

Evaluation of psychotropic drugs utilization in a Nigerian psychiatric hospital

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ABSTRACT

Background: Information on drug utilization studies in psychiatry is rare in Nigeria and could be used in the evaluation of healthcare delivery systems. There is need to monitor drug use practices especially in psychiatry to help improve prescribing habits and consequences on the population.

Objectives: To determine the prescribing pattern and assess the health facility indicators in a tertiary mental health facility in Lagos, Nigeria.

Method: A prospective cross sectional study involving the use of six hundred prescriptions selected through systematic random sampling was carried out in the outpatient unit of the Federal Neuropsychiatric Hospital, Yaba (FNPHY), Lagos from August to December 2013. The prescribing pattern and health facility indicators were measured. Use of psychotropic drugs and the incidence of psychiatric disorders were also assessed.

Results: Of the 600 prescription, 336 (56%) belonged to female patients while 264 (44%) belonged to male patients. Average number of drugs per prescription was 3.3, percentage of drugs prescribed by generic name was 72.6%, percentage of encounters with an antibiotic prescribed was 1.5%, percentage of prescriptions with an injection was 29.5%, drugs prescribed from Essential Drugs List (EDL) was 62.1% while drugs available at the point of dispensing was 85.7%. A copy of the National EDL or hospital drug formulary was not available. Schizophrenia and delusional disorder cases were predominant (48.3%), out of which 43.1% were males and 56.9% females. The antipsychotics had the highest prescribing frequency (94.7%).

Conclusion: The prescribing pattern of psychotropics was characterized by polypharmacy, and prescribing by generic name. Assessment of the health facility indicators showed availability of key drugs and non availability of a copy of the Essential Drugs List or a hospital formulary. The study also reports high incidence of schizophrenia and depressive disorders in the facility.

Keywords: Drug utilization, psychotropics, outpatients, psychiatric disorders, Essential Drugs List

Évaluation de l'utilisation des médicaments psychotropes dans un hôpital psychiatrique du Nigeria

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RESUME

Contexte: Des informations sur les études de l'utilisation des médicaments chez les patients psychiatriques sont rares au Nigeria et pourraient être utilisées dans l'évaluation des systèmes de prestation de soins de santé. Il est nécessaire de surveiller les pratiques d'utilisation des médicaments en particulier en psychiatrie pour aider à améliorer les habitudes de prescription et les conséquences sur la population.

Objectifs: Déterminer le modèle de prescription et d'évaluer les indicateurs des établissements de santé dans un établissement de santé mentale tertiaire à Lagos, au Nigeria.

Méthode: Une étude en coupe transversale prospective portant sur l'utilisation de six cents prescriptions sélectionnées par échantillonnage aléatoire systématique a été effectuée dans l'unité ambulatoire (en consultation externe) de l'hôpital neuropsychiatrique fédéral, Yaba (FNPHY), Lagos d'août à décembre 2013. Le motif de prescription et les indicateurs des établissements de santé ont été mesurés. L'utilisation de médicaments psychotropes et l'incidence des troubles psychiatriques ont également été évaluées.

Résultats: Sur les 600 prescriptions, 336 (56%) appartenaient à des patients de sexe féminin tandis que 264 (44%) appartenaient à des patients de sexe masculin. Le nombre moyen de médicaments par ordonnance était de 3,3, la proportion des médicaments prescrits par nom générique était de 72,6%, le pourcentage de rencontres avec un antibiotique prescrit était de 1,5%, la proportion d'ordonnances avec une injection était de 29,5%, les médicaments prescrits de la liste des médicaments essentiels (EDL) étaient 62,1%, tandis que les médicaments disponibles au moment de la distribution était de 85,7%. Une copie de l'EDL national ou du formulaire de médicaments à l'hôpital n'était pas disponible. La schizophrénie et les cas de troubles délirants étaient prédominants (48,3%), dont 43,1% étaient des hommes et 56,9% de femmes. Les antipsychotiques avaient la fréquence de prescription le plus élevé (94,7%).

Conclusion: Le motif de prescription de psychotropes était caractérisé par la polypharmacie, et la prescription par son nom générique. L'évaluation des indicateurs des établissements de santé a montré la disponibilité des médicaments essentiels et la non-disponibilité d'une copie de la liste des médicaments essentiels ou d'un formulaire de l'hôpital. L'étude indique également une forte incidence de la schizophrénie et des troubles dépressifs dans l'établissement.

Mots-clés: utilisation de drogues, psychotropes, consultations externes, les troubles psychiatriques, Liste de médicaments essentiels

INTRODUCTION

Drug utilization study (DUS) has been defined as the marketing, distribution, prescription and use of drugs in a society with emphasis on the resulting medical, social and economic consequences.¹ It is used as a tool in evaluating healthcare systems and creates a sound socio-medical basis for healthcare decision making.² In addition, it helps obtain information to identify problems of drug use, drug administration or dispensing and outcomes of therapy thereby continually improving the rational use of drug. Rational use of drugs is the prescription of a well documented drug at an optimal dose together with the correct information at an affordable price.¹ Data for such study are collected during review of historical records, observation of current patient encounters or general observation at facilities. Drug use practices are assessed within a defined geographical or administrative area using the published World Health Organization (WHO) indicators.⁴ The values obtained help evaluate and monitor drug use practices in the country when compared with reference values.⁵

Mental disorders have been reported to be among the twenty leading causes of disability worldwide⁶ with 20% prevalence in Nigeria.⁷ Each mental disorder is seen as a behavioral or psychological syndrome or pattern that is clinically significant and occurs in an individual. Medications play a role but treatment may also include psychotherapy.

Psychotropic drugs are drugs whose major effects are on mental functions. Clinical psychotropic drugs have impacted the practice of psychiatry remarkably. They are prescribed most times when the mental functioning of an individual is impaired to the extent that the way ordinary demands of life are handled is impaired grossly. Newer drugs like the atypical antipsychotics have been developed and included to improve treatment outcomes in the management of psychiatric disorders. Some other drugs are used in psychiatry to control side effects of some psychotropic drugs (e.g. antiparkinsonian agents) and manage mood disorders (anticonvulsants).

In psychiatry, drug use studies around the world have revealed issues such as irrational prescribing,^{8,9} prescribing drugs by brand names,¹⁰ irrational patient care practices,¹¹ compliance with treatment guidelines,¹² the most common psychiatric diagnoses^{13,14,15} and the most commonly prescribed antipsychotic.¹⁶ In Nigeria, similar studies have shown a high frequency of use or irrational use of antipsychotics^{15,16} Considering the importance of good

drug use practices, the introduction of new drugs with newer brands into the pharmacotherapy of psychiatric disorders, the seemingly high number of patients visiting the hospital on clinic days and the chronic nature of psychiatric disorders, it becomes even more important to evaluate the utilization of these drugs on a regular basis to aid the continuous improvement of prescribing habits and drug use and its attendant consequences on the population. This study was hence undertaken to evaluate the prescribing pattern of psychiatrists in the outpatient department of a tertiary mental healthcare facility in Nigeria, to assess the incidence of mental/ psychiatric disorders and then evaluate the use of each class of psychotropics in the hospital and hence the community.

METHODS

A prospective cross sectional study was undertaken in the outpatient department of the Federal Neuropsychiatric Hospital Yaba (FNPHY), Lagos State, Nigeria from August to December 2013. The study location, Lagos is in the southwest region of Nigeria and has its population projected to be about 21 million in 2015. The hospital is one of the 8 federal mental health specialty hospitals in Nigeria and records about 1100-1200 patient visits per week. Permission of the institution's ethical committee was obtained to conduct this study.

A systematic random sampling method was used to select 600 prescriptions from all outpatients aged 18 years and above who attended the hospital in the period under study. Inpatients, referred patients and patients with epilepsy diagnoses were excluded from the study. Data collected from the patients' prescriptions on their clinic days were augmented with information on the patients' case notes obtained from the Records Department of the institution. Data were entered into a WHO detailed prescribing indicator form modified for use using Microsoft Excel. The mental disorders were grouped according to the International Classification of Diseases (ICD)-10 system of classification of mental and behavioural disorders.¹⁷

Data were analyzed for gender distribution, age of patients, diagnoses, medications prescribed, number of drugs per prescription, percentage of drugs prescribed by generic name, percentage of encounter with an antibiotic, percentage of drugs prescribed from the National Essential Drugs List (EDL),¹⁸ percentage of encounter with an injection, availability of key drugs and availability of a copy of the EDL. This was done using a standardized approach recommended by the WHO.⁴

The prescribing frequencies of selected drug groups and frequency of occurrence of psychiatric diagnoses were

also analyzed. Descriptive statistics was used to obtain frequencies, averages/means, and percentages.

RESULTS

In this study, majority of the patients were aged 18-40 years with more females (336, 56%) than males (264, 44%). The sex and age distribution are shown in figures 1 and 2.

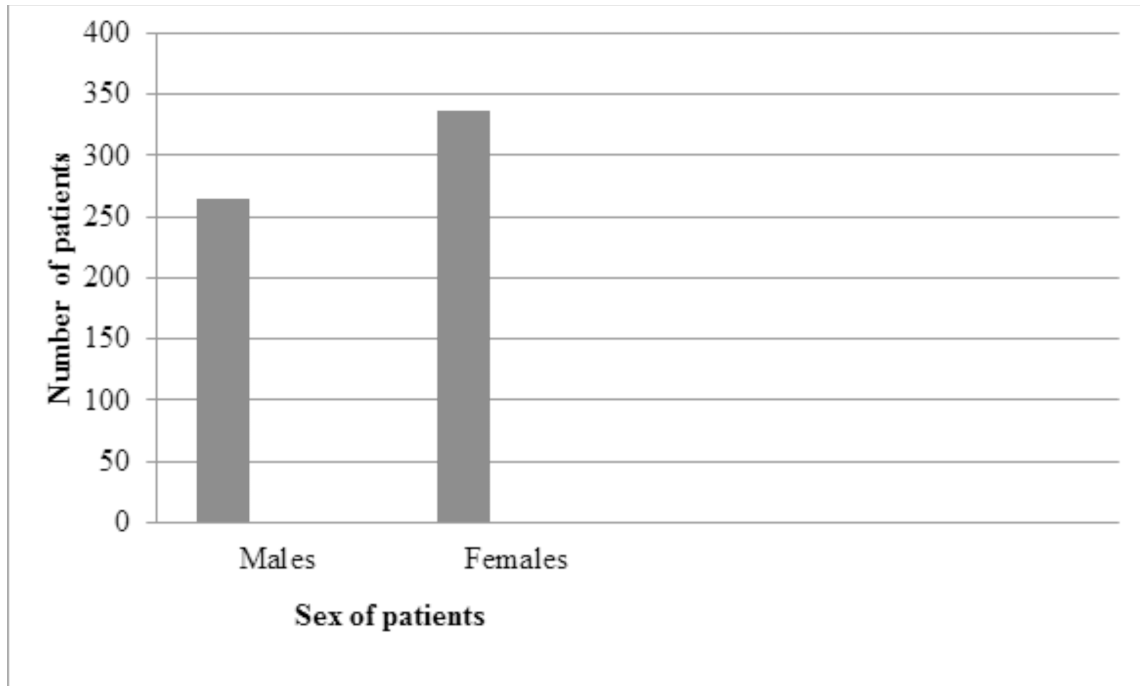


Figure 1: Sex-wise distribution of patients

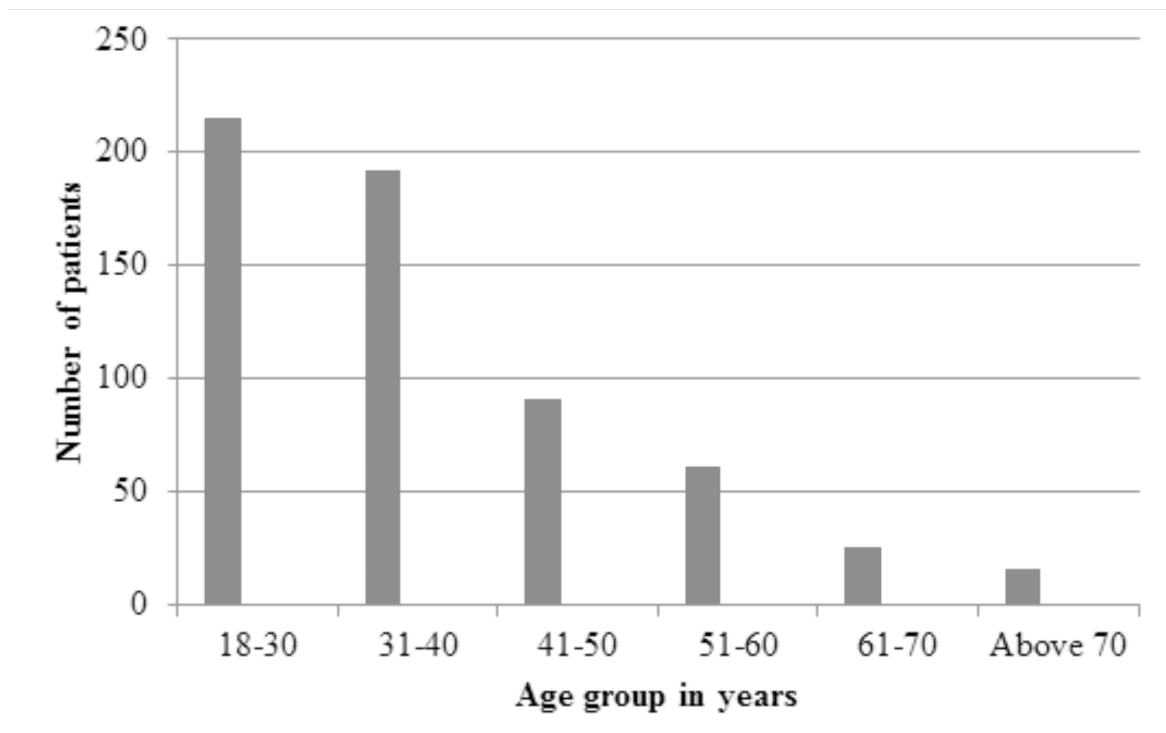


Figure 2: Age distribution of patients

The average number of drugs per prescription was 3.3 ± 1.25 (range 1-7) while the average number of psychotropics per prescription was 2 ± 0.8 (range 0-5). Drug prescribing by generic names was 72.6%, encounters with an antibiotic prescribed were 1.5% while percentage of encounters with injection was 29.5%. A copy of the National Essential Drugs List or a

formulary was not available at the point of prescribing while 62.1% of the drug items prescribed was contained in the Essential Drugs List. Majority (85.7%) of the drugs were available at the facility. Table 1 shows values for the WHO prescribing and health facility indicators obtained at the FNPHY.

Table 1. WHO Core Drug Use Indicators

Prescribing Indicator	Value
Average number of drugs per prescription	3.3
Drugs prescribed by generic names (%)	72.6
Encounter with an antibiotic (%)	1.5
Drugs prescribed from essential drugs list (%)	62.1
Prescriptions with an injection (%)	29.5
Health Facility Indicators	
Key drugs available at point of dispensing (%)	85.7
Availability of a copy of essential drug list or formulary at point of prescribing	0

The class F20-29 (schizophrenia, schizotypal and delusional disorders) in the International Classification of Diseases (ICD)-10 system of classification of mental and behavioural disorders, had the highest occurrence with schizophrenia being the major diagnosis. This was followed by the class F30-39 (mood disorders) with

depression as the main diagnosis. The four most occurring diagnoses involved more females than males. The psychiatric diagnoses and sex distribution are shown in table 2 while the age distribution in relation to the diagnoses is tabulated in table 3.

Table 2: Classification for Mental and Behavioural Disorders
 BAD: Bipolar Affective Disorder MBD: Mental and Behavioural Disorder

ICD-10 class	Diagnoses	Sex (%)	
		Male n=264	Female n = 336
F00-F09	Dementia	4(1.52)	9(2.68)
	Organic Mental Disorder	13(4.92)	8(2.38)
	Organic Delusional Disorder	3(1.14)	2(0.60)
F10-F19	MBD due to psycho. subst.	55(20.83)	1(0.30)
F20-F29	Psychotic Disorder	32(12.12)	37(11.01)
	Schizophrenia	91(34.47)	124(36.90)
	Schizoaffective Disorder	2 (0.75)	4 (1.19)
F30-F39	Manic Disorder	4(1.52)	4(1.19)
	Depression	33(12.5)	99(29.46)
	BAD	17(6.44)	31(9.23)
	Other Mood Disorder	1(0.38)	0(0)
F40-F49	Anxiety Disorder	5(1.89)	3(0.89)
	Somatization Disorder	0(0)	3(0.89)
F50-F59	Sleep Disorder	2(0.75)	2(0.60)
	MBD ass. with puerperium	0(0)	8(2.38)
F70-F79	Mental Retardation	2(0.76)	1(0.30)

F00-F09 – Organic mental disorders

F10-F19 – Mental and behavioural disorders due to psychoactive substance use

F20-F29 – Schizophrenia, schizotypal and delusional disorders

F30-F39 – Mood disorders

F40-F49 – Neurotic, stress related and somatoform disorders

F50-F59 – Behavioural syndrome associated with physiological disturbances and physical factors

F70-F79 – Mental Retardation

Table 3: ICD-10 Psychiatric diagnoses and age distribution

ICD-10 class	Diagnoses	Age Distribution (%)					
		18 –30 n = 215	31 – 40 n =192	41 – 50 n = 91	51 – 60 n = 61	61 – 70 n = 25	> 70 n = 16
F0-F09	Dementia	0(0)	0(0)	0(0)	3(4.9)	3(12)	7(43.8)
	Org. Mental Disorder	11(5.1)	3(1.6)	3(3.3)	1(1.6)	0(0)	3(18.8)
	Org Delusional Disorders	3(1.4)	1(0.5)	0(0)	1(1.6)	0(0)	0(0)
F10-F19	MBD due to psycho. subst.	31(14.4)	20(10.5)	3(3.3)	1(1.6)	1(4)	0(0)
F20-F29	Psychotic Disorder	28(13.0)	30(15.7)	5(5.4)	3(4.9)	3(12)	0(0)
	Schizophrenia	71(32.0)	74(38.7)	39(42.4)	21(34.4)	5(20)	5(31.3)
	Schizoaffective Disorder	1(0.47)	4(2.08)	1(1.09)	0(0)	0(0)	0(0)
F30-F39	Manic Disorders	3(1.40)	1(0.52)	4(4.35)	0(0)	0(0)	0(0)
	Depression	39(18.1)	33(17.2)	29(31.5)	21(34.4)	9(36)	1(6.3)
	BAD	19(8.8)	18(9.4)	4(4.4)	4(6.6)	3(12)	0(0)
	Other Mood Disorders	0(0)	0(0)	0(0)	1(1.6)	0(0)	0(0)
F40-F49	Anxiety Disorder	3(3.4)	2(1.0)	0(0)	2(3.3)	1(4)	0(0)
	Somatization Disorder	0(0)	1(0.5)	1(1.1)	1(1.6)	0(0)	0(0)
F50-F59	Sleep Disorder	0(0)	0(0)	2(2.2)	2(3.3)	0(0)	0(0)
	MBD ass. with puerperium	4(1.9)	4(2.1)	0(0)	0(0)	0(0)	0(0)
F70-F79	Mental Retard.	2(0.9)	1(0.5)	0(0)	0(0)	0(0)	0(0)

The most commonly prescribed drug classes in descending order of frequency include the antipsychotics, non psychotropics, antidepressant, mood stabilizers and the anxiolytics/sedatives. The distribution of the drug classes and individual drugs encountered are shown in Table 4.

Table 4 : Drugs encountered in the study and prescribing frequency

Drugs		Number of Prescriptions N = 600	Percentage (%)
Antipsychotics			
Typical Antipsychotics	Trifluoperazine	117	19.5
	Chlorpromazine	89	14.8
	Haloperidol	116	19.3
	Fluphenazine	66	11.0
	Flupenthixol	27	4.5
	Zuclopenthixol	40	6.7
Atypical Antipsychotics	Clozapine	5	0.8
	Olanzapine	163	27.1
	Risperidone	167	27.8
Antidepressants	Imipramine	3	0.5
	Clomipramine	1	0.2
	Amitriptyline	134	22.3
	Fluoxetine	3	0.5
	Escitalopram	20	3.3
	Paroxetine	5	0.8
	Sertraline	30	5.0
	Diazepam	48	8.0
Anxiolytics/Sedatives	Lorazepam	1	0.2
	Bromazepam	3	0.5
	Nitrazepam	3	0.5
	Carbamazepine	69	11.5
Mood Stabilizers	Sodium Valproate	88	14.7
		327	54.5
Anticholinergics		452	75.3
Others			

Drugs grouped as “others” included vitamins and minerals supplement, cognition enhancers, antihypertensives, antibiotics, antimalarials and analgesics.

DISCUSSION

Out of the 600 patients studied, 56% were females while 44% were males. The higher prevalence of the various psychiatric disorder among females is similar to studies done in India,¹³ New England¹⁹ and Thailand.²⁰ It is also consistent with findings in studies in Enugu¹⁵ and Benin City,²¹ Nigeria but differs from results of studies done in Northern Nigeria.²² Majority of the patients (67.8%) were in the age group 18-40 years. This is consistent with results of studies in Nigeria^{21, 22} and India.^{12, 13} It has been reported that adult mental health disorders begin by adolescence but that the seeds of many conditions manifest in this period are sown in childhood.²³

The high average number of drugs per prescription observed in this study (3.3) is contrary to results obtained in Benin City, Nigeria²¹ and India.¹² However, Hogerzeil *et.al.* in a field test for rational drug use in

twelve developing countries reported a high average number of drugs per encounter (3.8) in Nigeria.²⁴ Polypharmacy in psychiatry is commonly referred to as the concurrent use of two or more psychotropic medications in the same patient²² and is evident in this study as 73.17% of the patients received two or more psychotropics concurrently. High rate of psychotropic polypharmacy has also been previously reported in similar studies.^{22, 25, 26}

Psychiatric disorders have been reported to place patients at higher risk of polypharmacy while polypharmacy increases the risk of morbidity and mortality in patients and also the cost of patients' prescriptions.²⁷ Psychotropic polypharmacy has also been said to put patients at risk of drug interactions with uncertain gains for quality of care and clinical outcomes.²⁶ Some patients had comorbid medical conditions (hypertension, diabetes) and this could have

also contributed to the incidence of polypharmacy in this study. Studies on patient adherence with treatment and treatment outcomes are therefore required considering the degree of polypharmacy.

Prescribing by generic name was at 72.6%. This showed that generic prescribing could still be improved upon to comply with the WHO standard of 100%. Higher values for generic prescribing have been reported in psychiatry.^{12, 13, 15, 21} Percentage of drugs prescribed from the National Essential Drugs List (EDL)(62.11%) was low compared to the 97% obtained as baseline in a study sampled from government facilities in the six geopolitical zones of Nigeria.²⁸ The reference value by the WHO for drug prescribing from the Essential Drugs List is 100%.⁵ It was observed that the newer (atypical) antipsychotics are not in the current Essential Drugs List (The 5th revision of the national EDL). This could have contributed to this lower value since these atypical antipsychotics were prescribed in about 55.8% of the prescription encountered. Higher prescribing from the EDL was reported in Benin City Nigeria. This report also showed that the atypical antipsychotics were not included in the drugs that accounted for about 90% of the entire drugs used in the study.²¹ There is need for the appropriate authorities to review the National Essential Drugs List in accordance with current drug use in psychiatry.

Drug availability at the facility was good but a copy of the Essential Drugs List or a drug formulary was not available. The availability of the Essential Drugs List is a sign of acceptance of its concept as a tool for rational prescribing. Acceptability of the list has been reported low by Adikwu *et. al.* in a study carried out to determine the extent of acceptability of the Nigerian Essential Drugs List.²⁹ Furthermore, the WHO- Assessment Instrument for Mental Health Systems (WHO-AIMS) on Mental Health Systems in Nigeria reported that though a list of essential medicines exists, they are not always available at the health centres.³⁰

Antibiotic prescribing (1.5%) was far lower than the WHO reference (20.0-26.8%)⁵ probably because the facility is a specialized one that focuses majorly on the use of psychotherapeutic drugs. There was a very high percentage of encounters with injection prescribed (29.5%) compared to the WHO standard of 10.1- 17.0%.⁵ Most injections encountered in this study were in depot form. Depot injections are majorly used in patients with adherence problems. They achieve stable plasma concentration over long period and reduce the individual variation in bioavailability and metabolism seen with oral antipsychotic thereby improving

adherence. However they cannot be rapidly withdrawn when adverse effects develop. The non-depot injections also encountered in this study were used to achieve rapid effect in new or relapsed patients. This high frequency of use of injections may be an indication for the need to educate the public on early symptoms of psychiatric disorders, carry out studies on patients' adherence with treatment in psychiatry and/or an intervention.

Schizophrenia, schizotypal and delusional disorders (F20-F29) and mood disorders (F30-F39) accounted for a large proportion of the patient diagnoses. Females were more in both ICD-10 classes of mental and behavioural disorders. Mood disorders however, had greater than two-fold occurrence in females than males. Some studies have reported schizophrenia to be more common in males^{12, 14} and depression more in females.^{10, 12, 30} The WHO reported a higher prevalence of depression in females but no consistent difference in the prevalence of schizophrenia in both sexes.³¹ The most frequently prescribed psychotropics were the antipsychotics. This corresponded to the highest occurrence of schizophrenia reported across all ages in this study as antipsychotics are key in the treatment of schizophrenia. The typical antipsychotics were more frequently prescribed than the atypical. This is similar to results of some studies in Nigeria^{15, 22} and Thailand.²⁰ Some studies in Nigeria¹⁶ and India¹⁴ however reported a higher use of the atypical antipsychotics. This study also showed a good use of the atypical antipsychotics in the prescriptions encountered. Moreover the first two single antipsychotics with the highest prescribing frequency in this study were both atypical (risperidone and olanzapine). The atypical antipsychotics have been recommended as first choice in the treatment of schizophrenia and some other psychiatric disorders because of their better efficacy against positive and negative symptoms, efficacy against refractory cases, and safer adverse effect. However, the typical antipsychotics are used when they are more tolerated or preferred by patients.³² Next to the antipsychotics were the antidepressants and then the mood stabilizers. These are majorly used in mood disorders which in this study had the second highest frequency of occurrence. The anticholinergics drugs (majorly benzhexol) were prescribed in 54.5% of the encounters. Similar report on the use of anticholinergics in psychiatry was seen in a study carried out in Northern Nigeria.²² Lower frequencies of use were however reported in Southern^{9, 21} and Eastern Nigeria¹⁵ and in India.¹⁴ Anticholinergic drugs are recommended to

overcome the extrapyramidal side effects (EPS) associated with the use of antipsychotics. These EPS are more common with the typical antipsychotics which were more frequently prescribed in this study. The remaining group of psychotropics was the anxiolytics/sedatives. This occurred in 9.17% of the encounters.

The study was conducted in a single institution. The results therefore may not be generalizable to other organizations or settings.

CONCLUSION

The study showed more females with psychiatric diagnoses, schizophrenia as the most occurring diagnosis in the facility and the typical antipsychotics having the highest prescribing frequency. This study provides useful information showing the practice of polypharmacy and absence of a copy of the Essential Drugs List in the facility. These do not comply with the WHO recommendations for the rational use of drugs. There is therefore need for interventional strategies to improve the prescribing practice. The absence of the newer antipsychotics from the Essential Drugs List calls for the appropriate authorities to review the list in accordance with current drug use guidelines in psychiatry and ensure a regular update. A periodic assessment is needed to determine the effect of these interventions.

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