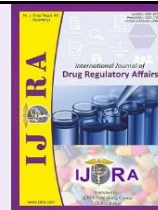




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Research Article

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Evaluation of the Knowledge, Attitudes and Practices of the Staff of private Pharmacies in the city of Niamey and their clients on the management of Malaria in 2021

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Abstract

Objective: Malaria is a major public health problem in Niger. It accounts for 28% of all illnesses in the country and 50% of all death records. The objective of our study was to analyze the role played by private pharmacies in the management of uncomplicated malaria.

Material and methods: This are a descriptive analytical cross-sectional study, conducted in the form of a survey during the period from May 17 to September 15, 2021 in private pharmacies in Niamey. The study population was composed of incumbent pharmacists, assistant pharmacists, sales agents and customers of private pharmacies.

Results: A total of 10 pharmacists, 49 sales assistants and 1000 customers were interviewed. More than 62% of patients did not see a prescriber before coming to the pharmacy. Free access to anti-malarial and knowledge of the disease were the main reasons with 52.09% and 34.56% respectively. Of the sales agents, 76% had attended a training institute. Only 10% of pharmacies have a rapid diagnostic test for malaria and 7 pharmacists or 10% are aware of the existence of national control program.

Summary ad conclusion: The pharmacy team had good knowledge of the causative agent of the disease, the signs suggestive of simple malaria. However, the national guidelines for the management of malaria were unknown to pharmacists in private pharmacies.

Keywords: Malaria, Niamey, National Malaria Control Program (NMCP)

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1. Introduction

Malaria is an acute febrile human disease caused by the Plasmodium parasite, which is transmitted by the bites of infected female Anopheles mosquitoes. According to the WHO, each year more than 400,000 people die from malaria.

Just over half of all malaria deaths worldwide were recorded in four African countries: Nigeria (31.3%), the Democratic Republic of Congo (12.6%), the United Republic of Tanzania (4.1%), and Niger (3.9%). (1-3)

In Niger, it accounts for 28% of all illnesses in the country and 50% of all recorded deaths.

More than 5 million cases and 10,000 deaths of children attributable to malaria in 2015 were recorded. (4, 5)

This constitutes a real public health problem in view of its consistently high mortality and morbidity rates. (6)

Although it is a curative disease, drug resistance phenomena are observed. (7, 8)

Indeed, the dispensing of antimalarial drugs is free. This dispensation encourages and promotes self-medication. This is why the emphasis must be put on vector control, rational use of antimalarial drugs, in order to preserve their effectiveness, have better compliance in order to reduce morbidity and mortality. This rational use requires good quality pharmaceutical and therapeutic drugs, a good distribution circuit and good education and information of the population on the treatment and prevention of malaria. (9)

Thus, the objective of this study was to analyze the role played by private pharmacies in the management of simple malaria.

2. Materials and methods

Type of study and patients included:

This is a descriptive analytical cross-sectional study, conducted in the form of a survey during the period from 17 May to 15 September 2021 in private pharmacies in Niamey.

The survey population consisted of attending pharmacists, assistant pharmacists, sales agents, and private pharmacy customers.

Ethical considerations

The authorization issued by the Faculty of Health Sciences of Abdou Moumouni University allowed us to conduct the research. We also received the approval of the pharmacists holding the private pharmacies. With their consent, we interviewed pharmacists, sales assistants, and customers who came to request an antimalarial drug for themselves or for their relatives, as well as those who had a prescription. Also, anonymity was respected.

Statistical analysis

The data were entered and processed using Excel 2016 and Epi info version 7.2.4.0

3. Results

Table I: Distribution of patients by age group

Characteristics	Number	Percentage (%)
Age		
0 à 5 years old	138	13,8%
5 à 15 years old	140	14%
15 à 25 years old	188	18,8%
25 à 50 years old	354	35,4%
50 à 100 years old	115	11,5%
Level of study		
Primary	200	20%
Secondary	261	26,1%
Higher education	201	20,1%
Other*	338	33,8%
Total	1000	100,0%

* Those who did not go to school or who went to Koranic school

Table II: Clients' level of knowledge of the malaria vector

Vector	Number	Percentage (%)
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A total of 10 pharmacists, 49 sales assistants and 1000 customers were surveyed.

Pharmacy customers

Our study showed that the most represented age group was between 25 and 50 years old, i.e. 35.4%. Also, 20% (n=201) of the respondents had higher education, 26% (n=261) had secondary education and 20% (n=200) had primary education (Table I).

Regarding the question of which agent is responsible for malaria transmission, 63.3% (n=131) of the clients had identified Anopheles as the vector agent of the malaria parasite (Table II).

In addition, we noted during our survey that 62.2% (n=622) of patients did not see a prescriber before coming to the pharmacy.

Tables III and IV summarizes the main reasons clients went to the pharmacy directly without a prescription and the types of advice they received. The assessment of the knowledge of private pharmacy staff in our study showed that only 40.81% (n=20) of the sales assistants recognized Anopheles as the vector agent of malaria.

Sales agents and assistants in pharmacies:

According to our study, 40.81% (n=20) of the sales assistants recognized Anopheles as the vector agent of malaria. However, we found that 76% (n=37) of the sales assistants surveyed had attended a training institute.

Pharmacists in charge of private pharmacies:

According to our study, only 10% of pharmacies have a rapid diagnostic test (RDT) for malaria.

Also, only 7 pharmacists (10%) were aware of the existence of the National Malaria Control Program (NMCP). All the pharmacies in which our study took place did not have any collaboration with the NMCP and had not received any training from this program.

Anopheles	131	63,3%
Bacteria	28	13,5%
Fungus	1	0,5%
Parasite	27	13,0%
Virus	20	9,7%
Total	207	100,0%

Table III: Main reasons for clients coming to the pharmacy without a prescription and advice for use

Reasons	Number	Percentage (%)
Health professional	64	10,30%
Knowledge of the disease	215	34,56%
Consultation center remote	14	2,25%
Consultation fees high	5	0,80%
At the pharmacy, no prescription required	324	52,09%
Total	622	100,0%

Table IV: Frequency of advice for use after receiving the drug

Tips for use	Number	Percentage (%)
Duration of treatment	257	25,7%
Hygiene and diet	5	0,5%
Mode of administration	211	21,1%
Dosage	754	75,4%
Prevention of malaria	12	1,2%

4. Discussion

At the end of our study, the most represented age group of patients is between 25 and 50 years with a frequency of 35.4%. This could be explained by the fact that this age group would be impatient to carry out the consultation and the purchase of the medicines at the same time.

These results were similar to those reported in the Salia study and also those found by Koné *and coll* in 2019 in Bamako. (10, 11)

In our series, a large proportion of pharmacy clients (33.8%; n=338) had never been to school. This figure was consistent with the low literacy rate in Niger, which was around 30.11%. (12)

Similar results were reported by Ouedraogo *and coll* in Burkina Faso (13), Koureissi *and coll* in Mali. (14)

It should be noted that this situation of illiteracy of the clientele of private pharmacies could have a negative effect on the correct administration of medicines in terms of explanation of the dosage and the procedures to follow.

In our study, we found that 62.2% (n=622) of the private pharmacy clients surveyed had not seen a prescriber before coming to the pharmacy.

This result was comparable to that reported in the Levy et al. study in 2020, which noted that 40% of pharmaceutical products were dispensed at the patient's request, 29% were dispensed on the patient's advice. (15)

This is due to the fact that 39.68% of the clients were unaware of the existence of biological examinations carried out in the health centers before initiating anti-malarial treatment because they did not frequent them.

According to some clients, they did not have the means to pay for both the consultation and the prescription, and

it was not necessary for them to go to the health center for minor illnesses that they could manage themselves, hence the 34.06% rate for self-medication in our situation.

However, Salia in his study found that 33% of patients practiced self-medication and 23.5% sought advice from pharmacy agents. (10)

Therefore, the NMCP should consider subsidizing anti-malarial drugs dispensed and RDTs performed for good accessibility to patient care. (16)

In our survey, we noted that the most common advice given was on dosage (75.4%) and duration of treatment (25.7%). This advice was given most often by sales assistants (96.7%) and 3.3% by pharmacists. However, the pharmacist was normally supposed to be the only person entitled to give advice to customers. This could be explained by the fact that the pharmacist is usually not present in the pharmacy. The recruitment of pharmacist assistants in the pharmacies could be one of the solutions that would undoubtedly strengthen the management of patients.

These results were comparable to those found respectively by Salia (10) (19%) and Diallo (17) (65.5%) in similar studies conducted in Mali.

Another study conducted in Mali by Songho *and coll* reported results comparable to ours. (18)

The study by Gueralbaye *and coll* in Chad also showed that advice given to patients was not automatically given after the medicines were dispensed. 56% of the prescriptions were explained at the request of the patient. (15)

Indeed, pharmacists play a key role in the management of malaria, they remain the privileged interlocutor of most patients, unfortunately they are not taken into account by the National Malaria Control Program in

their activities. In our study, only 7 out of 10 pharmacists know about the NMCP. In addition, there is no collaboration between the NMCP and the private pharmacies in the city of Niamey. On this subject, results comparable to ours were reported by Ganfon *and coll* in their study conducted on the knowledge and practices of malaria management by the staff of private pharmacies in five cities of Benin, Burkina Faso, Mali in 2014 which had shown that the vast majority knew the NMCP with 84% but were less aware of the national protocol and very few have the official document of malaria control. (19)

In Niger, no collaborative action between the NMCP and the private pharmaceutical sector is clearly defined either in the strategic plan or in the national guidelines for malaria control; it is only the public sector that is taken into account by the latter.

In addition, only 1/10 of private pharmacies have a rapid diagnostic test for malaria, although the pharmaceutical legislation authorizes pharmacies to perform basic tests.

Also, the study by Diallo *and coll* (17) had made the same observation during its baseline survey, that no pharmacist performed the rapid diagnostic test (RDT) for malaria.

Finally, according to the work of Robin, the "confirm and treat" approach was not really used in pharmacies. (16)

5. Conclusion

This study analyzed the role played by private pharmacy staff and clients in the management of uncomplicated malaria in Niamey, Niger.

At the end of this study, we found that the pharmacy staff had a good knowledge of the causative agent of the disease and the signs suggestive of simple malaria. However, the national guidelines for the management of malaria were not known by the pharmacists of private pharmacies, as more than 30% of them did not know the NMCP, let alone collaborate with it.

Also, one of the most alarming findings was the excessive use of antimalarials by clients through self-medication. The costs of care, the accessibility of health facilities and the notion that the disease is trivialized by patients are the main factors that encourage this self-medication.

In view of the results of this study, measures must be taken by the authorities in charge of health to raise awareness among the general population and to ensure that the pharmaceutical regulations in force are applied.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article

Contributions of authors: All authors have contributed to the acquisition of data, the analysis and interpretation of data and the writing of the article

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