prescription pattern in a level 1 government hospital in Mariveles, Bataan. To achieve the study's objectives, a retrospective analysis of collected prescription data is conducted..

Research Locale

The research was conducted at Mariveles Mental Wellness and General Hospital (Pharmacy Department)

Subjects or Participants

The primary subject of this study is the prescription stored in the pharmacy. The extracted data from the prescription includes the demographic profile of the patients (gender, age, and location) and the drug prescription pattern (drug prescribed, dosage strength dosage form, signa (Physician's Direction) a quantity prescribed—filled and unfilled).

Data Measure

Prescriptions filed and stored in the hospital pharmacy are used to identify the drug prescription pattern in the study.

Data Collection Procedure

Drug prescription records from January 2020 to June 2024 were collected through systematic random sampling. Probability sampling is done by systematic random sampling. To choose sample data that accurately represents a population, it thus takes advantage of chance and randomness. The formula is k=N/n, where the sample interval (k) is decided by dividing the population size (N) by the sample size (n). The prescriptions collected through the systematic random sampling method were encoded in an Excel file, collected information are the Gender, Age, Location, Drug Prescription, Dosage Strength and Form, Signa (Physician's Direction and Quantity Prescribed (Filled and Unfilled)

In lieu of the Data Privacy Act, the names of the patients are omitted and not included in the extracted data. A letter of approval was ensured while conducting the data collection for the study.

LIMITATION OF THE STUDY

Data Availability: The data used in the study is obtained from the Pharmacy Department of Mariveles Mental Wellness and General Hospital in Mariveles, Bataan. The prescriptions from January 2020 to June 2024 were selected using a systematic random sampling method until the desired sample size was achieved.

Data Quality: The conclusions drawn from the analysis are only as good as the quality of the data collected. Prescription drugs were not validated and cross-checked with the patients' diagnoses.

Generalizability: The study used a retrospective design, making it susceptible to reverse causality.

Data Analysis

The study conducts descriptive statistical analysis to present the frequency and distribution used to summarize demographic characteristics and drug prescription patterns.

Statistical tests assess associations between demographic profiles and drug prescription patterns.

Ethical Consideration

The study adheres to ethical guidelines and regulations concerning the use of patient data, ensuring patient confidentiality and privacy. Administrative approval, where applicable, is obtained to conduct the research in compliance with ethical standards. Prior to data collection, the researcher obtained approval from the Pharmacy Unit Head and the Medical Center Chief of the Hospital.

Informed consent is not required, as the study utilizes a prescription record.

RESULTS

Table 1 presents the general characteristics of the psychiatric outpatients. Out of 8646 prescriptions, most drugs (n=6695, 77.43%) were filled as per request while 1951 (22.56%) remained unfilled. The median age of the patients was 32 years which ranged between 5 and 78 years old. Concerning residency, more than half of the patients (63.86%) lived within Bataan with the highest percentage reside in the municipality of Mariveles. the remaining 36.14% of the patients lived outside Bataan. Patients with unfilled drug requests were younger by one year (27 years vs. 28 years) but were not significantly different from those with filled requests (p=0.674). Meanwhile, most had filled drug requests in both groups of patients living within (77.95%) and outside Bataan (75.10%). Similarly, filled and unfilled drug requests did not differ significantly according to residency (p=0.393).

Table 1. Demographic profile of the psychiatric outpatients

Characteristic	Total (n=8646)	Filled (n=6695)	Unfilled (n=1951)	p-value
Age (years), median (range)	28 (5-78)	28 (16-63)	27 (14-78)	0.674
Residency, n (%)				
Within Bataan	440 (63.86)	343 (77.95)	97 (22.05)	
Outside Bataan	249 (36.14)	187 (75.10)	62 (24.90)	0.393

Sig. at p<0.05*

Among the list of prescribed medicines for psychiatric patients, the most frequently prescribed medication was risperidone (22.21%) and closely followed by valproic acid (19.59%). Most of the medicines prescribed are included in the Philippines Department of Health Medication Access Program for Mental Health list of essential psychotropic medications. Among the unfulfilled prescriptions, the drug with the highest proportion of unfulfilled prescriptions was risperidone (26.42%).

Table 2. List of medicines prescribed in psychiatric patients

Medicine	Type	Total (% a)	Filled (% b)	Unfilled (% b)
Risperidone	Second-generation/atypical antipsychotics***	153 (22.21)	111 (72.55)	42 (27.45)
Valproate disodium/valproic acid	Mood stabilizers***	135 (19.59)	117 (86.66)	18 (13.34)
Olanzapine	Second-generation/atypical antipsychotics***	56 (8.13)	45 (80.36)	11 (19.64)
Quetiapine	Second-generation/atypical antipsychotics***	49 (7.11)	32 (65.31)	17 (34.69)
Biperiden	Anticholinergics***	46 (6.68)	45 (97.83)	1 (2.17)
Fluphenazine	First-generation/typical antipsychotics***	44 (6.39)	44 (100.00)	0

Clozapine	Second-generation/atypical antipsychotics***	38 (5.52)	37 (97.37)	1 (2.63)
Sertraline	Antidepressants***	30 (4.35)	13 (43.33)	17 (56.67)
Clonazepam	Benzodiazepine***	26 (3.77)	25 (96.15)	1 (3.85)
Lithium carbonate	Mood stabilizers***	19 (2.76)	10 (52.63)	9 (47.37)
Escitalopram	Antidepressants***	17 (2.47)	15 (88.24)	2 (11.76)
Levodopa + carbidopa	Combination therapy	13 (1.89)	2 (15.38)	11 (84.62)
Fluoxetine	Antidepressants***	11 (1.60)	5 (45.45)	6 (54.55)
Flupentixol	First-generation/typical antipsychotics	11 (1.60)	8 (72.73)	3 (27.27)
Diphenhydramine hydrochloride	Anticholinergics***	10 (1.45)	2 (20.00)	8 (80.00)
Aripiprazole	Second-generation/atypical antipsychotics	7 (1.02)	3 (42.86)	4 (57.14)
Haloperidol	First-generation/typical antipsychotics***	6 (0.87)	1 (16.67)	5 (83.33)
Lamotrigine	Mood stabilizers***	6 (0.87)	2 (33.33)	4 (66.67)
Chlorpromazine	First-generation/typical antipsychotics***	5 (0.73)	5 (100.00)	0
Donepezil	Cholinesterase inhibitor ***	4 (0.58)	2 (50.00)	2 (50.00)
Alprazolam	Benzodiazepine	1 (0.15)	1 (100.00)	0

a Frequency and column percentage

b frequency and row percentage

***Included in the Philippines Department of Health Medication Access Program for Mental Health list of essential psychotropic medications

Based on the findings of the study, the following improvements can be proposed to enhance the efficiency and safety of psychiatric drug prescribing practices in the hospital:

1. Implement Personalized Treatment Plans: Although no significant relationship was found between demographic factors and prescription patterns, treatment plans could still be further personalized based on patient history, underlying health conditions, and lifestyle. This could enhance both the safety and efficacy of prescriptions, especially for older or younger patients.

2. Regular Monitoring and Follow-ups: Given that Risperidone 2mg tablets are the most frequently prescribed, regular patient follow-ups could ensure that the medication remains effective and that patients are not experiencing adverse effects over time. Adjustments in dosage or medication could be made more proactively.

3. Introduce Comprehensive Prescription Guidelines: Develop or enhance clinical guidelines for psychiatric drug prescriptions that take into account not just the type of drug, dosage, and timing (e.g., one tablet at night) but also integrate patient-specific factors such as comorbidities, allergies, or metabolic concerns.

4. Promote Continuing Medical Education: Ongoing education for healthcare providers in psychiatric pharmacology could improve prescribing patterns. Workshops focusing on new medications, alternative therapies, and updates in the field of psychopharmacology could improve decision-making.

5. Encourage a Multidisciplinary Approach: Involve a broader team, including pharmacists, psychiatric nurses, and other specialists, in treatment planning to ensure that prescribed medications are appropriate for the patient's overall health and lifestyle. This could help catch potential drug interactions or side effects early.

This study revealed a significantly higher proportion of filled drug prescriptions than those unfilled (76.92% vs. 23.08%; $p < 0.001$). This suggests a generally effective drug prescription and dispensing pattern for psychiatric patients in the hospital.

Nonetheless, a significant proportion of unfilled prescriptions (23.08%; $p < 0.001$) was reported in the present study. Several factors influence why drugs are not entirely dispensed per prescription. In clinical practice, it is critical to routinely assess the pharmaceutical therapy of outpatients with schizophrenia. The state of common prescription patterns is still unknown, particularly in China. For example, a cross-sectional survey conducted in China with patients who had schizophrenia revealed that the main factors influencing the patterns of antipsychotic prescription were clinical symptoms and economic position. (Guo, et al 2021) Despite the majority of studies on the topic focuses on epidemiological and etiological elements, there has been little research on how psychotropic drug treatment strategies differ between urban and rural locations for community-dwelling patients with schizophrenia. Analysis showed that younger age groups, drug-related factors (e.g., concurrent use of benzodiazepines and mood stabilizers), and patient medical histories (e.g., substance abuse, prior suicide attempt, diabetes, asthma/COPD, cardiovascular disease) were significantly correlated with non-adherence to antipsychotic treatment. (Huo, et al 2019)

Meanwhile, a qualitative systematic review of factors influencing successful prescribing among intern doctors breaks down three main themes: environmental, patient-related, and individual factors. Environmental factors such as high workload, low staffing levels, time pressure, covering more than one ward, doing several tasks simultaneously, and distractions were cited to have a negative influence on prescribing practice, resulting in more risky prescribing behaviors, including prescribing despite uncertainty and omitting essential details. (Rahman, et al 2022) For informed decision-making in clinical care, it is essential to have a thorough understanding of nonadherence to antipsychotic treatment in addition to balancing efficacy and tolerability. This is because medicine that is not taken as prescribed leads in inferior treatment effectiveness. Patient factors included communication hurdles between the patient and the provider, the intricacy of the patient's pharmaceutical regimen, particularly if the patient was receiving treatment from various medical teams and prescribers, and the patient's multiple medical conditions. Furthermore, individual aspects are contingent upon the intern's physical and emotional state. An intern might expedite the prescription procedure out of fatigue, for example, and overlook crucial information like dosage, frequency, contraindications, and interactions. (Lieslehto, et al 2022)

Besides these factors, the availability of drugs in the hospital and pharmacy and medication costs are primary reasons for the incomplete dispense of drugs per prescription in most low- to middle-income countries, which are typically low on resources, including the Philippines. Medication non-adherence might take the form of early treatment cessation, inadequate regimen implementation, or non-initiation of treatment. Medication adherence in this group is hampered by patient- and drug-related characteristics such as multimorbidity, health literacy, and cognitive function, as well as side effects and polypharmacy. A consequence of age-related functional decline could potentially be non-adherence. Compared to younger and older cohorts, middle-aged individuals have been found to be more compliant with their drug regimen. (Walsh, et al 2019) Iinvestigating the availability of essential medicines for mental health care revealed that only 58.3% of district warehouses, and even lower at 45.8% for all health facilities had availability of at least one medication for each of the following medications: antipsychotics, antidepressants, benzodiazepines, antiepileptics and mood stabilizers, and anticholinergics and antihistamines. At this time, Mozambique did not have a national mental health policy separate from the general national health policy, only allocating 0.16% of the national health budget to mental health. Similarly, in a systematic review of the availability of two essential medicines for mental health, namely amitriptyline and diazepam, in 7,958 health facilities in seven LMICs, including Bangladesh, the Democratic Republic of Congo, Haiti, Nepal, Malawi, Senegal, and Tanzania, data revealed that only 8.2% of facilities had amitriptyline and 46.1% had diazepam on the day of assessment. (Todesco, et al 2022) Better provision of mental health services became possible in the Philippines with the passage of the Mental Health Act legislation. Rights for "concerned individuals" are also included in the Act; these people include mental health professionals and family members of patients. Within this framework, a mental health professional can be any licensed medical practitioner, psychologist, nurse, social worker, or other suitably qualified individual with specialized knowledge and abilities related to the delivery of mental health services. According to the Act, family members of the patient must be given psychosocial support when needed and must be included in treatment plans with the patient's informed agreement. (Samaniego, et al 2019) While ideally, essential medications are available at all service levels through the Department of Health (DOH) Medication Access Program for Mental Health (DOH 2021), funding issues, especially in public hospitals and healthcare facilities, limit patient access to these drugs, more so to newer medications. The Harvard School of Public Health (HSPH) conducted a cross-sectional study that highlights the need for specific changes to mental health systems in LMICS in order to close these gaps. These changes should focus on increasing financing and expanding mental health legislation as well as improving the availability and affordability of psychotropic medications in these areas. (Tully 2019).

In contrast to other research, the average number of medications prescribed per prescription in this study (mean = 1.58) was within the WHO criteria (less than 2 or 1.6 to 1.8). In North India, for example, an examination of the psychotropic prescribing pattern in an outpatient department of a general hospital psychiatric unit revealed an average of 2.35 medications prescribed per prescription, exceeding the WHO requirement of fewer than 2 medications per prescription. (Taipale, et al 2022) Likewise, an average of 2.34 prescription medications were written for every patient in public hospitals located in eastern Ethiopia, according to a cross-sectional survey. This appears to be in line with other earlier research, which included outpatient psychiatry at a tertiary care teaching hospital in Kolkata, Delhi, India (mean = 6.24), a study conducted in African countries from 2006 to 2015 (mean = 2.6), and another, more recent study conducted in Delhi (mean = 3.12). (Mohaidin, et al 2020) It is critical to note, however, that these studies were conducted in pre-pandemic years and might have already improved in the current year the same as the present study. Established health policies and legislation also improve the regulation and implementation of drug dispensing patterns. For example, in the Philippines, the DOH ensures that health providers are educated on rational prescribing based on internationally and nationally accepted treatment guidelines. This includes proper dispensing to eliminate unnecessary prescriptions, stop the emergence of antibiotic resistance, and ensure that government funds are used for medicines that achieve the best health outcomes. (Department of Health, 2021) Hence, polypharmacy, a global phenomenon, was minimal, although unavoided. Only an average of 1.02% out of 8646 drug prescriptions analyzed had more than four drugs prescribed at the same time. Common justifications for polypharmacy include monotherapy being ineffective, aggressive targeting of specific symptoms, treating distinct but comorbid conditions, treating refractory symptoms, and treating side effects of a primary drug. (Baht, et al 2022)

Risperidone was the prescription drug that was unfilled the most frequently (26.42%). Fascinatingly, similar results were obtained in a cross-country research conducted in 2022 comparing high- and low-income nations. Even though the majority of national lists of high-income countries included some WHO essential psychotropic medications like haloperidol, carbamazepine, amitriptyline, diazepam, and chlorpromazine, other essential medications like clozapine or risperidone were only included by a minority of lists in low-income countries. (Srivastava, et al 2023) Moreover, the same study revealed that up to 40% of low-income countries did not include medicines considering that they have been on the WHO list for decades. This includes medicines such as long-acting fluphenazine, lithium carbonate, and clomipramine. More critically, the availability of generic psychotropic medicines in the public sector was low (below 50%) for all medicines and was even lower than the overall average in LMICs. (Salmani, et al 2020)

CONCLUSION

Results findings show that there is no significant relationship between demographic profile and drug prescription pattern of psychiatric patients in Level 1 Government Hospital in Mariveles, Bataan. Demographic Profile for age is 32 in Median, ranging between 5 and 78. Male and female psychiatric outpatients showed almost equal range between the two. Most psychiatric outpatients lived within Mariveles, Bataan, with an average percentage of 63.86%. The drug prescription pattern between January 2020 and June 2024 shows that Risperidone 2mg tablet is the most prescribed medicine, supported by 2mg as the most common dosage strength with an average of 23.5% and tablet as the most common dosage form with an average of 90%. The most common sign of a prescribed medicine is one tablet at night, as most psychiatric medicine is taken at night, with an average range of 46.5%. Most drug prescriptions prescribed were dispensed in the pharmacy.

Therefore, prescription patterns may be influenced by local policies and physician-related factors such as knowledge, training, experience, and perceptions towards drug dispensing and prescribing the clinicians have at the facility. Lastly, some variables cannot be analyzed because they were not collected in the database. For example, reasons for unfulfilled prescriptions and illness-related data cannot be further analyzed. With this, data for patients who did not collect medicines from the hospital pharmacy due to non-availability, opting to buy from another pharmacy, or other personal reasons cannot be confirmed. While this study comes with several limitations, this study used quantitative empirical evidence to evaluate drug prescription patterns in the hospital. Studies on drug dispensing patterns and behaviors are limited in the Philippines. This study could establish the baseline data for future studies with descriptive analysis. Conducting multicentric studies with high-caliber research designs and larger sample sizes could provide more robust evidence that can guide the refinement of existing guidelines on rational prescribing and drug use in the country and improve clinical practice.

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