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Original Research Article

Dispensation of Analgesics Survey in Private Pharmacies in Commune II of Bamako

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Abstract: ***Background:*** Self-medication and non-compliance with good dispensing practices cause a real public health problem. This study aims to evaluate the dispensation of analgesics in the private offices of the commune II of the district of Bamako. ***Materials and Methods:*** *A* cross-sectional descriptive study carried out in seventeen private pharmacies of the commune II of Bamako. It consisted of collecting data on the dispensing of analgesics with or without a medical prescription over October 2020 to March 2021. ***Results:*** 302 clients were included in this study. 18 to 35 age group was the most represented with 47.68%. The most represented occupation was merchants with 25.16%. More than 64% of clients came forward with a medical prescription and 35.43% for self-medication. Headaches were the primary motivation for the purchase of analgesics with 33.77% of demands. In monotherapy, paracetamol was the most dispensed molecule with 20.2% followed by tramadol with 18.87% among which 4.97% was dispensed for self-medication and 13.91% by prescription. Fixed combination Paracetamol/Codeine was the most dispensed by prescription with 16.56% and 9.93% for self-medication. 1.32% of the fixed combination Paracetamol/Tramadol was demanded for self-medication and 7.62% by prescription. We observed a hight non-compliance with the rules of dispensing analgesics from List I with 32.02% by self-medication. ***Conclusion:*** The main molecules solicited with or without prescription were paracetamol/codeine, paracetamol and tramadol. There is also a high over-the-counter dispensing of list I analgesics.

Keywords: Analgesics; Dispensation; Paracetamol/Codeine; Tramadol; Mali.

INTRODUCTION

Pain is an unpleasant sensory and emotional experience related to actual or potential tissue damage or simply described as such [1]. It affects the quality of life of millions of people worldwide and is one of the leading causes of disability in developed countries [2]. Pain is the main reason for general medical consultation and motivates nearly two-thirds of medical consultations, which makes analgesics the most widely used drugs. Analgesics are dispensed by presenting a medical prescription supervising the patient in his management or self-medication for over-the-counter analgesics [3].

Dispensing rules must be applied to ensure better management and provide the patient with the information and advice necessary for the rational use of drugs. Self-medication and non-compliance with good dispensing practices cause a real public health problem[4]. Despite this, people growingly resort to self-medication. In addition, unused units of drugs that require a prescription for delivery are often stored in family pharmacies and participate in self-medication for the benefit of the patient's relatives. This self-medication promotes misuse which can lead to the risk of adverse effects or a real addiction [2].

In United States, the rate of drug overdose deaths involving synthetic opioids, which include drugs such as fentanyl, fentanyl analogs, and tramadol, increased from 0.3 per 100,000 standard population in 2015, 6.2 in 2016, 9.0 in 2017, and 9.9 en 2018 [5].

In Mali, tramadol and codeine are used as doping products by young people, gold-panning workers and transporters. In view of these observations, the aims of this study was to evaluate the dispensation of analgesics in the private offices of the commune II of the district of Bamako.

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MATERIALS AND METHODS

A cross-sectional descriptive study carried out in seventeen (17) private pharmacies of the commune II of the district of Bamako. It consisted of collecting data on the dispensing of analgesics with or without a medical prescription over a period from October 2020 to March 2021. All major clients who received an analgesic with or without a prescription and gave their verbal consent were included in the study. Data were entered and analyzed into Microsoft Word, Excel.

RESULTS

Out of a total population of 684 clients, 302 clients were included in this study. The 18 to 35 age group was the most represented with 47.68% (n = 144) with a male predominance of 27.15% (n = 82). The most represented occupation was merchants with 25.16% (n=76) and a male predominance of 19.53% (n=59). (Table 1)

More than 64% of clients came forward with a medical prescription. 37.09% (n=112) of clients came with prescriptions from private medical clinics and 35.43% (n=107) of clients came for self-medication. 46.6% (n=149) of prescriptions were performed by general practitioners (Table 2).

79.44% (n = 85) of analgesic demands for self-medication were made verbally; 16.82% (n = 18) by presentation of the old box or blister of the drug and 3.74% (n = 4) by presentation of a piece of paper. The reason for taking analgesics during self-medication was requested by the drug dispenser in 21.49% (n=23).

Headaches were the primary motivation for the purchase of analgesics with 33.77% (n=102) of demands including 19.21% (n=58) by prescription and 14.57% (n=44) by self-medication. Osteoarthritis and dental pain were important in the demand for analgesics purchases with 11.92% (n = 36) and 11.59% (n = 35) respectively. For demands to relieve myalgia, self-medication constituted an important part with 7.62% (n=23) against 3.31% (n=10) of demands by prescription (Table 3).

Table-1: The sociodemographic characteristics of clients

Gender Age	Female Subjects (%)	Male Subjects (%)	Total Subjects (%)
18 - 35	62 (20.53%)	82 (27.15%)	144 (47.68%)
36 - 50	31 (10.26%)	44 (14.57%)	75 (24.83%)
> 50	32 (10.59%)	51 (16.89%)	83 (27.48%)
Total	125 (41.39%)	177 (58.61%)	302 (100.0%)
Professions			
Merchants	17 (5.62%)	59 (19.53%)	76 (25.16%)
Students	12 (3.98%)	10 (3.31%)	22 (7.29%)
Public servants	4 (1.33%)	23 (7.62%)	27 (8.95%)
Housewives	73 (24.17%)	1 (0.34%)	74 (24.50%)
Workers	2 (0.67%)	16 (5.29%)	18 (5.96%)
Retired	8 (2.64%)	21 (6.96%)	29 (9.60%)
Salaried (private sector)	9 (2.98%)	47 (15.56%)	56 (18.54%)
Total	125 (41.39%)	177 (58.61%)	302 (100.0)

In monotherapy, paracetamol was the most dispensed molecule with 20.2% (n = 61) followed by tramadol with 18.87% (n = 57) among which 4.97% (n = 15) was dispensed for self-medication and 13.91% (n = 42) by prescription.

The fixed combination Paracetamol/Codeine was the most dispensed by prescription with 16.56% (n=50) and 9.93% (n=30) by demand for self-medication. 1.32% (n=4) of the fixed combination Paracetamol/Tramadol was demanded for self-medication and 7.62% (n=23) by prescription. 89.47% (n=17) of List II analgesics were dispensed with compliance to the rules of dispensing. We observed a hight Non-compliance with the rules of dispensing analgesics from List I was important with 32.02% (n=65) by self-medication (Table 4).

Table-2: Source of prescriptions and profile of analgesic prescribers

Health pyramid	Source of prescription	Numbers	Percentages
Primary	Community Health Centres	5	1.66
Secondary	Reference Health Centres	34	11.26
Tertiary	University Hospitals	40	14.57
Other	Private clinics	112	37.09
	Self-medication	107	35.43
	Total	302	100.00

Health pyramid	Source of prescription	Numbers	Percentages
Prescribers			
	Self-medication	107	35.43
	Nurse	23	7.62
	medical students	3	0.99
	General practitioner	**149**	49.34
	Specialist	14	4.64
	Unidentified	6	1.99
	Total	**302**	**100.0%**

Table-3: Reason for analgesic requests

Types of pain	Prescription n (%)	Self-medication n (%)	Total n (%)
Osteoarthritis	25 (8.28%)	11 (3.64%)	36 (11.92%)
Headache	58 (19.21%)	44 (14.57%)	102 (33.77%)
Dental pain	29 (9.60%)	6 (1.99%)	35 (11.59%)
Leg pain	2 (0.66%)	0 (00%)	2 (0.66%)
Post-operative pain	6 (1.99%)	1 (0.33%)	7 (2.32%)
Spasmodic pain	10 (3.31%)	5 (1.66%)	15 (4.97%)
Fever	9 (2.98%)	5 (1.66%)	14 (4.64%)
Gonalgia	9 (2.98%)	4 (1.32%)	13 (4.30%)
Lumbago	21 (6.95%)	5 (1.66%)	26 (8.61%)
Myalgia	10 (3.31%)	23 (7.62%)	33 (10.93%)
Unidentified	16 (5.30%)	3 (0.99%)	19 (6.29%)
Total	195 (64.57%)	107 (35.43%)	302 (100%)

Table-4: Analgesic molecules dispensed in pharmacies

Analgesic molecules	Prescription n (%)	Self-medication n (%)	Total n (%)
Aspirin	1 (0.33)	2 (0.66)	3 (0.99)
Diclofenac	13 (4.30)	1 (0.33)	14 (4.64)
Flurbiprofen	0	1 (0.33)	1 (0.33)
Ibuprofen	8 (2.65)	5 (1.66)	13 (4.30)
Nefopam	1 (0.33)	0	1 (0.33)
Paracetamol	31 (10.26)	30 (9.93)	61 (20.20)
Tramadol	42 (13.91)	15 (4.97)	57 (18.87)
Aspirin / Caffeine	0	3 (0.99)	3 (0.99)
Paracetamol / Diclofenac	2 (0.66)	0	2 (0.66)
Paracetamol / Codeine	**50 (**16.56)	30 (9.93)	**80 (26.49)**
Paracetamol / Opium	2 (0.66)	0	2 (0.66)
Paracetamol / Tramadol	23 (7.62)	4 (1.32)	27 (8.94)
Paracetamol / Ibuprofen / Caffeine	22 (7.28)	15 (4.97)	37 (12.25)
Paracetamol / Opium / Caffeine	0	1 (0.33)	1 (0.33)
Total	195 (64.57)	107 (35.43)	302 (100)
Compliance with the rules for dispensing listed analgesics	Oui n (%)	Non n (%)	Ratio
List II	17 (89.47)	2 (10.53)	8.5
List I	138 (67.98)	65 (32.02)	2.12

DISCUSSION

Analgesics are drugs capable of suppressing or reducing pain and their dispensing although regulated in low-income countries, the misuse and overuse of analgesics is generally recognized [6,7].

This study investigate how the analgesics are dispensed (prescription or self-medication). During 6 months, 302 clients were interviewed out of 684 frequented pharmacies and had purchased at least one analgesic. Clients in the age group 18 to 35 accounted for 47.68% (n = 144) and among them, merchants were the most represented with 25.16% (n = 76) and a male predominance of 19,53%. This is due to the presence of many markets in the study site.

Self-medication demand represented 35.43% (n=107). It was made by verbal demand in 79.44% (n=85) of cases. This result is higher than the 27.50% obtained by LOE G E. *et al*.[8]. 46.6% (n=149) of

prescriptions were completed by general practitioners, which is explained by their presence in all levels of the health pyramid and are the first to be requested. This result is low compared to the 95.7% of prescriptions established by general practitioners [3].

Headaches were the type of pain that elicited the most demand for analgesics with 33.77% (n=102), of which 19.21% (n=58) by prescription and 14.57% (n=44) by self-medication. This result is largely inferior than the 65.5% of self-medication for headache observed by Chiribagula *et al*. (2014), and confirms that the main pain prompting self-medication is headache [9].

Paracetamol was the most dispensed drug with 20.2% (n=61). This can be explained by its low cost compared to other prescribed analgesics with minimal side effects. Moreover, it is an optional prescription drug. A more important observation was made in the study conducted by Kamaldeen *et al.*, (2012) in Nigeria, where paracetamol accounted for the largest percentage (46.6%) of prescribed analgesics [10]. List I and List II drugs are mandatory prescribed drugs and can only be obtained by a prescription from a physician, dental surgeon or midwife [11].

Dispensing of list II analgesics was respected by 89.47% (n=17). Non-compliance with the dispensing of list I analgesics was high, with 32.02% (n=65) of dispensing requests for self-medication. This reflects the poor quality of pharmaceutical care. This high self-medication confirms the unsatisfactory dispensing practices for list I analgesics in Bamako. A similar observation has been made by other authors [12]. Dispensing medicines without a prescription shows that the legislation on dispensing medicines is not fully implemented in pharmacies [13].

18.87% (n=57) of dispensations concerned tramadol, 4.97% (n=15) was dispensed following requests for self-medication and 13.91% (n=42) on prescription. This result is similar to that of Gosselin et al., who obtained 12% of tramadol prescription [3]. Tramadol abuse is possible even by respecting the rules of dispensation [14]. Thus, self-medication could quickly promote tramadol intoxication and abuse.

Following intoxication with a tramadol dose ranging from 250 to 2500 mg, Jovanović-Čupić *et al*. observed tonic/clonic seizures at 54.4% patients, convulsions within 24 hours of tramadol intoxication at 84% patients. Furthermore, the oral intoxication at a dose of 200 to 2000 mg had caused seizures at 46.3% of patients and the mortality rate was 7.4% [15,16].

Fixed combination of paracetamol/codeine was the most dispensed in dual therapy by prescription with 16.56% (n= 50) and 9.93% (n=30) by self-medication. Self-medication with a fixed combination increases the risk factors for drug interactions. This confirms the 441 unintentional deaths attributed to paracetamol/codeine products identified in the Hopkins *et al*., study and concomitant drug use was detected in 79% of cases [17].

CONCLUSION

This study has shown that the main cause of soliciting analgesics with or without prescription is headache. The main molecules solicited with or without a prescription were the fixed combination paracetamol/codeine, paracetamol and tramadol. There is also a high over-the-counter dispensing of list I analgesics. It is therefore essential to raise awareness among dispensing pharmacists about compliance with dispensation rules in order to better manage their clientele.

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COMPETING INTERESTS

The authors declare that they have no competing interests.

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