

## Drug Management in Households of Bamako, Mali

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### Abstract

### Original Research Article

The rational use of medicines is a concern of any health policy in many countries. The aim of this study was to investigate the management of medicines in households in Bamako, Mali. It is a descriptive cross-sectional study, which took place from August to October 2020. Random sampling was used. A questionnaire was used to collect data on socio-demographic characteristics and family drug management. Data were entered and analyzed on Epi info version 17 software. Informed and verbal consent was obtained from the respondents. Of the 150 households visited, 99% had medicines at the time of the survey. For the storage of medicines, 2.7% of respondents used a medicine cabinet. Among the medicines found in the households, painkillers were the most represented (184/668). More than 52% of the medicines in households were acquired on medical prescription against 48% on self-medication. And 21.3% declared that the medicines were within the reach of children. We found that all the households surveyed had a stock of medicines and the bedroom was the room most often used to store them. Very few had a cupboard dedicated to storing medicines in the family.

**Keywords:** Management, Medicines, Households, Bamako.

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## INTRODUCTION

The importance of medicines as a preferred consumer good in any health care system is well established in terms of diagnosis, curative and preventive treatment. In recent decades, global drug consumption has increased dramatically. The global pharmaceutical market is doing very well. According to the research institute IMS Health (a US company that provides information, services and technology for the healthcare industry), by 2020 it is expected to grow twice as fast as in recent years and to exceed \$1,400 billion [1].

Thus, 1.2 billion people in developed countries have consumed nearly 75 billion medicines, while 4 billion people in developing countries consume 20 billion [2]. In many countries, particularly in France, the existence of medicines in families is a consequence of the organization of the health system, with a method of dispensing medicines that favors storage. In Japan, the pharmacist plays an important role by coming to the home to actively participate in the management of medicines, especially for the elderly [3].

Thus, there are many concerns regarding the use of medicines. Indeed, medicines are substances whose purpose is to treat, but under certain specific conditions because they are not without risks linked to their misuse. Indeed, cases of intoxication have been reported among children, with the family home being the main place of accident. According to Sylla *et al.*, (77.5%) of intoxications occurred in the family home [4].

The design and implementation of an effective strategy for the use of medicines in the home requires a good knowledge of the current characteristics of the management of medicines in the household.

The focus of this research is on the management of medicines in households in Bamako.

## MATERIALS AND METHOD

### 1. Type and period of study:

Our study took place in households in the district of Bamako (Mali) from August 2019 to October 2020. It was a prospective descriptive and cross-sectional study.

## 2. Study population:

The study population consisted of all persons residing in the city of Bamako and aged at least 18 years. All household members who were at least 18 years old and willing and available at the time of the survey were included in the study.

## 3. Sampling:

For this study, all six communes of Bamako were covered. Neighborhoods and households were selected at random.

In each commune, five (05) neighborhoods were selected at random, from which five (05) households were also selected at random, and from each household one person was chosen, giving us a total of 150 people.

## 4. Data Collection

The collection of information required the prior informed consent of the respondents, in order to reassure them that the answers were anonymous and confidential, to ensure that the subject met the inclusion criteria and to explain the purpose of the study.

The information was collected using a questionnaire designed for this purpose. The data collected included different variables, including the dependent variable corresponding to the management of medicines in families and independent variables relating to socio-demographic data (age, sex, marital status, level of education, occupation, municipality, neighborhood). The data related to the management of medicines in families are: the presence of medicines, the place of storage, the means of storage, the accessibility of medicines to children, the different therapeutic classes, analgesics, anti-inflammatories, drug combinations, antibiotics, anti-malaria's, galenic forms, the units of medicines found, the place of purchase, the methods of acquisition, the reasons for the presence of medicines, the presence of out-of-date medicines, the methods of disposing of unused medicines, the circumstances in which intoxications occurred, the medicine involved and the people affected. Data entry and analysis was done on Epi info version 7 software and verbal informed consent was obtained from all household respondents prior to the interview.

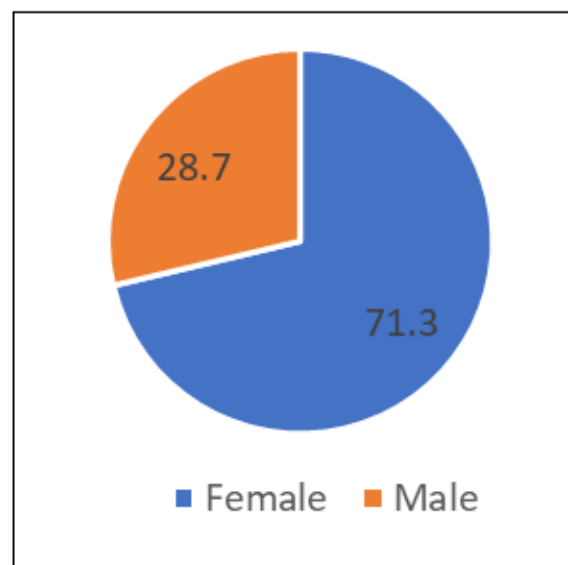
## RESULTS

### 1. Socio-demographic characteristics of respondents

In each household, one person was selected who met the study criteria.

Of these, 71.3% were female and 28.7% were male. The largest fraction was between 20 and 29 years of age, 52% (78/150). Regarding marital status, 71.3% were married. The study also looked at the level of education, which showed that 48.7% (73/150) had a

tertiary education. The results of our study also revealed that 59.3% (89/150) were gainfully employed (Figure 1).



**Figure 1: Sociodemographic characteristics of the respondents**

More than half of the respondents to this study were female.

### 2. Medicine management in families

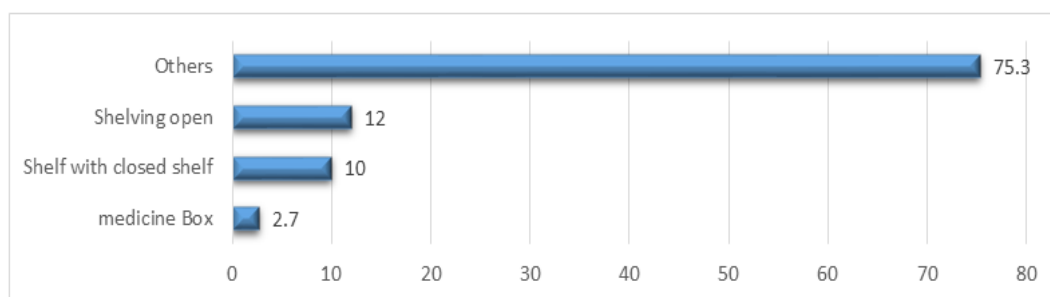
Of the 150 households visited, 99% had medicines at the time of the survey.

For the storage of medicines, 2.7% of the respondents used a medicine cupboard, 10% an open-shelf cupboard and 12% a closed-shelf cupboard. Apart from these three means of storage, 75.3% of respondents used other means, of which the sachet was the most common (45%) followed by the basket (27%).

Among the medicines found in the 668 households in total, analgesics were the most represented (184/668) against anti-hemorrhagic and arthrosis medicines respectively (1/668). Ibuprofen was the most common analgesic, accounting for 67%, with 4 different trade names.

Antibiotics accounted for 14.8% and antimalarials for 3.7% of which (92%) were based on artemether/lumefantrine. More than half (52%) of these medicines were acquired by households on medical prescription and 48% by self-medication. And 54.9% of the medicines found in households were in tablet form.

Of all the households surveyed, 21.3% stated that the medicines were within the reach of children. 66.7% of unused medicines were kept for later treatment, 28.7% were thrown away.



**Figure 2: Household medication management data**

Other: bag, basket, sack, dining table, dressing table.

For storage of medicines, only 2.7% of respondents used a medicine box, 10% used a closed shelf, 12% used an open shelf and 75.3% used other means of storage.

## DISCUSSION

Medicines are not only used to treat diseases, but also to prevent them. However, their use is not trivial [6]. They are frequently used inappropriately, inefficiently and ineffectively in both developed and developing countries.

Our study showed a clear predominance of female responses (71.3%), which was almost identical to Boutin's finding of 71% female responses [8]. The population of our study was composed of 71.3% married; this result was close to that of Dia who found 78% married [9]. Our research showed that 59.3% of our sample were employed. Concerning the level of education, 48.7% of our respondents had a higher level of education and 7.3% had no education. In the Angofi study [10] 63% of the respondents had a higher level of education and 6% had no education.

Of the 150 respondents, 99% reported having medicines in the family at the time of the survey. The respondents' bedroom was the room in the house most often used for storing medicines, with a percentage of 75.3%. This result was close to that of Dia where the bedroom was the most used place for storing medicines, with a percentage of 92% [9]. It was comparable to that of Angofi [10], where the bedroom was used at 75.9% for storage of medicines. It differed from Boutin's with a dominance of the bathroom (49%) [8].

Only 2.7% of the respondents used a medicine cabinet for storing medicines. Our results were lower than those of other authors. Angofi [10], found that the medicine cabinet was the place where medicines were stored in 41.3% of his series. So did Dia, where open shelves were the most used with a percentage of 41.3% [9].

It was found that 21.3% of the respondents reported having medicines within the reach of children. This result was higher than that of Boutin where the

pharmacy was within reach of children in 17% of cases [8]. Our results were lower than those of Dia (59%) [9] and Angofi (40%) [10]. The most common therapeutic class was analgesics with 27.5%. This result was higher than Dia's 19.9% [9], but similar to Angofi's 26.4% and [10] differed from Boffeti and Hericher's where analgesics were the second most common drug class in home pharmacies (16%) [11].

Antimalarials accounted for 3.7% of the drugs found, of which artemether/lumefantrine accounted for 92%. In the Angofi study [10], this combination represented (65.8%). More than half (54.9%) of the drugs found were in tablet and generic form (75%). In the Dia and Angofi study they were respectively 67% [9] and 66.4% [10].

The majority of medicines found in households came from private pharmacies (85%). This result was the same as that of Angofi [10] who found that 85% of medicines were purchased from a private pharmacy. The acquisition of medicines found in the households visited was done in 48% by self-medication. According to Angofi [10], self-medication was a method of acquiring medicines in 20%, and according to Dia self-medication was 12.4% [9].

Unused medicines were kept in 66.7% for further treatment, 28.7% were thrown away and 4.6% were flushed down the toilet. However, in the Angofi study [10], 72.25% of households threw away their unused medicines in the trash, 26% in the toilet and 1.73% were returned to the pharmacy. And for Boutin [8], 70% of unused medicines were returned to the pharmacy.

## CONCLUSION

This study allowed us to better understand the management of medicines in households in Bamako. The bedroom was the room most used for storing medicines in the households visited. The medicine cabinet was used by some households. Medicines in the households were within the reach of children. Analgesics were the most common pharmacological class found in the households, and most of these

medicines were generic. Most of them were obtained from private pharmacies by prescription.

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