

# Study of the Knowledge Attitudes and Practices of the Dispensing of Anxiolytics in Pharmacies in Senegal

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**Abstract:** *INTRODUCTION:* An anxiolytic is a psychotropic drug used in the treatment of pathological anxiety. Because of the risks associated with the irrational use of these drugs, their prescription and dispensing must be strictly controlled. The objective of this research is to evaluate the knowledge, attitudes and practices of dispensing anxiolytics by providers of dispensing pharmacies in the region of Thies in Senegal. *METHODOLOGY:* This is an observational, cross-sectional, descriptive and analytical study at the level of providers of dispensing pharmacies in the departments of Mbour and Thies, in October 2018. Data collection was done by direct interview with administration of a questionnaire after informed consent from the provider. They were entered and analysed using EPI-Info. 7 software. *RESULTS:* A total of 221 pharmacy providers were surveyed. The average age of the providers was 36.8 years with a standard deviation of 9.5 years. Married people represented 68.8%. Full time pharmacists represented 24.4%. Anxiolytic dispensing practice was good in 78.3% of the providers. Good dispensing practice depended on professional level in the pharmacy (OR=14.0 (6.2 - 33.2)), good knowledge of pharmacological effects (OR=5.5 (2.5 - 12.2)) and good knowledge of adverse effects of anxiolytics (OR=5.0 (2.0 - 12.2)). The better the knowledge of anxiolytics, the better the dispensing practice. *CONCLUSION:* In order to improve the practice of dispensing anxiolytics and other psychotropic drugs in general, it will be necessary to strengthen the knowledge of providers through regular continuous training and to strengthen the supervision of dispensing sites by Ministry of Health inspectors.

**Keywords:** Dispensing, Anxiolytic, Pharmacist, Dispensaries, Senegal

## 1. Introduction

Subjected to acute stress and anxiety, people use anxiolytics. Their chronic use can lead to dependence and side effects on the liver, the nervous system and the respiratory system, as well as daytime hypovigilance which favours the occurrence of road accidents [1, 2]. This is why the legislator places particular emphasis on those medicines containing so-called poisonous substances which have been classified in different tables or lists. Pharmaceutical legislation requires that these specific medicines be dispensed on the basis of a correctly written medical prescription, the conformity of which must first be certified

by the pharmacist or his collaborators. [3]

The pharmacist is a health professional who can advise and inform the patient about medicines and health products. He is bound by pharmaceutical legislation and a code of ethics with many obligations to respect. Book V of the French Public Health Code relating to pharmacy is to a large extent applied in Senegal, even if for certain provisions legal instruments have been taken to readapt French law to the Senegalese national context. The field of medicine and pharmacy is one of the most regulated areas with numerous obligations to be respected. Indeed, medicines are not just another product; they are, among other things, a health good. This is why the manufacture, distribution, prescription and dispensing of medicines are highly regulated and must be strictly controlled

to ensure compliance with the relevant laws and regulations and to apply sanctions if necessary. Due to an insufficient number of inspectors, the necessary control of psychotropic medicines is not always carried out properly. [3, 4]

Legislation thus plays an important role in the drug regulation process. In Senegal, the pharmacist is the only person authorised to prepare and dispense medicines and this monopoly is accompanied by an obligation to exercise the profession personally. Currently, the practice of pharmacists in pharmacies is not irreproachable and the control of pharmacies by public health inspectors does not always allow for a remedy. Due to their special nature, it is imperative that anxiolytics are not treated as simple medicines. Indeed, due to their financial accessibility, this therapeutic class is often used for other purposes such as drug addiction, a harmful and irrational use. Faced with the non-respect of pharmaceutical legislation concerning these drugs, such as the free sale of anxiolytics, self-medication, and the sale on advice by pharmacists, we deemed it necessary to study the knowledge, attitudes and practices of dispensing anxiolytics by pharmacists. In Senegal, few studies have been conducted on the dispensing of anxiolytics in pharmacies. [5]

The objective of this research is to evaluate the knowledge, attitudes and practices of the prescription of anxiolytics by pharmacists in pharmacies in the region of Thies in Senegal.

the 14 administrative regions of Senegal. It is located in the west of the country, around the Cape Verde peninsula. It covers an area of 6,601 km<sup>2</sup>, i.e. 3.4% of the national territory and is bordered to the north by the Louga region, to the south by the Fatick region, to the east by the Diourbel and Fatick regions and to the west by the Dakar region and the Atlantic Ocean.

The Thies region has three departments administered by departmental councils: Mbour, Thies and Tivaouane. The study framework is all the pharmacies in the departments of Mbour and Thies. [6]

The study framework is all pharmacies in the departments of Mbour and Thies. Out of a total of 1,100 pharmacies in Senegal up to 2018, the departments of Mbour and Thies have 11.7% of pharmacies.

## 3. Methodology

### 3.1. Type of Study and Population

This was an observational, cross-sectional and descriptive study among dispensing pharmacists in the departments of Mbour and Thies in October 2018.

We carried out an exhaustive recruitment which consisted of surveying all providers in pharmacies in the departments of Mbour and Thies.

### 3.2. Data Collection

Data were collected using a questionnaire that provided information on the sociodemographic characteristics of pharmacy providers, availability of anxiolytics, knowledge, attitudes and practices of providers on dispensing anxiolytics. The data was collected by direct interview with the administration of the questionnaire. It was carried out by five interviewers trained in the principles of anxiolytic prescription.

### 3.3. Data Management and Analysis

Data entry and analysis was carried out with EPI-Info. 7 statistical software. The description of qualitative variables was done with absolute and relative frequencies and that of quantitative variables with the mean and standard deviation.

The Student's t test and the ANOVA were used to make comparisons of means. For cases where the distribution was not normal, the non-parametric Wilcoxon test was used. For comparisons of proportions, the chisq 2 or Fischer test was used depending on the conditions of application. The risk was measured with the odds ratio (OR) with 95% confidence.

### 3.4. Ethical Aspects

Participation was free and informed. An information sheet was distributed to the respondents and their consent was recorded on a sheet before the start of each interview. Anonymity and confidentiality of information were respected during data processing.

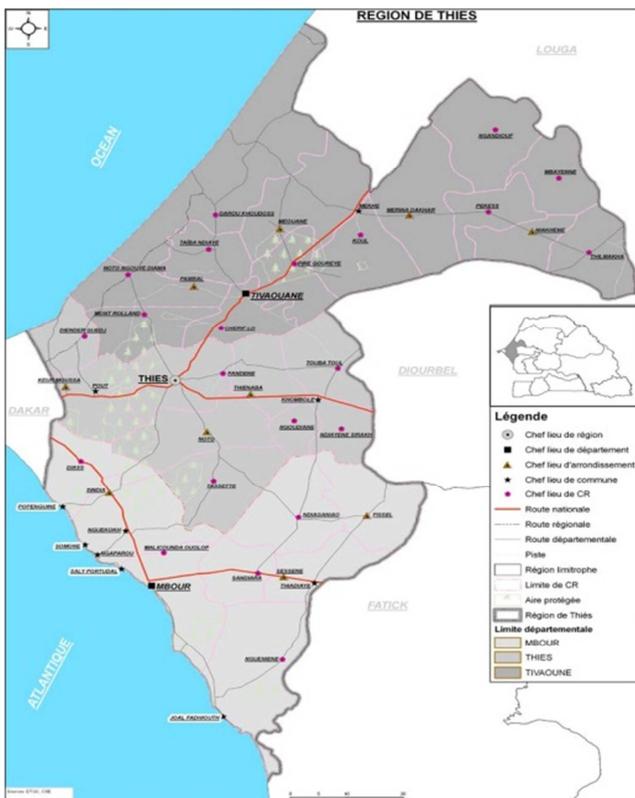


Figure 1. Map of the Thies region in Senegal (ANSD, 2018).

## 2. Study Field

Located 70 km from Dakar, the region of Thies is one of

## 4. Results

### 4.1. Description of Pharmacy and Provider Characteristics

A total of 72 pharmacies agreed to participate in the study out of the 88 pharmacies visited (i.e. a participation rate of 82%). Among the pharmacies that participated, 42 were in the department of Mbour out of a total of 55 pharmacies (i.e. 72.8%) and 30 were in Thies out of a total of 42 pharmacies (71.4%). The number of providers surveyed was 221, including 148 in Mbour and 73 in Thies. The main reasons for refusal were the absence of the pharmacist or lack of time

on the part of the providers.

The average age of the providers was 36.8 years with a standard deviation of 9.5 years and a median of 35 years. The minimum age was 18 years and the maximum 58 years.

The average number of years of service of pharmacy providers was 9 years with a standard deviation of 7.1 years and a median of 7 years. The minimum number of years of experience was 1 year and the maximum 30 years. Table 1 gives the distribution of providers according to their socio-demographic characteristics.

*Table 1. Distribution of pharmacy providers according to their socio-demographic characteristics.*

Sociodemographic characteristics	Absolute frequencies (n)	Relative frequencies (%)	Confidence interval (95%)
Gender			
Male	128	57.9	[51.1-64.5]
Female	93	42.1	[35.5-48.9]
Marital status			
Unmarried	67	30.3	[24.3-36.8]
Married	154	69.7	[62.3-78.0]
Religion			
Muslim	185	83.7	[78.2-88.3]
Christian	36	16.3	[11.7-21.8]
Profession			
Senior pharmacists	54	24.4	[18.9-30.7]
Junior pharmacists	42	19	[14.1-24.8]
Assistants in Pharmacy	125	56.6	[49.7-63.2]

### 4.2. Pharmacy Providers' Knowledge of Anxiolytics

The distribution of providers according to their knowledge of the pharmacological effects of anxiolytics showed that 81% of the providers knew about the sedative effect and 40.3% about the anticonvulsant effect. Moreover, 91.4% of the providers knew the pharmacological effects of anxiolytics. The study showed that half of the providers had a good level of knowledge of the pharmacological effects of anxiolytics while the other half had an average level of knowledge.

The duration of use of anxiolytics was known by 66.5% of providers out of a total of 221 respondents. The rest of the study population had no idea about the normal duration of use.

The side effects were less known by the providers. They were agitation (29.9%); aggressiveness (24.4%); irritability (23.5%); anterograde amnesia (22.6%); drug tolerance (20.4%) and finally dependence known by 19.9% of the providers.

Of the 221 providers surveyed, 43.9% had a low level of knowledge of adverse effects. Table 2 shows the providers' knowledge of anxiolytics.

### 4.3. Availability of Anxiolytics in Pharmacies

The availability of anxiolytics varied according to the pharmacies surveyed. There were 25 pharmacies with full availability, 15 of which were located in the department of Mbour. There were 39 pharmacies with an availability between 60 and 90%, 22 of which were in Mbour. For availability between 30-50%, we had 8 pharmacies, 5 of which were in Mbour.

Among the anxiolytics available in the pharmacies

surveyed, Alprazolam was in first place with 100% availability, followed by Bromazepam with 88.9% availability, then Diazepam with 83.3%. Hydroxyzine and Clonazepam had availability of 72.2% and 70.8% respectively. For the rest of the anxiolytics found in pharmacies we obtained the following availability: Clonazepam (65.3%), Prazepam (48.6%), Tetrazepam (45.8%), Zolpidem (44.4%) and Oxazepam (36.1%).

### 4.4. Pharmacy Providers' Attitudes Towards Dispensing Anxiolytics

The verification of the authenticity of an anxiolytic prescription by the provider must cover each element of the prescription. The providers systematically checked the prescriber's stamp (94.1%); the patient's name (82.8%); the prescriber's name (81.4%); the dosage and date of prescription (80.1%); the duration of use (67.4%); the prescriber's address (51.1%) and the prescriber's contact (42.5% of the providers). The study showed that 53.9% of the respondents had a good level of analysis of an anxiolytic prescription while 46.1% of the providers had an average level. The study showed that 50.2% of the providers gave advice on the risks related to the irrational use of anxiolytics only when needed, 29% on the client's request and 25.3% of the providers declared giving advice at each client's visit to the pharmacy.

The study showed that 24.9% of the providers surveyed agreed to dispense anxiolytics upon spontaneous request while 75.1% systematically refused to dispense. Table 3 shows the distribution of respondents according to their attitude towards dispensing anxiolytics.

**Table 2.** Distribution of pharmacy providers according to knowledge of anxiolytics.

Knowledge Items	Absolute frequencies (n)	Relative frequencies (%)	Confidence intervals (95%)
Pharmacological effects of anxiolytics			
Sedative			
Yes	179	81.0	[75.2-85.9]
No	42	19.0	[14.1-24.8]
Anxiolytic			
Yes	138	62.4	[31.2-44.3]
No	83	37.6	[55.7-68.9]
Anticonvulsant			
Yes	89	40.3	[33.8-47.1]
No	132	59.7	[52.9-66.3]
Muscle relaxant			
Yes	131	59.3	[52.5-65.8]
No	90	40.7	[34.2-47.5]
Side effects or risks of anxiolytics			
Drowsiness			
Yes	83	82.8	[77.2-87.5]
No	38	17.2	[12.5-22.8]
Behavioural disorder			
Yes	133	60.2	[53.4-66.7]
No	88	39.8	[33.3-46.6]
Confusion			
Yes	97	43.9	[37.2-50.7]
No	124	56.1	[49.3-62.8]
Libido disorders			
Yes	93	42.1	[35.5-48.9]
No	128	57.9	[51.1-64.5]
Hypovigilance			
Yes	82	37.1	[30.7-43.8]
No	139	62.9	[56.2-69.3]
Impaired psychomotor function			
Yes	70	31.7	[25.6-38, 3]
No	151	68.3	[61.7-74.4]
Agitation			
Yes	66	29.9	[23.9-36.4]
No	155	70.1	[63.6-76.1]
Aggressiveness			
Yes	54	24.4	[18.9-30.7]
No	167	75.6	[69.4-81.1]
Irritability			
Yes	52	23.5	[18.1-29.7]
No	169	76.5	[70.3-81.9]
Anterograde amnesia			
Yes	50	22.6	[17.3-28.7]
No	171	77.4	[71, 3-82.7]
Tolerance			
Yes	45	20.4	[15, 3-26.3]
No	176	79.6	[73.7-84.7]
Addiction			
Yes	44	19.9	[14.9-25.8]
No	177	80.1	[74.2-85.2]
Overall level of knowledge of pharmacological effects			
Good	113	51.1	[44.3-57.9]
Meduim	108	48.9	[42.1-55.7]
Overall level of knowledge of adverse effects			
Good	53	24.0	[18.5-30.2]
Meduim	71	32.1	[26.0-38.7]
Low	97	43.9	[37.2-50.7]

#### 4.5. Pharmacy Providers' Practices in Dispensing Anxiolytics

Assistance in dispensing anxiolytics was noted in 50.7% of providers. Advice on anxiolytics was observed in 23.53% of the respondents.

The good practice of dispensing anxiolytics was noted in 78.7% of the respondents with a 95% confidence interval between 72.7 and 83.9. Table 4 shows the distribution of pharmacy providers' anxiolytic dispensing practices.

**Table 3.** Distribution of pharmacy providers according to attitude towards an anxiolytic prescription.

Pharmacists' attitudes	Absolute frequencies (n)	Relative frequencies (%)	Confidence intervals (95%)
Verification of elements of the authenticity of the prescription			
Prescriber's stamp			
Yes	208	94.1	[91.2-97.5]
No	13	5.9	[2.5-8.8]
Patient's name			
Yes	183	82.8	[77.9-88.2]
No	38	17.2	[11.8-22.0]
Name of the prescriber			
Yes	180	81.4	[76.5-87.0]
No	41	18.6	[12.1-23.5]
Dosage			
Yes	177	80.1	[75.0-85.8]
No	44	19.9	[14.2-25.0]
Prescription date			
Yes	177	80.1	[75.4-86.2]
No	44	19.9	[13.9-24.6]
Duration of use			
Yes	149	67.4	[61.4-74.2]
No	72	32.6	[25.8-38.6]
Address of the prescriber			
Yes	113	51.1	[44.7-58.4]
No	108	48.9	[41.6-55.2]
Prescriber's contact			
Yes	94	42.5	[36.3-49.8]
No	127	57.5	[50.2-63.7]
Advising clients on the risks of misuse of anxiolytics			
On request			
Yes	64	29.0	[23.1-35.4]
No	157	71.0	[64.6-76.9]
At each visit			
Yes	56	25.3	[19.7-31.6]
No	165	74.7	[68.4-80.3]
Only if necessary			
Yes	111	50.2	[43.4-57.0]
No	110	49.8	[43.0-56.6]
Pharmacy provider's decision on a non-prescription request for anxiolytics			
Acceptance of delivery	55	24.9	[16.9-28.3]
Refusal to issue	166	75.1	[68.9-80.7]
Level verification of the quality of the prescription			
Good	119	53.9	[47.0-60.5]
Medium	102	46.1	[39.5-53.0]

**Table 4.** Distribution of pharmacy providers according to their anti-anxiety dispensing practices.

Pharmacy providers' practices	Absolute frequencies (n)	Relative frequencies (%)	Confidence intervals (95%)
Assistance in filling the prescription for anxiolytics			
Yes	112	50.7	[44.1-57.7]
No	109	49.3	[42.3-55.9]
Advice on the use of anti-anxiety drugs among pharmacy customers			
Yes	52	23.5	[18.3-29.9]
No	169	76.5	[70.1-81.7]
Registration of the prescription in the pharmacy register			
Yes	174	78.7	[72.7-83.9]
No	47	21.3	[16.1-27.3]
Continuous training on the dispensing of anxiolytics			
Yes	100	45.3	[38.6-52.1]
No	121	54.7	[47.9-61.4]
Quality of dispensing practice of anxiolytics			
Good	174	78.3	[72.7-83.9]
Wrong	47	21.3	[16.1-27.3]

#### 4.6. Analysis of Factors Associated with Good Dispensing Practice for Anxiolytics

Pharmacists with tenure were more compliant with dispensing rules than others with an OR of 14.0 (6.2 - 33.2).

Good dispensing practice was most common among providers who had good knowledge of the pharmacological effects

(OR=5.5 (2.5 - 12.2)) and adverse effects of anxiolytics (OR=5.0 (2.0 - 12.2)). Table 5 shows the ORs for factors associated with good practice in dispensing anxiolytics.

**Table 5.** Factors explaining the good practice of dispensing anxiolytics.

	Good practice in dispensing anxiolytics at pharmacies	
	Odds ratio	95% CI
Gender		
Female	1	-
Male	1.5	(0.7 - 3.0)
Marital status		
Unmarried	1	-
Married	2.4	(1.1 - 5.6)
Profession		
Assistants in Pharmacy	1	-
Senior pharmacists	14.0	(6.2 - 33.2)
Junior pharmacists	2.3	(0.8 - 6.4)
Overall level of knowledge of the pharmacological effects of anxiolytics		
Medium	1	-
Good	5.5	(2.5 - 12.2)
Overall level of knowledge of the adverse effects of anxiolytics		
Low	1	-
Medium	3.8	(1.6 - 9.0)
Good	5.0	(2.0 - 12.2)

## 5. Discussion

The profession of pharmacist in Senegal is dominated by men. This study found a male predominance of 57% against 42.1% for women, with a sex ratio of 1.4. These results are similar to those of the study conducted in pharmacies in Mali with a male predominance of 72.7% and in Burkina Faso with 57.9% [7]. The average age of the respondents was about 37 years with an average length of service in the pharmacy of 9 years. Pharmacy assistants were in the majority at 56.6%. This difference is explained by the fact that pharmacists were often absent from the pharmacies surveyed. Assistants made more sales than the incumbents and second-line pharmacists in most of the pharmacies.

This study found that the most commonly dispensed anxiolytics in these pharmacies were Diazepam, Alprazolam, Bromazepam, Hydroxyzine and Clonazepam.

Dispensing anxiolytics by advice was observed in 23.5% of providers. Another study done in Dakar on the knowledge, attitudes and practices of pharmacy providers on drug dispensing in 2013 showed a dispensation of 8.3% by advice [8], while in Tanzania it was 32% in private pharmacies [9]. In Senegal, there has been an increase in the demand for medical consultation in pharmacies in the form of ad hoc advice. This practice is rapidly becoming the first recourse for primary health care services. In Mbour, tourists who are used to the use of anxiolytics resort to pharmacists to renew their prescriptions or to buy them directly.

Good practice in dispensing anxiolytics was noted in 78.7% of pharmacy providers. In Ethiopia, a study on the dispensing of emergency contraception by pharmacy providers showed a frequency of 85% of good dispensing practice [10]. A study in Abidjan showed 14.1% good dispensing practice for antibiotics at the pharmacy level [11].

Pharmacist intervention during the dispensing of an

anxiolytic prescription was noted in 50.7% of cases and transcription of the prescription on the prescription pad was noted in 78.1% of cases.

Half of the providers were aware of the pharmacological effects of anxiolytics (51.1%), but their adverse effects were not well known by these providers (24%).

Pharmacists had a better practice of dispensing anxiolytics with an OR=14.0 (6.2 - 33.2). The higher the level of education, the better the dispensing. Unfortunately, we found that assistants did more dispensing in pharmacies. Good knowledge of the pharmacological effects (OR=5.5 (2.5 - 12.2)) and side effects of anxiolytics (OR=5.0 (2.0 - 12.2)) is decisive for good dispensing practice. The better the knowledge, the better the dispensing of anxiolytics.

The main limitation of this study is the lack of direct observation of anxiolytic dispensing practice in some pharmacies due to the lack of consent of the pharmacy manager. The main reasons given by the pharmacy managers were lack of time and respect for the privacy of the customer.

## 6. Conclusion

Excessive consumption of anxiolytic drugs leads to psychological disturbances and serious effects on the liver, the nervous system and the respiratory system. Daytime hypovigilance, which favours the occurrence of accidents, particularly at work, at home and on the road. This is why pharmaceutical legislation requires that these specific medicines be dispensed on the basis of a correctly written medical prescription, the conformity of which must be certified beforehand by the pharmacist or his staff.

The pharmacist must advise and inform the patient about medicines and health products. He is obliged to respect a code of ethics based on ethics and professionalism. The level of analysis of the anxiolytic prescription was correct with 53.9% and 75% of the providers had refused to dispense

anxiolytics upon spontaneous request. The proportion of providers who had good practice in dispensing anxiolytics was 78.3%. The factors explaining this good practice were the level of professionalism and the good knowledge of the pharmacological and undesirable effects of anxiolytics. It is recommended that the training of pharmacy providers in the dispensing of anxiolytics and more generally of psychotropic drugs be reinforced.

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