

## Misuse of drugs in the District of Bamako, Mali

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**Abstract.** Introduction: In Mali, the irrational use of drugs constitutes a public health problem through the misuse of certain psychotropic and / or analgesic drugs for drug addiction purposes. The aim of this study was to measure the consumption of drugs diverted from their therapeutic use in Bamako. Methods: This was a cross-sectional study carried out in Bamako with a sample of 260 respondents: 98 health workers and 162 clients (pharmacies) / patients (hospitals). Results: Men were more affected than women, with 62% of cases. The 15-45 age group accounted for 55% of cases. According to the results, workers and students respectively represented 19% and 17% of cases. Promethazine (20%), the combination Paracetamol / codeine / caffeine (13%) and Tramadol (11%) were the drugs most commonly used and diverted from their medical use among clients of pharmacies. According to pharmacists, the drugs affected by misuse were Misoprostol (10%), Clonazepam (9%) and Promethazine (9%). According to doctors and nurses, Misoprostol, Promethazine and diazepam were used for other purposes with 23%, 16% and 13%, respectively. Conclusion: In order to reduce this practice, a synergy of action by health professionals is essential for the rational use of drugs.

**Keywords:** Drugs; Misuse; Bamako; Mali

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## Introduction

A diverted drug is a drug used outside the indications for which it was initially intended, defined in the Summary of Product Characteristics

(RCP) [1]. Indeed, the increase in the "non-medical" use of drugs appears today to be a concern of growing importance in the field of public health [2].

In 2007, data from the International Narcotics Control Board (INCB) showed that the abuse of prescription drugs was on the verge of overtaking the use of traditional illicit drugs such as heroin or cocaine [3].

The following American (2006), French (2011), Congolese (2009) and Moroccan (2011) studies have shown that benzodiazepines were the therapeutic class most diverted from its uses [4-6].

In 2012, a study conducted at the Nancy University Hospital, pharmacists estimated that in 59.9% of cases, the request for Néo-Codion® was aimed at misuse [1].

In Dakar in 2001, nearly 50 hydroquinone-based specialties were diverted by users for depigmenting [7].

In Nigeria in 2002, an epidemiological study found that 77.3% of 450 traders used depigmenting products, the most common of which were hydroquinone, corticosteroids and mercury derivatives. [8]

The consequences and damages linked to the misuse of drugs could arise from the multiple use of licit and / or illicit drugs [9].

In recent years, the abuse of Tramadol for drug addiction (diverted use) has sharply increased in West Africa, particularly in Mali, Niger and Burkina Faso [10].

In Bamako, in 1993, according to a study, 25% of adult women aged 15 to 45 used cosmetic products for artificial depigmenting and 69.8% admitted to having dermatological problems [11].

So we note that no recent study on the diversion of drugs from their therapeutic uses has been addressed in Mali. This is how we initiated this study to measure the consumption of drugs diverted from their therapeutic use in Bamako.

## Methodes

### Place and type of study

This study was carried out in health structures in the District of Bamako, capital of Mali. These structures were: pharmacies, Point G University Hospital (UH), Reference Health Centers (RHC), medical care practices and midwives' offices.

The study was conducted from January 2018 to December 2019.

This was a descriptive cross-sectional study carried out in Bamako on drugs diverted from their therapeutic uses.

### Study population

Health professionals and clients in the dispensaries were concerned by this study.

Clients who agreed to participate in this study, healthcare professionals with at least 5 years of experience, as well as clients aged 18 or over were included in this study. Pharmacy customers who bought for a third party as well as cases who refused were not included.

### Sampling technique and sample size

We carried out a random sampling by elementary survey. The sample size is obtained from the list of respondents for health facilities. Clients and patients were randomly selected. Thus we obtained a size of 260 respondents, ie 30 pharmacists, 23 doctors, 30 nurses, 15 midwives, and 162 clients / patients. Thus the study population is distributed as follows:

- Medical care office: six medical care offices are chosen, in each office a doctor and a nurse.
- Office of midwives: three offices of selected midwives, in each office a midwife and a nurse.
- Reference Health Center (RHC): six RHC chosen, in each RHC two doctors, two nurses and two midwives.
- Neurology at Point G University Hospital: three doctors, six nurses and six patients.
- Psychiatry at Point G University Hospital: two doctors, two nurses and six patients.
- Private pharmacies: thirty (30) pharmacies, in each pharmacy five customers and one pharmacist.

### Data collection and statistical analysis

We conducted a survey using a sheet that took into account: socio-demographic characteristics, therapeutic classes of drugs, source of distribution, and consumers' knowledge of diverted drugs.

Data analysis is performed using Epi Info version 7 statistical software.

### Ethical and deontological considerations

The choice of participation was optional. Before each interview, a verbal agreement the clients, and a written agreement the health professionals were requested. The confidentiality and anonymity of the results were respected through the codification of the questionnaires.

## Results

**Table I.** Distribution of respondents according to sociodemographic characteristics

<b>Sociodemographic characteristics</b>		<b>Number of respondents (%)</b>
Sex	Male	100 (62.0)
	Female	62 (38.0)
Age range	[0-5[	18 (11.0)
	[5-15[	12 (7.0)
	[15-30[	51 (31.0)
	[30-45[	39 (24.0)
	[45-60[	24 (15.0)
	[60-85[	18 (11.0)
Levels of study	No schooling	89 (55.0)
	Primary	5(3.0)
	Secondary	34 (21.0)
	Superior	34 (21.0)

We found that 62% of the respondents were male, the age group [15-30[ years made up 31% of the workforce, the out-of-school made up 55%.

**Table II.** Distribution of drugs diverted from their uses according to health facilities and consumers

<b>Structures</b>	<b>Products</b>	<b>Number of respondents (%)</b>
Pharmacy patients (n=150)	Promethazine	30 (20.0)
	Paracetamol + codeine/Cafeine	20 (13.3)
	Tramadol	17 (11.3)
	Cyproheptadine	11 (7.3)
	Misoprostol	9 (6.0)
	Haloperidol	8 (5.3)
	Alprazolam	6 (4.0)
	Mequitazine	6 (4.0)
	Triamcinolone	6 (4.0)
	Clonazepam	6 (4.0)
	Others	31 (20.7)
Patients at Point G University Hospital (n = 12)	Tramadol	6 (24.0)
	Amitriptiline	4 (16.0)
	Bromazepam	4 (16.0)
	Carbamazepine	2 (8.0)
	Clorazepate	2 (8.0)
	Diazepam	2 (8.0)
	Haloperidol	2 (8.0)
	Others	3 (12.0)

Promethazine was (20%) of the drugs diverted from pharmacies while Tramadol (24%) was the most diverted molecule.

**Table III.** Distribution of drugs diverted from their uses by health professional

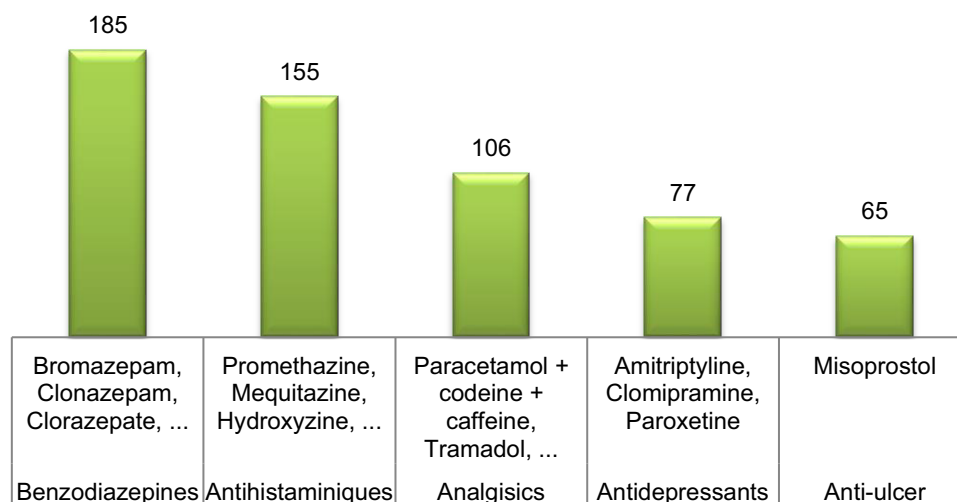
Health professionals	Products	Number of respondents (%)
Pharmacists (n=30)	Misoprostol	24 (13.0)
	Clonazepam	22 (11.9)
	Promethazine	22 (11.9)
	Bromazepam	20 (10.8)
	Paracetamol+codeine	20 (10.8)
	Tramadol	20 (10.8)
	Amitriptiline	18 (9.7)
	Clomipramine	13 (7.0)
	Clorazepate	13 (7.0)
	Diazepam	13 (7.0)
Doctors (n=53)	Bromazepam	12 (16.2)
	Amitriptiline	10 (13.5)
	Clonazepam	10 (13.5)
	Promethazine	10 (13.5)
	Clorazepate	8 (10.8)
	Misoprostol	7 (9.5)
	Clomipramine	5 (6.8)
	Diazepam	4 (5.4)
	Phloroglucinol	4 (5.4)
	Zolpidem	4 (5.4)
Midwives (n = 15)	Buthyl-hyoscine	4 (26.7)
	Amitriptiline	2 (13.3)
	Misoprostol	2 (13.3)
	Phloroglucinol	2 (13.3)
	Promethazine	2 (13.3)
	Other	3 (20.0)

Promethazine, Misoprostol and Bromazepam were the most misused molecules according to health professionals.

The benzodiazepine class followed by antihistamines were the most widely used for drug abuse in Mali (Figure 1).

**Figure 1:** Breakdown of drugs diverted from their uses according to therapeutic class

Our results showed that sleep seeking and drug addiction were the most cited by both patients and healthcare professionals (see Figure 2).



**Fig. 2.** Reasons for drug diversion according to patients and healthcare professionals

According to health professionals, the risks of physical and / or psychological dependence, maternal and / or

infant mortality as well as post-abortion haemorrhage are the consequences of the misuse of drugs.

## Discussion

Our study highlighted the multidimensional nature of the misuse of drugs in Mali. The male sex was the majority with 62% of cases, the under 30s made up 49%. This result highlights the juvenile nature and especially the ignorance of the population using the misuse of drugs in Mali. Our findings reflect the global trend through the 2018 UNODC report, according to which most research suggests that early adolescence (12-14 years) to late (15-17 years) is a period of critical risk for the child. Onset of substance use and may peak in young adults (18-25 years) [12].

Promethazine, Tramadol and the combination Paracetamol, codeine, caffeine were the molecules most diverted according to patients in the dispensary and in hospitals. According to the claims of health professionals, Promethazine, Misoprostol and Bromazepam are frequently diverted from their therapeutic indications during professional practice. The use of these products could be linked to the quest for their side effects (drowsiness, feelings of relaxation, dreaming and loss of inhibition, softening of the cervix, ...).

According to the UNODC, Tramadol is smuggled to various markets in West and Central Africa and North Africa, before partially reaching the countries of the Near and Middle East [13]. Increasingly an area of drug trafficking and consumption. Each year, the Office Centrale des Nupéfiants du Mali seizes in large quantities different types of addictive products: cannabis, cocaine, heroin, Tramadol, Diazepam, clonazepam. These seizures are made in several localities in Mali. In addition, the circumstances of the consumption of addictive products constitute 14% of consultations at the psychiatric service of the Point G University Hospital in 2017, this consultation rate was 4% ten years ago [14-16]. These situations could strongly influence the rational use of drugs in Mali.

We found that benzodiazepines followed by Antihistamines, Analgesics, Antidepressants and Anti-peptic ulcer disease (Misoprostol) were the most widely used therapeutic classes in our study. These data could be due to the sensitivity of the subject or the level of understanding of the respondents on the problem.

Sleep seeking and drug addiction were the effects most cited by both patients and healthcare professionals in drug diversion. Consequently, physical and psychological dependence were consequences linked to the diversion of drugs. This could be due on the one hand to a lack of awareness of the harmful effects, and on the other hand to self-medication, of which 53% of the drugs diverted are not prescribed.

## Conclusion

The misuse of drugs is a serious threat in Mali. The misuse and non-medical use of Benzodiazepines, antihistamines and analgesics is of growing concern to law enforcement and public health professionals alike.

At the end of this study, we noted that the practice is frequent in all the centers surveyed and that there is non-compliance with the conditions for prescribing and dispensing drugs diverted from their uses. And this applies to both prescription drugs and over-the-counter drugs.

Private dispensing pharmacies are the main source of obtaining drugs that are diverted from their uses. Thus, pharmacists and the entire health body must fully play their roles, since they benefit from the advantages of proximity, neutrality, confidentiality, and confidence linked to their health skills in order to raise awareness among the population on the dangers associated with misuse of drugs.

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