

# Analysis of the Trend in the Consumption of Psychoactive Substances in Senegal from 2018 to 2022

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## Abstract

**Purpose:** The aim of the study was to investigate the profile of psychoactive substance users in Senegal from 2018 to 2022. **Methodology:** These were retrospective descriptive studies of patient consultation and hospitalization records in the 17 psychiatric and addictology care centers in Senegal from 2018 to 2022. This was an exhaustive survey. All usable consultation and hospitalization registers were included in the study. Non-usable consultation and hospitalization registers were not included. Data were collected from January 1 to December 31 of each respective year. Data were cleaned using Excel before analysis. R software version 4.3.3 was used for analysis. **Results:** Between 2018 and 2022, 26,029 patients were registered in mental health facilities in Senegal. The Fann Psychiatry Department (CHNU Fann) admitted 23.2% of patients and the Thiaroye National Psychiatric Hospital registered 17.6% of drug users. For the year 2019, we found 8259 and in 2021, we had 6607 patients. The male gender was more represented with 14,750 patients, or 90.9%. The age group [25 - 34] was the majority (7013 patients or 39.5%). The majority of patients (17,425 patients, or 84.6%) were followed as outpatients. The drugs were mainly inhaled (96.7%). The most consumed substance was cannabis with 8847 patients, or 54.2%. Withdrawal was the main reason for treatment, 11,614 patients, or 85.7%. **Conclusion:** In the light of the results of our study, we can say that the use of psychoactive substances is a real public health and development problem in Senegal. The peaks in psychoactive substance consumption preceded the peaks in psychiatric care centers, so we need to promote information, education and communication on the harmful effects of psychoactive substance consumption among the population in general and young people in particular, in order to safeguard the country's development.

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## Keywords

Consumption, Substance, Psychoactive, Drugs, Senegal

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### 1. Introduction

The World Health Organization (WHO) defines psychoactive substances as “any psychotropic or psychoactive substance which, because of its chemical nature, disturbs the functioning of the central nervous system (sensations, perceptions, moods, feelings, motor skills) or alters states of consciousness” [1]. They are classified into different categories according to the effects they produce: disruptive (e.g. cannabis, ecstasy), depressant (e.g. opioids, alcohol) or stimulant (e.g. cocaine, amphetamines). They can lead to significant health problems for users, such as overdoses, or psychosocial consequences such as dependence and mental health disorders [2]. Substance-related disorders are a public health problem, given the morbidity and mortality they cause [3] [4]. Worldwide, deaths related to illicit psychoactive substances accounted for around 1% of all deaths among people aged 15 - 64 in 2012 [5]. In 2014, an estimated 207,400 deaths related to the use of illicit psychoactive substances occurred worldwide [2]. In 2017, worldwide, 271 million people aged 15 to 64 were estimated to have used drugs at least once in the past year (for an estimated range of 201 to 341 million). This represents 5.5% of the world’s population in this age group (range 4.1% - 6.9%), or one in 18 people [6]. Substance-related disorders are also a development and security issue in both high- and low-income countries [3]. According to the World Health Organization (WHO) and the World Bank (WB), the global economy loses around 1 trillion \$ in productivity every year due to mental disorders [7], which in question is just one of the psychosocial consequences [2]. This consumption of psychoactive substances is a fad [8]. According to an analysis conducted by the United Nations Office on Drugs and Crime (UNODC), projected population growth for 2030 would result in a potential 11% increase in the world’s population using psychoactive substances, with a greater impact in low-income countries. This increase could be even greater in countries where the under-25 population represents more than half of the demographic distribution [9]. In Africa, 60% of the population is under 25, making exposure of young people to psychoactive substances a major challenge [10]. By 2030, 83 million Africans aged between 15 and 64 will have used at least one drug in the course of the year, representing a 38% increase in the number of users [10].

It is mainly during adolescence, the period of integration into the peer circle and distancing from parents, that initiation into the consumption of legal psychoactive substances such as alcohol and tobacco, but also illicit ones such as cannabis (Indian hemp), cocaine, heroin and other psychoactive substances of various kinds, takes place. In most cases, this initiation leads to harmful use or even dependence, which represents a major health risk [11]. Globally, on average, almost

one young person between the ages of 13 and 15 has consumed alcohol in the last 12 months, twice as much as tobacco. Tobacco is often the first substance used by teenagers, with one in four 13 - 15 year olds who have smoked cigarettes having done so before the age of ten [12]. If current trends persist and no action is taken to reduce smoking rates, the annual number of smoking-related deaths is expected to reach 10 million worldwide by the year 2025, with 7 million of these occurring in developing countries (13). Despite all this data, tobacco continues to wreak havoc and win over new fans. According to the World Health Organization (WHO), an estimated 250 million children today are expected to die from tobacco-related diseases [13]. In Africa, if nothing is done, it is estimated that smoking prevalence will rise from 15.8% in 2010 to 21.9% in 2030 [14]. Excessive alcohol consumption causes 320,000 deaths among young people aged 15 to 29 every year, representing 9% of total mortality in this age group. Cannabis consumption has also been trivialized in recent years, particularly among young people, due in part to its reputation as a “soft” drug that poses little danger to health. In reality, however, there is short- and long-term brain toxicity associated with cannabis, marked mainly by cognitive, addictive and psychotomimetic effects [15]. Cannabis dependence does exist, although the risk associated with cannabis is lower than with other substances such as tobacco, alcohol and opioids [16]. The early onset of cannabis use in adolescence could be the main risk factor for the onset of psychotic disorders (risk of schizophreniform disorders at age 26 was greater in subjects who started using before age 15 (OR = 3.12) than in those who started after age 18 (OR = 1.42) [15]. Several longitudinal studies have found that cannabis use increased the risk of use of and dependence on other illicit drugs, the more so if the subjects had started before the age of 16 [15].

Senegal, like other African countries, has for years been faced with a diversification of drug consumption and trafficking methods [17]. Between 2019 and 2022, 57 tonnes of cocaine were seized en route to West and Central Africa. In 2021 - 2022, at least 57 tonnes of cannabis resin were seized en route to West and Central Africa [3]. Senegal occupies a strategic geographical position that attracts the interest of traffickers [17]. It is also characterized by the extreme youthfulness of its population, with 42% of its population aged under 15 and a median population age of 18, according to the Agence Nationale de la Statistique et la Démographie’s 2018 report [18]. In Senegal, total alcohol consumption per capita was estimated at 0.7 liters in 2016 and tobacco consumption at 9.1% in 2018 [3]. The economic cost of smoking in Senegal amounts to 5522 million CFA francs. This total cost includes direct costs linked to healthcare expenditure and indirect costs linked to lost productivity due to early mortality and morbidity in 2019 [5]. Aware of the scale and harmful consequences of the consumption of licit (tobacco, alcohol) and illicit drugs, Senegal, like most African countries, has signed and ratified the Framework Convention on Tobacco Control. The three conventions on the organization, development and intensification of the fight against drugs and an anti-drug policy (POLUDRO) have been drawn up [5]. While communities in West

Africa suffer from the psychosocial, economic and health consequences of drug use, the unavailability of reliable data to account for the scale, patterns and trends of such consumption is a major obstacle to prevention and demand reduction efforts in the region [18]. The literature review has helped us to understand the complexity of the problem of psychoactive substance use and the need for care for substance users. However, to our knowledge, none of these studies has investigated the epidemiology of psychoactive substance use in Senegal from 2018 to 2022, hence this study. The aim of our study is to examine the epidemiological aspect of the use of psychoactive substances on the one hand, and on the other hand, the management of users of psychoactive substances in order to comply with the three conventions on the organization, development and intensification of the fight against drugs and an anti-drug policy (POLUDRO), and thus ensure the economic and social development of Senegal.

## 2. Study Framework

Senegal is located in the extreme west of the African continent. It covers an area of 196,712 km<sup>2</sup>, with a western coastline of over 700 km. It is bordered to the north by the Islamic Republic of Mauritania, to the east by the Republic of Mali, to the south by the Republic of Guinea and the Republic of Guinea Bissau, and to the west by the Atlantic Ocean. The Republic of the Gambia constitutes an enclave 25 km wide and almost 300 km long within Senegalese territory [19]. In 2019, Senegal's population was estimated at 16,209,125, with a demographic growth rate of 2.5%. The average population density is 82 inhabitants per km<sup>2</sup> [19]. Life expectancy was 63 years in 2014 and the literacy rate was 53% in 2013. Young people account for more than half the population (54%). In terms of economic data, GDP in 2019 was USD 22.7 billion. The growth rate in the same year was 5.2% and the unemployment rate for economically active individuals (aged 15 and over) was 17% in December 2019 [17].

There are 17 psychiatry services operating in Senegal today.

In 2019 these were [20]:

- Fann National Hospital Psychiatry Department;
- Pavillon France at Hôpital Principal de Dakar;
- The neuropsychiatry department of the Ouakam military hospital;
- Thiaroye psychiatric hospital;
- Émile Badiane psychiatric center in Ziguinchor;
- Dalal Xël psychiatric center, Fatick;
- Dalal Xël psychiatric center, Thiés;
- Dimkoré psychiatric center in Tambacounda.

Three child psychiatry facilities are available:

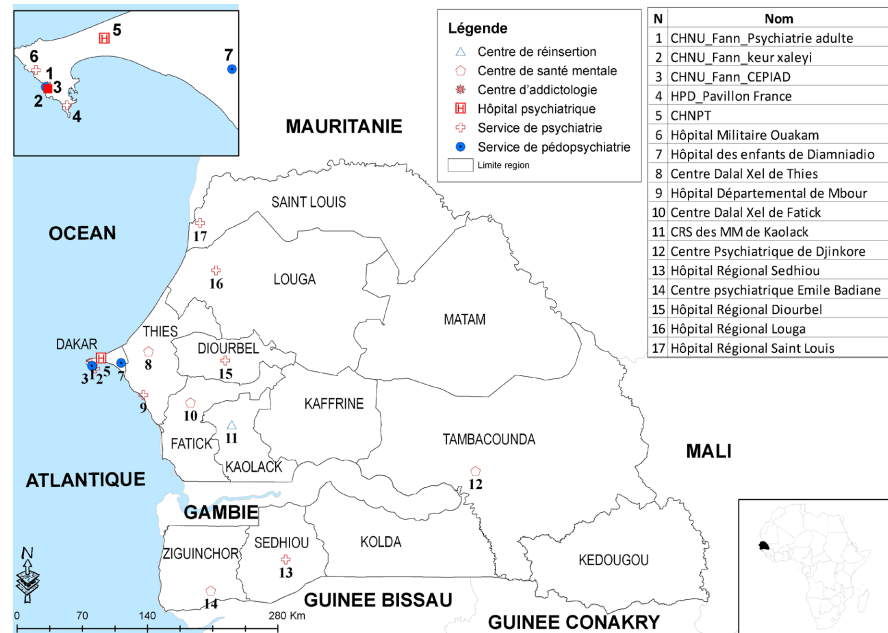
- Keur Xaléyi psychiatric unit at the FANN national hospital;
- The child psychiatry department at the Diamniadio children's hospital;
- The child psychiatry department at Thiaroye Hospital.

In 2004, the Projet de Construction et de Réhabilitation du Patrimoine de l'Etat

(PCRPE) was tasked with setting up four social reintegration and rehabilitation centers:

- The Kaolack center for the care and treatment of the mentally ill;
- The Bambey center for the disabled (visual, hearing, motor, albino);
- The Bignona and Darou Mousty centers for the social reintegration of young social misfits and drug addicts.

The Projet de Construction et de Réhabilitation du Patrimoine de l'Etat (PCRPE) was dissolved in 2009 and replaced in 2010 by the Projet d'Achèvement des Programmes de Construction et de Réhabilitation d'Édifices pour l'Etat (PAPCREE) and was responsible for finalizing the construction of these social reintegration and rehabilitation centers [21]. In 2014, as part of the fight against HIV among injecting drug users, the Centre de prise en charge intégrée des addictions de Dakar (CE-PIAD) was created. It is thus the first specialized center in the West African region on the management of drug use cases [22]. This service was subsequently decentralized to Thiaroye, Mbour, Diourbel and Kaolack [21] (see **Figure 1**).



**Figure 1.** Map of the geographical organization of psychiatric facilities in Senegal [23].

### 3. Methodology

These were retrospective descriptive studies of patient consultation and hospitalization registers in the 17 psychiatric and addictology care centers in Senegal from 2018 to 2022. All usable patient consultation and hospitalization registers from the 17 psychiatric and addictology care centers in Senegal were included in the study. Non-usable patient consultation and hospitalization records from the 17 psychiatric and addictology centers in Senegal were not included. An exhaustive survey was carried out, i.e. an exhaustive list of all 17 psychiatric and addictology care centers in Senegal was drawn up, and all consultation and hospitalization

registers were used. Data collection covered the period from January 1 to December 31 of each respective year, i.e. the 2018 data covered the period from January 1 to December 31, 2018, and so on. The data collected covered psychiatric and addictive care centers, patients' socio-demographic characteristics, the mode of administration of psychoactive substances, the psychoactive substance consumed, the type of care provided to patients and the type of request. For the purposes of this study, psychoactive substances included cigarettes, alcohol, medicines, cannabis, crack, cocaine, heroin, solvents, glues, Relevin and "other substances". Data were cleaned using Excel before analysis. R software version 4.3.3 was used for analysis. Quantitative variables were described in terms of mean with standard deviation and median with extremes. Qualitative variables were described in terms of absolute frequency. The binom, BioStatR, epiDisplay, Hmisc, dplyr, ggplot2, gtsummary, tseries and forecast libraries were used. A time series model (the Arima model) was used to predict psychiatric and addictive care center attendance and psychoactive substance use from 2023 to 2025. To do this, the data were transformed into a time series using the commands (ts and is.ts). The (decompose) command was used to visualize the trend, seasonality and errors of the series. The (adf.test) command was used to check the stationarity of the model, i.e. the model was good when p was < 5%. The approval of the Comité National d'Éthique pour la Recherche en Santé (CNERS) was obtained. Free and informed consent was obtained from the respective psychiatric and addictive care centers. Senegalese regulations governing the collection of personal data were complied with. The confidential data collected will be kept secure, and the results will be used for scientific purposes only.

## 4. Results

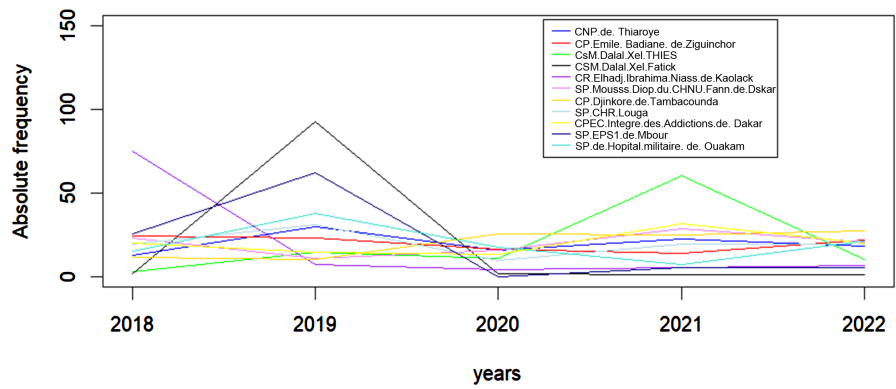
### 4.1. Care Facilities

A total of 26,029 patients were received from 2018 to 2022 in all 17 psychiatric and addictology care centers in Senegal (see **Table 1**).

**Table 1.** Description of the number of patients managed in Senegal from 2018 to 2022.

Variables	Parameters						
	Min	Max	Mean	Median	1stQ	3rdQ	SD
Global number of patients received	51	26029	4338	1856	1007	4165	7082.3
number of patients received by year	1	3640	473.3	277	69.5	590	650.7
New cases	754	3503	1881	1612	829	2708	1200.4
Former cases	1433	3781	2937	3104	2944	3424	899.9

In 2019 and 2021, 8259 patients (92.8%) and 6607 patients (60.3%) were received respectively (see **Figure 2**).



**Figure 2.** Patient care per year in Senegal from 2018 to 2022.

The Service de Psychiatrie de Fann (CHNU Fann) and the Hôpital National Psychiatrique de Thiaroye received 6033 patients (23.2%) and 4577 patients (17.6%) respectively (see **Table 2**).

**Table 2.** Distribution of patients by psychiatric center in Senegal from 2018 to 2022.

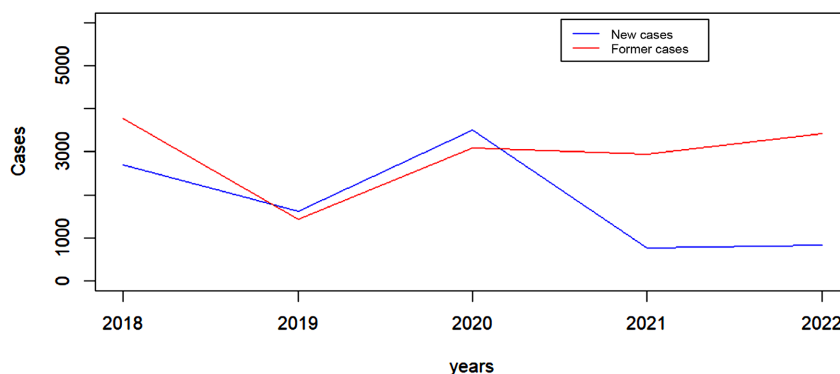
Psychiatric centers	Years					Total N (%)
	2018 N (%)	2019 N (%)	2020 N (%)	2021 N (%)	2022 N (%)	
CNP de Thiaroye	580 (12.7)	1373 (30.0)	742 (16.2)	1040 (22.7)	842 (18.4)	4577 (17.6)
CP Emile Badiane de Ziguinchor	341 (24.2)	328 (23.3)	231 (16.4)	195 (13.9)	312 (22.2)	1407 (5.4)
CSM Dalal Xel THIES	127 (3.2)	590 (14.6)	455 (11.3)	2428 (60.3)	428 (10.6)	4028 (15.5)
CSM Dalal Xel Fatick	76 (2.0)	3640 (92.7)	83 (2.1)	63 (1.6)	63 (1.6)	3925 (15.1)
CR Elhadj Ibrahima Niass de Kaolack	242 (75.2)	24 (7.5)	15 (4.6)	18 (5.6)	23 (7.1)	322 (1.2)
SP Moussa Diop du CHNU Fann de Dakar	1403 (23.2)	684 (11.3)	961 (16.0)	1747 (29.0)	1238 (20.5)	6033 (23.2)
CP Djinkore de Tambacounda	119 (11.6)	108 (10.5)	262 (25.5)	256 (24.9)	283 (27.5)	1028 (3.9)
SP CHR Louga	10 (19.6)	16 (31.4)	5 (9.8)	10 (19.6)	10 (19.6)	51 (0.2)
CPEC Integre des Addictions de Dakar	434 (20.1)	316 (14.7)	290 (13.5)	679 (31.5)	434 (20.2)	2153 (8.3)
SP EPS1 de Mbour	242 (25.6)	590 (62.5)	1 (0.1)	56 (5.9)	56 (5.9)	945 (3.6)
SP de Hopital militaire de Ouakam	242 (15.5)	590 (37.8)	277 (17.8)	115 (7.4)	336 (21.5)	1560 (6.0)
<b>Total</b>	<b>3816 (14.6)</b>	<b>8259 (31.7)</b>	<b>3322 (12.8)</b>	<b>6607 (25.4)</b>	<b>4025 (15.5)</b>	<b>26029 (100)</b>

14,686 patients or 61.0% were old cases. In 2020, there was a peak in the number of new cases, with 3,503 patients (see **Figure 3**).

#### 4.2. Socio-Demographic Characteristics and Management

14,750 patients (90.9%) were male. 7013 patients (39.5%) were in the [25 - 34] age bracket, 8991 patients (56.7%) were inhalers/smokers, 7425 patients (86.6%) had

attended an outpatient clinic, and 1,116 individuals (85.7%) had requested weaning (see **Table 3**).



**Figure 3.** Number of new and old cases of patients managed for consumption of in Senegal from 2018 to 2022.

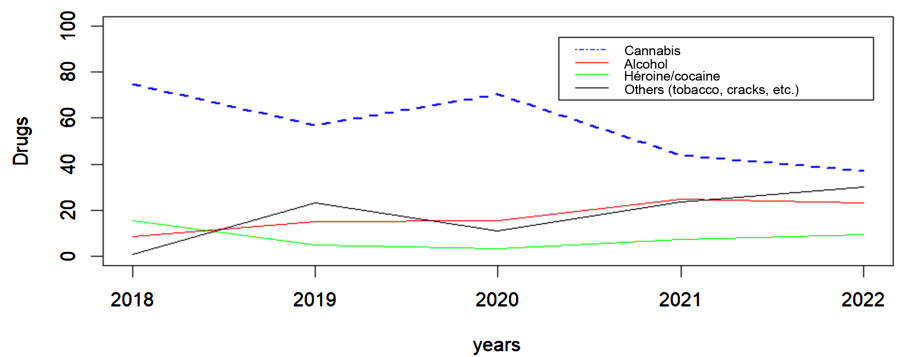
**Table 3.** Distribution of patients according to gender, age, mode of administration, type of management, substances consumed and type of request in Senegal from 2018 to 2022.

Management of psychoactive substance users in Senegal from 2018 to 2022.		2018		2019		2020		2021		2022		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
		(N = 2675)	100	(N = 2708)	100	(N = 2910)	100	(N = 3689)	100	(N = 4254)	100	N	%
Gender (N = 16 235)	Male	2584	96.6	2490	92.0	2521	82.8	3221	87.3	3934	92.5	14,750	90.9
	Female	91	3.4	218	8.0	389	17.2	468	12.7	319	7.5	1485	9.1
		(N = 2656)	100	(N = 3549)	100	(N = 3549)	100	(N = 3689)	100	(N = 4293)	100	N	%
Age group (N = 17 766)	Under 14 years	0	0	19	0.5	19	0.5	0	0	55	1.3	93	0.5
	[15 - 24]	1268	47.7	1046	29.4	1046	29.4	971	26.3	898	21.2	5259	29.6
	[25 - 34]	799	30.1	1403	39.5	1403	39.5	1242	33.7	2166	51.1	7013	39.5
	[35 - 44]	437	16.5	732	20.6	732	20.6	816	22.1	941	22.2	3658	20.6
	[45 - 54]	137	5.1	204	6.0	204	6.0	373	10.1	102	2.4	1020	5.7
	[55 et +]	15	0.6	145	4.0	145	4.0	287	7.8	131	3.1	723	4.1
		(N = 2656)	100	(N = 2709)	100	(N = 2558)	100	(N = 3690)	100	(N = 4235)	100	N	%
Method of drug administration (N = 15 848)	By inhalation/Smoke	1972	74.3	1633	60.3	1315	51.4	2081	56.4	1990	47.0	8991	56.7
	By mouth	250	9.4	412	15.2	389	15.2	1251	33.9	1779	42.0	4081	25.8
	By sniffing	73	2.7	69	2.5	210	8.2	196	5.3	305	7.2	853	5.4
	By intravenous route	92	3.5	129	4.8	129	5.1	11	0.3	119	2.8	480	3.0
	Other/combined	269	10.1	466	17.2	515	20.1	151	4.1	42	1.0	1443	9.1
		(N = 2656)	100	(N = 6489)	100	(N = 3045)	100	(N = 3686)	100	(N = 4253)	100	N	%
Type of care (N = 20 132)	Outpatient consultation	2010	75.7	5806	89.5	1899	62.4	3648	98.9	4062	95.5	17,425	86.6
	Hospitalization	646	24.3	683	10.5	1146	37.6	41	1.1	191	4.5	2707	13.4
		(N = 2633)	100	(N = 2708)	100	(N = 3045)	100	(N = 3688)	100	(N = 4254)	100	N	%
Consumed substances (N = 16 328)	Cannabis	1972	74.9	1 541	56.9	2136	70.1	1616	44.0	1582	37.2	8847	54.2
	Alcohol	230	8.7	409	15.1	473	15.6	922	25.0	987	23.2	3021	18.5
	Heroin/Cocaine	411	15.6	129	4.8	101	3.3	275	7.3	404	9.5	1320	8.1
	Other/Tobacco, Crack etc.	20	0.8	629	23.2	335	11.0	875	23.7	1281	30.1	3140	19.2

Continued

Type of request (N = 13 553)		(N = 2717)		(N = 2717)		(N = 2717)		(N = 2169)		(N = 3233)		N	%
			100		100		100		100		100		
	Weaning	2323	85.5	2323	85.5	2323	85.5	2114	97.5	2531	78.0	11,614	85.7
	Substitution	49	1.8	49	1.8	49	1.8	20	1.0	78	2.4	245	1.8
	Consumption reduction	210	7.7	210	7.7	210	7.7	14	0.6	406	12.5	1050	7.7
	Aftercare	30	1.1	30	1.1	30	1.1	7	0.3	23	0.7	120	0.9
	Other	105	3.9	105	3.9	105	3.9	14	0.6	195	6.0	524	3.9

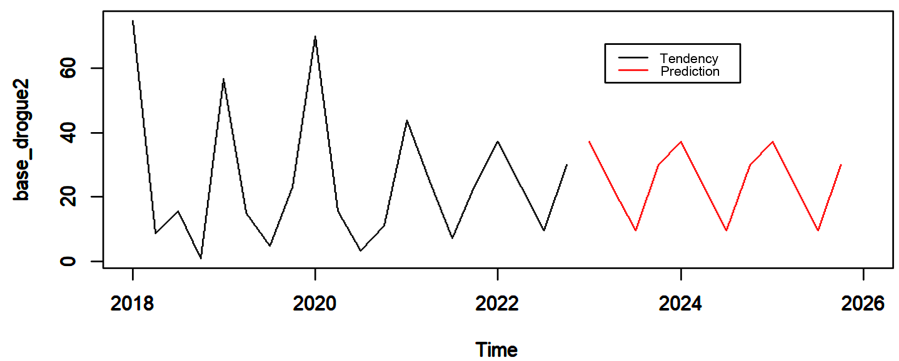
The most widely used psychoactive substance was cannabis, with a peak in 2018 (1972 patients or 74.9%) (see **Figure 4**).



**Figure 4.** Trends in the consumption of psychoactive substances in Senegal from 2018 to 2022.

**4.3. Prediction**

In our prediction, the average attendance at psychiatric care centers in Senegal from 2023 to 2025 will be 473 patients per year (see **Figure 5**).



**Figure 5.** Predicted consumption of psychoactive substances in Senegal from 2023 to 2025.

**5. Discussion**

Our study covered 26,029 patients. The Service de Psychiatrie de Fann (CHNU Fann) and the Hôpital National Psychiatrique de Thiaroye received more patients, respectively 6033 patients or 23.2% and 4577 patients or 17.6%. This high attendance at these services could be explained by their geographical accessibility,

greater reception capacity and wider range of services. Our result could be explained on the one hand by the study carried out by Ndoye. F *et al* in 2022, which found that the Fann psychiatry department (CHNU Fann) was the first specialist department to emerge as a neuropsychiatry clinic in Senegal [24], and the report on mental health in Senegal—year 2019 by TINE. JAD in 2020, which shows that the Thiaroye CHNP has the largest capacity in Senegal. This structure offers the widest range of services, as well as a large number of patients [25].

In our study, peaks in service use were observed in 2019 and 2021, with 8259 patients (31.7%) and 6607 patients (25.4) respectively. This high attendance in 2019 could be explained by the impact of Covid-19. The same point was made by Bremond. P in 2020, who says that “the measures implemented to prevent the spread of Covid-19 have affected all aspects of illicit drug markets, from production through trafficking to consumption” [26]. And our 2021 result is similar to the result achieved by PAENDU (Programme d’appui aux États membres contre la toxicomanie), 2024 where more than 40 per 100,000 inhabitants accessed treatment for substance use disorders in Africa in 2021 [27].

In our study, 14,750 patients (90.9%) were male. Our result is similar to that observed in the study by O. Coulibaly and C. Agnicho, 2016 in Côte d’Ivoire where 246 individuals or 86.62% were male [8]. This similarity could be explained by cultural similarity [28].

In our study, the [25 - 34] age group was the most represented, with 7013 patients or 39.5%. This is explained by the fact that young people facing economic and psychological challenges, and due to increased vulnerabilities, present a high risk of developing drug use disorders [17] [19] [29]. Our result is lower than that obtained by PAENDU, 2024 where 58.9% patients from 2016 to 2021 were in the [20 - 34] age bracket [27]. This difference between the two studies could be explained by a difference in the age range in the two studies. The most commonly used psychoactive substance was cannabis, 8847 or 54.2%, compared with other psychoactive substances such as alcohol, cocaine/heroin, others (tobacco, crack, etc.), which accounted for 18.5%, 8.1% and 19.2% respectively. This trend was also observed worldwide: according to the results obtained by Sume. R in 2004, the number of cannabis users worldwide from 2000 to 2001 (162.8 million or 2.7% of the total population and 3.9 of the population aged 15 and over) was higher than the number of cocaine/heroin users (23.6 million or 0, 36% of the total population and 0.52 of the population aged 15 and over) and the number of users of the others (amphetamine, ecstasy and all opioids combined) (56.9 million or 1.0% of the total population and 1.4 of the population aged 15 and over) [30]. This trend could be explained by the fashion effect on the one hand [8] and the legalization of cannabis on the other [26]. Bremond. P, in 2020, believes that legalization is the reason for the worldwide collapse in cannabis herb seizures, which is responsible for the increase in cannabis consumption [26]. And let’s not forget the Internet too, because according to Lucet. C and Olié. JP, in 2020, “since its creation, the Internet has been a vector for the psychoactive drug trade, whether on the surface web

(web pages referenced on search engines) or on the darknet (non-referenced web devoted to illicit activities). E-traffickers are taking advantage of new technologies to facilitate and secure sales by using anonymization tools or cryptocurrency payment systems” [31] and of global demographic growth [9]. However, our result is higher than that obtained by the Institut national de santé publique du Québec (INSPQ), 2012 in Quebec, where 25.8% of individuals aged 15 to 34 report having used cannabis in the last 12 months [32]. This difference could be explained by the difference in study population and the difference in study period between the two studies. In our study, peak cannabis use was observed in 2018 (74.9%) and 2020 (70.1%). In France, on the other hand, according to a study carried out by OFDT in 2022, recent cannabis use was 6.7% in 2018 and 3.9% in 2021 [33]. Our results are higher than those obtained by the Observatoire français des drogues et des tendances addictives (OFDT). This difference could be explained by a difference in patient management policy between the two nations. However, from 2021 onwards, in one study, cannabis consumption fell, which could be explained by the efforts made by the Senegalese government in general and the Senegalese mental health division in particular.

In our study, 14,686 patients (61.0%) were former cases, which could be explained by the fact that substance use disorder is a chronic pathology. On the other hand, in 2020 there was a peak in new cases, with 3503 patients, which could be explained by the impact of COVID 19 on aspects of illicit drug markets [26].

In our study, as a prediction, the average number of patients attending psychiatric care centers in Senegal from 2023 to 2025 will be 473.2, while the consumption of psychoactive substances in Senegal from 2023 to 2025 will follow the same trends as in 2022. To the best of our knowledge, we have not found similar data in the literature to discuss these results.

**The limits of this survey:**

- Missing data in the consultation and hospitalization registers of certain facilities;
- Six facilities not surveyed (only 11 out of 17 were surveyed);
- Loss of information during the onset of the Covid-19 pandemic.

## 6. Conclusions

In the light of the results of our study, we can say that the use of psychoactive substances is a real public health and development problem in Senegal. The Service de Psychiatrie de Fann (CHNU Fann) and the Hôpital National Psychiatrique de Thiarye were the most frequented, at 23.2% and 17.6% respectively. The most common sex was male (90.9%), and the most common age group was [25 - 34] years (39.5%). The most commonly used psychoactive substance was cannabis (54.2%). The most convenient mode of administration was inhalation (56.7%), which protected psychoactive substance users against transmissible diseases such as HIV/AIDS, hepatitis B and C. The peaks in psychoactive substance use preceded the

peaks in psychiatric care centers, so we need to promote information, education and communication on the harmful effects of psychoactive substance use among the population in general and young people in particular, in order to boost the country's development. So we can say that only a participatory community approach involving both the individual and institutional levels can guarantee the effectiveness of the actions to be undertaken to prevent this risky behavior among the population. To this end, the introduction of a health policy and the definition of monitoring indicators in the field of addictology should be a priority in Senegal. In addition, laws on the advertising and use of psychoactive substances should be enforced to reduce their availability and accessibility. Between now and 2030, the government must put in place effective regulatory measures and regular border controls to prevent trafficking in psychoactive substances, as well as a systematic monitoring system for all houses selling illicit psychoactive substances in Senegal. It must integrate the management of psychoactive substance users into primary health care, and finally, it must promote mental health research in order to achieve the much-desired objective of complying with the three conventions on the organization, development and intensification of drug control and an anti-drug policy (POLUDRO), and to ensure Senegal's economic and social development.

#### **State of knowledge on the subject**

- The use of psychoactive substances is a major public health problem worldwide;
- It is estimated that by 2030, 83 million Africans aged 15 to 64 will have used at least one drug in the course of the year, representing a 38% increase in the number of users.

#### **Our study's contribution to knowledge**

- The average number of patients attending psychiatric care centers in Senegal between 2023 and 2025 will be 473.2;
- Insufficient IEC on the consequences of psychoactive substance use among the Senegalese population would contribute to reducing consumption.

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### **Conflicts of Interest**

The authors declare no conflict of interest.

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