

Analysis of The Prescription of Psychotropic Drugs in the Psychiatric Department of the University Hospital of Point G (Chu-Point G) In Bamako (Mali)

Cisse M^{1,2*}, Coulibaly S P^{1,3}, Diarra S I¹, Sangare M¹, Haidara M^{1,4}, Iknane Ag A¹ and Bah S^{1,3}

¹Faculty of Pharmacy of the University of Science, Technology and Technology of Bamako (USTTB).

²National Health Laboratory (LNS) of Bamako.

³Psychiatric Department of the Point-G University Hospital in Bamako.

⁴Department of Traditional Medicine (DMT).

Corresponding Author: Cisse Mody, Faculty of Pharmacy of the University of Science, Technology and Technology of Bamako (USTTB), national Health Laboratory (LNS) of Bamako.

Received: 📅 2024 Dec 12

Accepted: 📅 2024 Dec 24

Published: 📅 2025 Jan 01

Summary

Mental Health is defined by the World Health Organization as « a state of well-being that enables everyone to realize their potential, cope with the normal challenges of life, work successfully and productively, and be able to contribute to the community ». The objective is to study the prescription of psychotropic drugs in the psychiatric department of the University Hospital Center (CHU) of Point G. Our study was carried out among patients treated by the psychiatry department of the Point G University Hospital between January 1 and June 30, 2002 (six months). The Point G Hospital is located on the hills of Point G on the left bank of the Niger River in Commune III of the district of Bamako. The service is called CABANO. This was a randomly descriptive cross-sectional study that included any prescription made during consultation sessions in the psychiatric department of the CHU-Point G containing at least one psychotropic drug. A total of 200 patients were included during the study period. The results obtained showed a predominance of the male sex, i.e. 61, the age range of patients per prescription was 20 to 30 years old and married status constituted the majority of patients (59.5%). They had reached the next level (32%). Neuroleptics were predominant with 71.43% among risperidone (24.72%), haloperidol (17.78%) and chlorpromazine (14.72%). Another therapeutic class prescribed was 13.5% antihistamines. Oral administration (Tablet form) was 85.5%. The care of patients in the psychiatric ward remains a challenge to be met through awareness-raising messages. Neuroleptics were the most prescribed.

keywords: Prescription, Psychotropic Drugs, Psychiatry, University Hospital Point G, Bamako

1. Introduction

Mental disorders are usually characterized by a major clinical impairment in an individual's cognitive state, emotion regulation, or behaviour. Mental disorders include depression, bipolar disorder, anxiety disorders, dementia, developmental disorders (autism), eating disorders, schizophrenia, and other psychoses. Mental disorders are common conditions that affect women and men of all age groups in all societies [2]. For example, the WHO (2006) estimated that more than 12% of global morbidity is due to mental and behavioural disorders [1-3].

Like many developing countries, such as Burkina Faso, Benin and Mali do not have a reliable information system on the extent of mental health problems in the general

population. In 2011, Depression, Pharmacopsychosis, ADP, Schizophrenia and Manic Attack are more common among single people. In 2020, MALAH N. C. Alexandra reported that schizophrenia, schizotypal disorders, and delusional disorders were the most common diagnostic group at 67.8% during her survey. The coverage of psychotropic drugs in the second half of the twentieth century improved the management of psychiatric disorders, making it possible to considerably reduce the psychosocial consequences associated with them. The introduction of psychotropic drugs in the 1950s revolutionized the therapeutic approach to psychiatric disorders. Over time, these drugs have become the cornerstone of the multimodal management of mental illnesses and their prescription is common practice across countries and healthcare systems [4-8].

With the discovery of chlorpromazine in 1953 and its application in psychiatric clinics by Delay and Deniker were at the origin of the intense development of psychopharmacology. Originally, the sedative effects of chlorpromazine were used in states of psychosis with agitation and neuromuscular hyperactivity. Because of its antipsychotic effects, the first neuroleptic of the phenothiazide class (chlorpromazine) was put on the market, under the name Largacil® (Figure 1). Kuhn in 1957, in search of structural analogues of chlorpromazine, led to the discovery of imipramine in the specialty Tofranil® (Figure 1), initially considered as a sedative, but recognized as psychostimulant [9]. In Côte d'Ivoire, the distribution of the types of psychotropic drugs

prescribed according to diagnosis shows that atypical neuroleptics (NALs) had represented the psychotropic drugs prescribed to the minority of patients (21.8%) [7].

In Mali too, another study showed that neuroleptics were the most precious, at 98.4%, in the psychiatric ward at point G [5]. In the absence of a national study on the prescription of psychotropic drugs in Mali and in the face of the threat to socio-economic and health development that these substances can have, we initiated the present work in order to study and analyze the prescription of psychotropic drugs in the psychiatric department of the Point G University Hospital Center in Bamako.

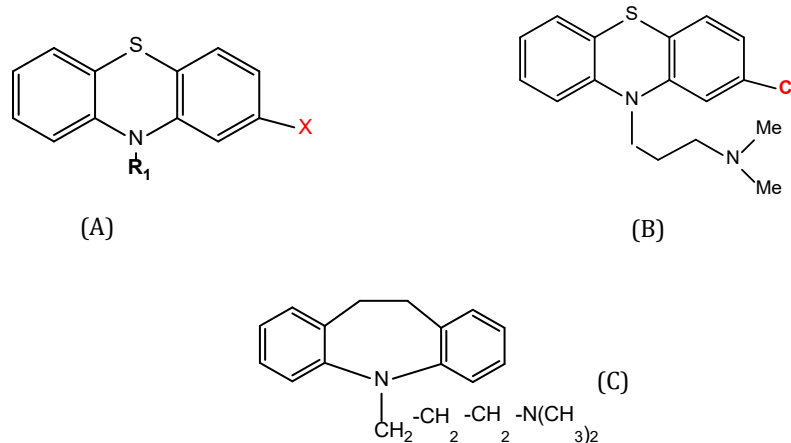


Figure 1: (a) Phenothiazine Ring, (b) Structure of Chlorpromazine and (c) Structure of Imipramine [9-12]

2. Methodology

2.1 Study Setting

The study was conducted at the level of the Psychiatry Department of the CHU-Point G, commonly known as "cabanon", located on the Point G hill, in the north of the district of Bamako (Mali) in commune III, on the left bank of the Niger River. It occupies an area of 25 hectares, nearly 70% of which are currently built, receiving all cases of mental pathology regardless of age.

2.2 Type and Time Period of Data Collection

This was a prospective cross-sectional study aimed at analysing the prescription of psychotropic drugs in the psychiatric department of the CHU-Point-G. The data was collected over a period from January to June 2022, i.e. six months of investigation.

2.3 Study Population

It was made up of patients admitted for consultation in the psychiatric department of the Point G University Hospital in Bamako and their prescription.

2.3.1 Inclusion And Non-Inclusion Criteria

• Inclusion Criteria

Any prescription made by the head of the psychiatric department of the CHU-Point G containing at least one psychotropic drug during our study period.

• Non-inclusion criteria

Any prescription not made by the head of the psychiatric

department of the CHU-Point G any prescription made by the head of the psychiatric department of the CHU-Point G that does not include a psychotropic drug.

2.4 Data Collection Methods

The sociodemographic characteristics of the patients consulted by the head of the psychiatric department at the G-point were collected using a pre-established questionnaire. Information on the drugs prescribed was obtained by consulting the prescriptions made by the head of the psychiatric department at point G. This information concerned prescribed drugs (psychotropic drugs and other classes of drugs) and other elements that must be included in a prescription.

2.5 Sample Size

Our study involved 200 patients consulted by the head of the psychiatric department of the CHU point G who had received at least one prescription containing the prescription of one or more psychotropic drugs.

2.6 Data Collection And Capture

Word and Excel 2016 were used for data entry and analysis.

2.7 Ethical Considerations

This study was authorized by the administration of the Point G University Hospital, the head of the Department of Psychiatry and the Faculty of Pharmacy of the University of Science, Technology and Technology of Bamako. No information that could link a patient to his or her data has

been presented in this work.

3.1. Socio-Demographic Data

They are distributed in the different tables and figures

3. Results

Age range	Actual	Percentage
[10 to 20]	12	6,00
[20 to 30]	69	34,50
[30 to 40]	53	26,50
[40 to 50]	37	7,50
[50 to 60]	15	7,50
[60 to 70]	10	5,00
[70 to 80]	2	1,00
[80 to 90]	2	1,00
Marital status		
Single	80	40,00
Divorced	1	0,50
Married	119	59,50
Level of education		
Not in school	53	26,50
Primary	27	13,50
Secondary	56	28,00
Upper	64	32,00
Status of the patient		
Former patient	180	90,00
New Patient	20	10,00
Traditional Treatments		
No	128	64,00
Yes	72	36,00
Treatment follow-up		
Regular patient	163	81,50
Irregular patient	37	18,50
Total	200	100,00

Table 1: Distribution of Patients by Socio-Demographic Characteristics

The age group of 20-30 years was represented with 34.5% and the bride and groom represented more than half of our study population. Patients with a primary level of education corresponded to 13.5% followed by those not in school with 26.5% of our study population.

3.2. The Distribution of Patients According to Sex

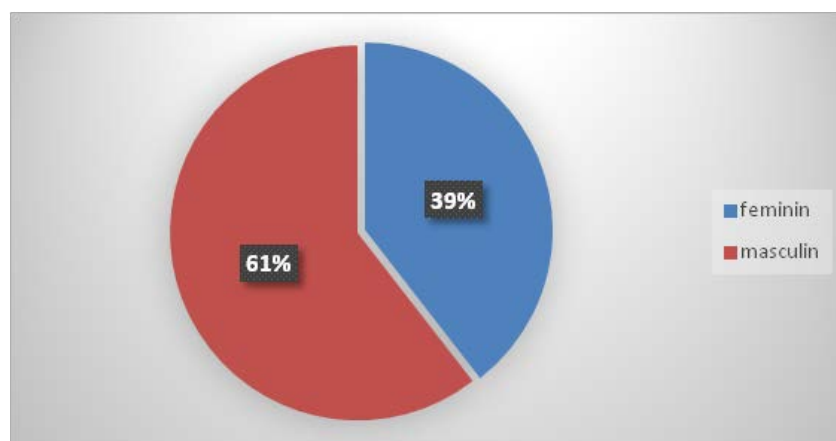


Figure 2: Distribution of Patients by Sex

Our study population was predominantly male with 61% compared to 39% female, i.e. a sex ratio of 1.56.

3.3. Professional Activity of Patients

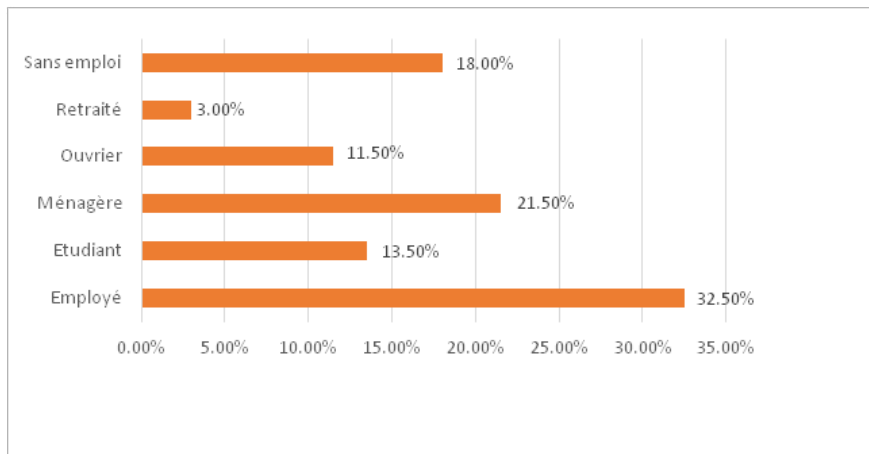


Figure 3: Distribution of Patients by Profession

The percentage of the employed occupation was represented with 32.50%.

3.4. The Different Classes of Psychotropic Drugs

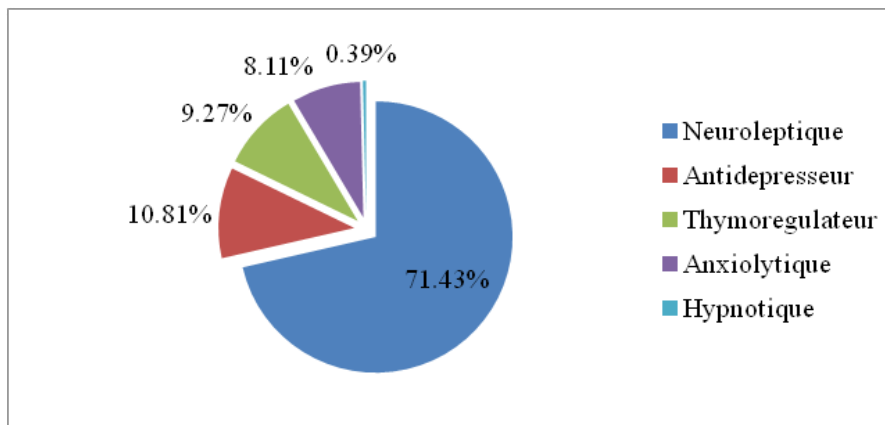


Figure 4: Distribution of Patients by Therapeutic Class

The most frequently encountered psychotropic drugs were, respectively : neuroleptics (71.4%), followed by antidepressants (10.8%) and thymoregulators (9.2%).

Medicaments	Frequency	Percentage
Valproic acid and sodium valproate	4	1,11
Alprazolam	1	0,28
Amisulpride	2	0,56
Amitriptyline	15	4,17
Carbamazepine	34	9,44
Chlorpromazine	53	14,72
Clomipramine	7	1,94
Cyamémazine	41	11,39
Diazepam	21	5,83
Escitalopram	2	0,56
Fluoxetine	6	1,67
Haloperidol	64	17,78
Mexazolam	5	1,39

Mianserine	1	0,28
Mirtazapine	1	0,28
Modecate	2	0,56
Olanzapine	2	0,56
Oxazepam	3	0,83
Paroxetine	1	0,28
Pipothiazine palmitate	2	0,56
Prazepam	1	0,28
Risperidone	89	24,72
Tiapride	2	0,56
Total	360	100,00

followed by antidepressants (10.8%) and thymoregulators (9.2%).

Table 2: List of Medicines Prescribed Under International Nonproprietary Names (INNs)

Risperidone (24.72%) was the most commonly prescribed INN drug, followed by haloperidol (17.78%), chlorpromazine (14.72%) and cyamemazine (11.39%). So neuroleptics are the most prescribed during this study

3.5. Distribution Of Prescribed Drugs According to Their Therapeutic Affiliation

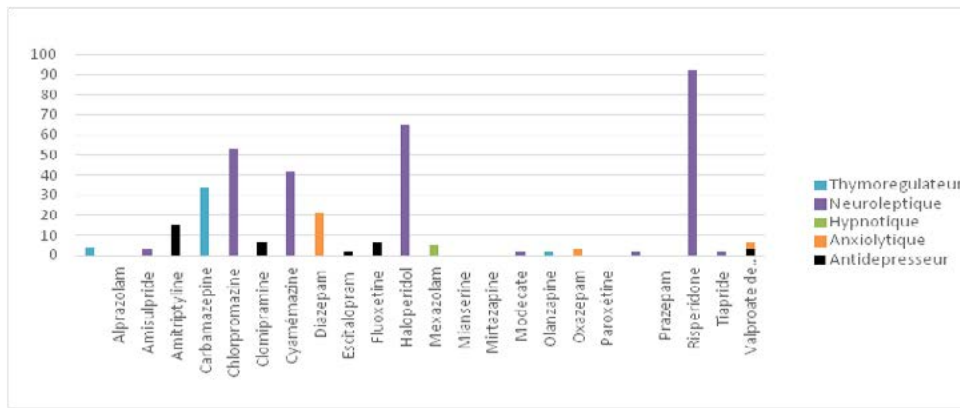


Figure 5: Table Representing Psychotropic Molecules According to their Therapeutic Class. This Figure is Consistent with Table ii Specifying the inn Drug Prescribed and Highlights that Neuroleptics are the Most Prescribed

Number of psychotropic drugs per prescription	Actual	Percentage
M1 (1 Psychotropic)	64	32,00
M2 (2 Psychotropic drugs)	98	49,00
M3 (3 Psychotropic Drugs)	34	17,00
M4 (4 Psychotropic Drugs)	4	2,00
Total	200	100,00

Table 3 : Distribution of Patients by Type of Prescription

49.00% of the prescriptions were based on the two psychotropic drugs most prescribed to patients during our study.

3.6. Other Prescribed Medications

Antihistamine	Actual	Percentage
Hydroxyzine	17	58,62
Promethazine	12	41.38
Total	29	100,00

Table 4: Prescription Repair by Type of Antihistamine

Of the prescriptions containing the antihistamines, Hydroxyzine is present on 58.6% compared to 41.3% Promethazine of the prescriptions.

3.7. Prescribing Information

Dosage	Actual	Percentage
Absent	4	2,00
Present	196	98,00
Stamps on prescription		
Absent	10	5,00
Present	190	95,00
Duration of Appointments		
] 1 month]		
[1 month-2 months]	40	20,00
[2 months-3 months]	51	25,50
[3 months-4 months]	30	15,00
[3 months-6 months]	3	1,50
[4 months-5 months]	15	7,50
[5 months- 6 months]	2	1,00
[5months-6months]	23	11,50
[6 months [15	7,50
Signature of the prescriber		
Absent	8	4,00
This	192	96,00
Total	200	100,00

Table 5: Distribution of Patients by Prescription Information

Of the prescriptions studied, the dosage was present on 98.00%. Of the prescriptions analyzed, 95.00% were sealed compared to 5.00%. Most appointments were between 2 months and 3 months, i.e. a percentage of 25.50%, with

prescriptions with a signature accounting for 96.00%.

3.8. Galenic Forms or Route of Administration

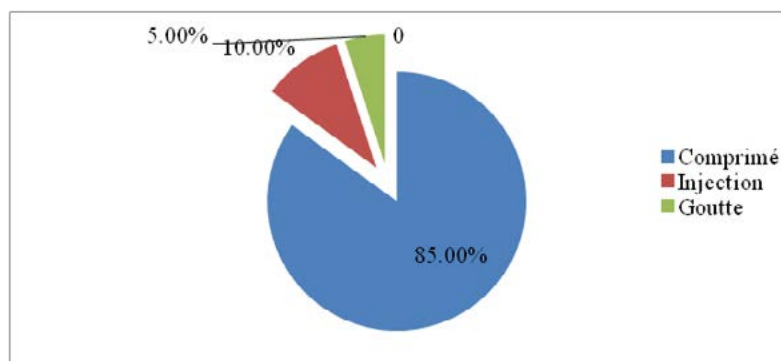


Figure 6: Distribution of Prescriptions by Dosage Form

The compressed form is significantly prescribed with 85.5% compared to 9.8% for the injection form. The drop form is the 3rd galenic form prescribed with only 4.6% of prescriptions.

4. Discussion

4.1. Socio-Demographic Characteristics

During our study, the male sex was the most represented with 61%, i.e. a ratio of 1.53 in favour of the male sex (Figure 2). Our results are similar to those of Berthe, 2007 who scored 51.0% in favour of men. In Morocco, Belghazi et al in 2016, found 77.7% male and in Burkina Faso A. Ouedraogo et al in 2006, found that the male sex was the most represented with 60.0% [3]. On the other hand, our results are different from those of a study carried out in France in 2005, which reported a slight predominance of the female sex [13,14].

The most represented age group was young people aged between 20 and 30 years, i.e. 34.5% (Table I). Our result is lower than that obtained by S. P Coulibaly et al, in 2022, who found in Mali the average age of his patients was 32.6 ± 11.1 years according to I. GASQUET et al, in 2005 in France the average age was 46.3 years in the French sample and 47.0 years in the total sample carried out in Europe [15,14]. It is almost similar to the results of a study carried out in Benin, which had out of 603 subjects surveyed, the 20 to 24 age group (26.87%) were predominant [4].

Married men accounted for more than half of the cases with 59.5% (Table I). Our results were somewhat different from those found by S. P. Coulibaly et al in 2002 in Mali where 50.0% of single people and M. Barrimi et al. in 2013 in Morocco with

two-thirds were single [15,16]. The higher level of study was the most represented with 64 cases or 32.0%, followed by secondary school 28.0% (Table I). The study carried out by S. P. Coulibaly *et al.*, 2002, reported that 60.6% of patients were in school. S. 32 [4]. Other studies confirm these results, the case reported by Laetitia Strenna *et al.*, in 2009 where a survey carried out by Desbrosse-Baloché in 2000 among 772 students in Lyon universities, showed that 31.0% of students consume anxiolytics and 72.0% alcohol. [17]. Several studies have focused on certain stressors such as loneliness and relationship problems between the student and his parents, personal projects are also a potential source of stress. For medical care, the age group of 20-30 years was 34.5%. Our study shows that 72 of the patients (36%) used traditional medicine and 163 patients (81.5%) had a regular status compared to 37 irregular patients, i.e. 31.5% (Table I) out of 200 patients interviewed. In the African context, especially in Mali, traditional medicine occupies an important place through the use of plants and marabouts through Koranic writings.

4.2. Prescribed Therapeutic Classes

The distribution of the types of psychotropic drugs prescribed according to the diagnoses (Figure 4) shows that the most prescribed was that of neuroleptics with 71.43%, followed by antidepressants with 10.8% and thymoregulators with 9.2%. Of the most prescribed neuroleptic class, in ICN medication were Risperidone (24.72%) followed by Haloperidol (17.74%) and Chlorpromazine (14.72%). Other studies carried out in the have found that neuroleptics were the most prescribed at rates varying between 66.1%, 98.4% and 67.8% of psychotropic drugs prescribed during their studies [4,15,18]. In Fez, Morocco, mental disorders diagnosed in hospital required pharmacological treatment such as a combination of anti-depressants and anxiolytics in 60% of cases; antipsychotics in 30% and psychological support in 3% of cases [16]. The data in our study differ from those of several authors, including Britt *et al.*, in 2016 and Toufik Tabril *et al.*, 2021 who reported that the prescription of antidepressants (27.9%; 67.3%) is higher than that of anxiolytics (10.8%; 54.9%) and that neuroleptics did not prescribe or the prescription rate was around 7.1%. Lotrakul M, *et al.*, in 2006 resulted in anxiolytics being the most prescribed 40.6%, followed by antidepressants at 30.2% and neuroleptics at 22.7% [19,21].

Table III showed us that the average number of drugs prescribed per patient varied per prescription. We noted that prescriptions containing two psychotropic drugs (two psychotropic drugs) accounted for 49% followed by prescriptions with a single psychotropic drug (monotherapy = 32%). The results of the work carried out by I. DIAGNE *et al.*, in 2024 in Senegal, were different from ours, as they reported that prescriptions for four and three drugs predominated respectively 38% and 29.3% of prescriptions [22]. Apart from psychotropic drugs, other drugs belonging to other therapeutic classes (Table IV) were prescribed, including antihistamines (H1 blockers). These drugs were Hydroxyzine (58.6%) and Promethazine (41.3%). This therapeutic class is very similar to psychotropic drugs on a

physiological and pharmacological level because they all act on the central nervous system (CNS). I. DIAGNE *et al.*, in 2024 in Senegal and Zoubir Benmebarek *et al.*, in 2016 in Algeria, reported that synthetic or corrective antiparkinsonians were prescribed in 51.2% and 26.1% of patients, respectively [22,23]. Other studies carried out in Europe have shown that the prevalence of polymedication predominates in psychiatric settings, with rates ranging from 41.9% to 92% [23,24] (Art. 25).

4.3. Quality of the Prescription

The lack of stamp and the prescriber's signature were 4.00% and 5.00% respectively on patients' prescriptions (Table V). Our results were close to those obtained by K Ouattara in 2018, who reported that the signature and stamp were only 4.3% and 5.00% respectively on the prescriptions prescribed [27]. The signature and stamp of the prescriber are parameters that identify the prescriber and occupy a very important place in the perspective of a good quality of prescription, Prescribers must indeed mention on the prescription the information necessary to identify them and contact them if necessary. Most appointments were between 2 months and 3 months and accounted for 25.50% of appointments (Table V).

4.4. The Dosage Form and Dosage

The dosage was mentioned at 98.00% compared to 2% on prescriptions. In Burkina Faso, Sondo B *et al.*, in 2021, reported that dosage on prescriptions was mentioned in 78.8% of prescriptions collected at the social security fund [28]. This high percentage that we obtained testifies to the importance that prescribers attach to the accuracy of the dosage of prescribed drugs, because a prescription without a dosage is extremely dangerous for the patient, especially when it comes to psychotropic drugs. The form of the tablets was represented with 85.5% of prescriptions, 9.86% of injections and 4.64% of oral drop forms. Our results were better than those of Koné Aly Badra *et al.*, 2013. In Bamako, they found a predominance of tablet forms with a rate of 74.6%. Op. 36 [36]. This can be explained by the fact that the majority of our patients were adults, but also by the fact that hospitalizations were rare and the oral route was the most used.

4.5. Side Effects Occurred

In our study, 22.0% of patients experienced side effects related to the use of these psychotropic drugs. Y. P. Yao *et al.*, in 2009, reported in his article that all the theories supported in Côte d'Ivoire had shown that the endocrine and metabolic effects were mainly caused by atypical neuroleptics and secondarily by ATE antiepileptic drugs (45.4%) [7].

According to the study conducted by N. Khammassi *et al.*, in 2012, the most commonly used drugs are olanzapine, clozapine, risperidone and quetiapine [29]. These new drugs seem to cause extrapyramidal syndrome or malignant hyperthermia less often than conventional neuroleptics. However, they are not completely devoid of side effects, as they can aggravate a pre-existing extrapyramidal syndrome a diabetogenic effect has been described with most of them

Pancreatic toxicity of olanzapine has been reported [30-32]. It is also thought to be responsible for hypertriglyceridemia [33]. Psychotropic drugs can cause weight gain and metabolic syndrome, thus reducing the quality of life and life expectancy of patients. Weight gain is also responsible for poor adherence to treatment and therefore relapses of mental illnesses. This weight gain and metabolic syndrome are insufficiently treated for obese patients with mental disorders [34].

5. Conclusion

The analysis of the prescription of psychotropic drugs in the psychiatric department of the CHU-Point G highlights several important aspects concerning the practice of prescription and its impact on patients and society. It emerges from this study that the prescription of psychotropic drugs, although essential in the treatment of psychiatric disorders, requires awareness for good care.

First, it is crucial to recognize the importance of thorough patient assessment before prescribing psychotropic drugs. Psychotropic drugs allow patients to cope with their illnesses, to maintain their exchanges or their commitments with families and/or places of socio-professional activity. They account for their individual difficulties while allowing them to continue their social participation despite the various degrees of side effects linked to the various psychotropic drugs. In addition, it is also essential to take into account cultural and socio-economic aspects in the prescription of psychotropic drugs. Cultural beliefs and socioeconomic conditions can influence how patients perceive and adhere to prescribed treatments. Collaboration between different mental health actors, including health professionals, patients, families and non-governmental organisations, is crucial for a holistic approach to the prescribing of psychotropic drugs. Standardized care protocols and clear guidelines can help improve the quality of prescriptions and ensure optimal patient outcomes.

References

1. Psychiatric illnesses and behavioral disorders. <https://www.who.int/fr/news-room/fact-sheets/detail/mental-disorders>, 19/09/2024; 15h00mn
2. Ouédraogo, A., Ouédraogo, T. L., Traoré, A., Sawadogo, G., Nebie, K., et al. (2006). Caractéristiques de la population prise en charge au Service de Psychiatrie du CHU Yalgado Ouédraogo de Ouagadougou (Burkina Faso) de 1990 à 2000. *L'Encéphale*, 32(4), 437-443.
3. World Health Organization (WHO), 2001, *World Health Report: Mental Health: New Vision, New Hopes*. Geneva: WHO, 2001.
4. Tognon-Tchegnonsi, F., Adoukonou, T., Djidonou, A., Ireti, E. A., Gandaho, P. (2020, November). Prevalence of mental disorders in an rural community in Northern Benin: a door-to-door survey. In *ANNALES MEDICO-PSYCHOLOGIQUES* (Vol. 178, No. 9, pp. 908-912). 21 STREET CAMILLE DESMOULINS, ISSY, 92789 MOULINEAUX CEDEX 9, FRANCE: MASSON EDITEUR.
5. Malah Notue, CA (2020). Epidemiology of psychiatric disorders in patients hospitalized in the psychiatry department of the Point G University Hospital in Bamako from January 1, 2014 to December 31, 2018 (Doctoral dissertation, USTTB).
6. Tembely, MB (2012). Mental Disorders and Migration: Problems of their management in the Psychiatry Department of the CHU du Point in Bamako/Mali.
7. Yao 1, YP, Yeo-Tenena 2, YJM, Kamagate 3, M., Allo 4, BZH, Delafosse 5, RCJ (2009). Prescribing psychotropic drugs: difficulties and perspectives in Côte d'Ivoire (West Africa). *L'Information mentale*, (8), 709-714.
8. Bertolote, J. M. (Ed.). (1993). Essential drugs in psychiatry. *Division of Mental Health*, WHO.
9. Delanaye, P., Cohen, E. P. (2008). Formula-based estimates of the GFR: equations variable and uncertain. *Nephron Clinical Practice*, 110(1), c48-c54.
10. Landry, Y., Gies, J. P. (2008). Drugs and their molecular targets: an updated overview. *Fundamental & clinical pharmacology*, 22(1), 1-18.
11. TAOUFIK J., 2007, *precis de chimie thérapeutique*, collection MEDIKA la référence médicale, ISBN: 9954-8775-2-5; 57-121p.
12. KIRKIACHARIA S., 2010, *guide to medicinal chemistry and medicine (design, structure, synthesis, pharmacology, mode of action and activity of drugs)*, international medical editions, 11, rue Lavoisier 75008 paris, ISBN: 978-2-7430-1192-5, 367-645p
13. Belghazi, D., Moussaoui, D., Kadri, N. (2016, March). Epidemiological, clinical and cultural specificities of patients hospitalized in the Ibn-Rushd university psychiatric centre of Casablanca. In *Annales Medico-Psychologiques* (Vol. 174, No. 2, pp. 100-104). 21 STREET CAMILLE DESMOULINS, ISSY, 92789 MOULINEAUX CEDEX 9, FRANCE: MASSON EDITEUR.
14. Gasquet, I., Nègre-Pagès, L., Fourrier, A., Nachbaur, G., El-Hasnaoui, A., et al (2005). Psychotropic drug use and mental psychiatric disorders in France; results of the general population ESEMeD/MHEDEA 2000 epidemiological study. *The brain*, 31 (2), 195-206.
15. Coulibaly, SP, Dolo, H., Notue, CAM, Sangaré, M., Mounkoro, PP, A et al. (2022). Hospital epidemiology of psychiatric disorders in Mali. *The Pan African Medical Journal*, 41, 160-160.
16. Barrimi, M., Zaidi, K., Hlal, H., Kettani, N., Khelafa, S., et al. (2014). Violent suicide attempts at the Fez General Hospital (Morocco): assessment and management in liaison psychiatry. Six-month prospective study. *L'Évolution Psychiatrique*, 79 (4), 619-628.
17. Strenna, L., Chahraoui, K., Vinay, A. (2009). Mental health in first-year business school students: links with career orientation stress, self-esteem and coping. *School and career guidance*, (38/2), 183-204.
18. Turner, A. J., Willetts, J. R., Fane, S. A., Giurco, D., Chong, J., et al. (2010). *Guide to demand management and integrated resource planning* (Update on Original 2008 Guide).
19. Britt, H., Miller, G. C., Valenti, L., Henderson, J., Bayram, C., et al. (2016). The changing face of Australian general practice across the decades. *Australian family physician*, 45(9), 628-631.
20. Tabril, T., Hammani, Z., Chekira, A., Qassimi, F., Bout, A., et

- al. (2021, June). The prescription of psychotropic drugs in general medicine. In *Annales Médico-psychologiques, psychiatric journal* (Vol. 179, No. 6, pp. 514-518). Elsevier Masson.
21. Lotrakul, M., Saipanish, R. (2006). Psychiatric services in primary care settings: a survey of general practitioners in Thailand. *BMC family practice*, 7, 1-7.
 22. Diagne, I., Dieye, M., Wade, R., Petit, V., Ndiaye-Ndongo, ND, et al. (2024). Outpatient prescription modalities for psychotropic drugs at the Thiaroye National Psychiatric Hospital in Dakar (Senegal). *International Journal of Innovation and Applied Studies*, 41 (4), 1032-1043.
 23. Benmebarek, Z., & Benaldjia, H. Outpatient Psychotropic Drugs Prescription in El Madher Psychiatric Hospital Batna: a three-month cross sectional study.
 24. Rittmannsberger, H., Meise, U., Schauflinger, K., Horvath, E., Donat, H., et al. (1999). Polypharmacy in psychiatric treatment. Patterns of psychotropic drug use in Austrian psychiatric clinics. *European Psychiatry*, 14(1), 33-40.
 25. Moore S, Jaime LK, Maharajh H, Ramtahal I, Reid S, RamsewakFS, MaharajM. The prescribing of psychotropic drugs in mental health services in Trinidad. *Rev Panam Salud Publica*, 12 (3): 207-14, 2002. DOI: 10.1590/S1020-49892002000900010. PMID: 12396640.
 26. Paton, C., Duffett, R., Harrington, M., Lelliott, P., Okocha, C. et al. (2003). Patterns of antipsychotic and anticholinergic prescribing for hospital inpatients. *Journal of Psychopharmacology*, 17(2), 223-229.
 27. Ouattara, K., Lemasson, A., Zuberbühler, K. (2009). Campbell's monkeys concatenate vocalizations into context-specific call sequences. *Proceedings of the National Academy of Sciences*, 106(51), 22026-22031.
 28. Sondo, B., Ouédraogo, V., Ouattara, TF, Garane, P., Savadogo, L., et al. (2002). Study of the writing quality of medical prescriptions at the Social Security Fund of Ouagadougou. *Public Health*, 14 (1), 31-36.
 29. Khammassi, N., Mansour, A. B., Abdelhedi, H., Cherif, O. (2012, May). Les effets indésirables des psychotropes chez le sujet âgé: étude rétrospective de 35 cas. In *Annales Médico-psychologiques, revue psychiatrique* (Vol. 170, No. 4, pp. 251-255). Elsevier Masson.
 30. Rudolf, J., Ghaemi, M., Schülling, S. (1999). Deterioration of parkinsonian symptoms following treatment of dopaminergic hallucinosis with olanzapine. *European psychiatry*, 14(6), 356-357.
 31. Sernyak, M. J., Leslie, D. L., Alarcon, R. D., Losonczy, M. F., Rosenheck, R. (2002). Association of diabetes mellitus with use of atypical neuroleptics in the treatment of schizophrenia. *American Journal of Psychiatry*, 159(4), 561-566.
 32. Doucette, D. E., Grenier, J. S., Robertson, P. S. (2000). Olanzapine-induced acute pancreatitis. *Annals of Pharmacotherapy*, 34(10), 1128-1131.
 33. Sheitman, B. B., Bird, P. M., Binz, W., Akinli, L., Sanchez, C. (1999). Olanzapine-induced elevation of plasma triglyceride levels. *American Journal of Psychiatry*, 156(9), 1471-a.
 34. Locatelli, L., Golay, A. (2018). Psychotropic drugs and weight. *Revue Medicale Suisse*, 14(599), 605-609.