

## Research Article

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## Self-Medication Among Children Under 15 Years, At the Teaching Hospitals of Lomé, Togo

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### Abstract

**Objectives:** The present study was aims to identify the causes, the categories of medicines used and the outcomes of self-medication in hospitalized children under 15 years.

**Materials and Methods:** We conducted a descriptive study from June 18 to July 18, 2016 in two Teaching Hospitals in Lomé. Parents/relatives of inpatient pediatric department were interviewed, using a questionnaire on self-medication. The data was analyzed on the basis of frequencies (%) of parameters investigated.

**Results:** We interviewed 204 informants. The self-medication prevalence was 85.8% (n=175) and mostly imputed to the mothers. Children's pathological histories were asthma and sickle cell disease (16.0%). The sources of self-medication drugs were pharmacies (60%), itinerant sellers of medicines (49.7%) and left-over prescribed medicines stored at home (21.1%). Fever (85.1%), headaches (49.7%), abdominal pain (28%), cough and cold (14.3%) and diarrhea (12.6%) were the main symptoms responsible for self-medication. Analgesics and antipyretics were used in 92.6 % of cases. Anti-microbial (antibiotics, antimalarial, and other antiparasitics) was auto-administered in approximately 47.4%. Herbal medicine and other local products represented 41.7%. The outcomes of self-medication in children are multiple, including nausea and/or vomiting (89.7%), anaemia requiring transfusion (39.9%), allergic skin reactions and so on.

**Conclusion:** Parental self-medication is common in Togolese children. In view of previous outcomes, the use of self-medication for children is a practice that must be controlled and reasoned.

**Keywords:** Categories of Medicines; Children's Pathological Histories and Symptoms; Inpatient Pediatric Department; Parental Self-Medication; Self-Medication Outcomes; Togo

### Introduction

Self-medication among adult persons constitutes a problem of public health worldwide, especially in sub-Saharan Africa. Surprisingly, this phenomenon is also frequent among children. The act of self-administrating over the counter medicine, or giving it to one's child without medical supervision, is termed self-medication [1]. This treatment is often managed by parents or relatives without consulting a physician [2]. The prevalence of this practice is 68% in Europe and varies between 40 and 95%

in developing countries according to several studies [3-5]. This practice is often associated with incorrect self-diagnosis, leading to inadequate children self-treatments by the parents. With regards to the particular susceptibility of children, self-medication could expose them to numerous adverse reactions. In Togo little data exist in relation to self-medication for children. Lack of data on this topic motivated our study. The objective is to describe pharmaco clinic aspects of self-medication among children, determine the pathological histories and symptoms having motivated the self-medication, the sources and the pharmaco therapeutic categories of medicines used and the outcomes of self-medication for children under 15 years in the city of Lomé.

## Materials and Methods

### Design and Ethics

A descriptive cross-sectional survey was conducted from June 18 to July 18, 2016 in the two Teaching Hospitals (inpatient pediatric departments) of Lomé-commune region. The survey authorization was given by the ministry of health and social protection and by the chief of staff of the two Teaching Hospitals of Lomé. The consent of the parents was obtained after explaining the objectives and the interest of the survey to them.

### Eligible Population

We included all parents of a hospitalized children (under 15 years) and all relatives living with the children and overcoming the conditions in which the child is taken in charge in case of illness at home who agreed with the survey. All parents of a hospitalized child (age  $\geq 15$  years) and all parents of a hospitalized children (age  $< 15$  years) refusing to participate in the survey and finally, all relatives not overcoming the conditions of management of the child's illness in case of morbidity at home were excluded.

### Sampling

The sampling was non probabilistic, reasoned with an exhaustive inventory of eligible population in a period of 30 days, at the rate of 15 days per Teaching Hospital. The size of the sample was determined by the formula of Schwartz with one confidence interval of 95%.

### Data Collection

An anonymous structured questionnaire on self-medication practice has been administrated directly to the parents or relatives of the children under 15, hospitalized in the pediatrics department. The content of the questionnaire was previously pre-tested on a sample of 10 parents/relatives to value its understanding and acceptability. The questions were open or closed with only one answer or multiple choices. The data collection concerned the child's pathological histories, the symptoms having motivated the self-medication, the sources and the pharmaco therapeutic categories of medicines used and the outcomes of the self-medication for the children under 15 years in the city of Lomé.

The data have been analyzed, in a descriptive way on the basis of calculated frequencies (%) of various parameters investigated.

## Results

A total of 204 parents/relatives of the children were surveyed among whom 175 respondents (85.8%) acknowledged having practiced self-medication in children. The mean age is 32 years  $\pm$

7.5, the median age is 31 years, the sex ratio is 8.3 and the extreme ages are 17 and 65 years. Of these, 16 are fathers (9.1%) and 151 are mothers (86.3%).

### Pathological Histories and Children Self-Medication

Table 1 shows that asthma, sickle cell disease represented the main pathological histories of children for whom parents/relatives used self-medication (16.0%).

Pathological history	Children (n=175)	
	n	%
Asthma, sickle cell disease	28	16.0
Diabetes	1	0.6
No pathological history	146	83.4

**Table 1:** Pathological histories of children self-medicated.

### Symptoms Having Motivated Self-Medication in Children

Children's febrile conditions (85.1%) are the predominant cause of non-prescription medication use by parents/relatives, followed by headaches (49.7%), stomach pain (28%), coughs and colds (14.3%) and diarrhea (12.6%) etc. (Table 2).

Symptoms	Children (n=175)	
	n	%
Fever	149	85.1
Headache	87	49.7
Abdominal pain	49	28.0
Cough and cold	25	14.3
Diarrhea	22	12.6
Nausea and vomiting	10	5.7
Constipation	1	0.6
Itching on the body	6	3.4
Vaginal itching	4	2.3
White discharges	2	1.1
Other symptoms	16	9.1

**Table 2:** Symptoms having motivated children self-medication.

### Sources of Drugs and Other Products Used for Children Self-Medication

Several sources of drugs and other products used for self-medication in children have been reported by the parents/relatives, namely: pharmacy (60%), itinerant sellers of medicines (49.7%), left-over prescribed medicine stored at home (21.1%) and

medicines from family members or relatives (8%) (Table 3).

Source of drugs	Children (n=175)	
	n	%
Pharmacy	105	60.0
Street/Itinerant sellers of medicines	87	49.7
Left-over prescribed medicines stored at home	37	21.1
Medicine supplied by a member of the family	14	8.0

**Table 3:** Sources of drugs for children self-medication.

### Pharmacotherapeutic Categories of Medicines Used for Children Self-Medication

Table 4 lists the pharmacotherapeutic categories of drugs and other products for children self-medication by parents/relatives. Analgesics/antipyretics (92.6%), antibiotics (27.5%), herbal medicine (22.3%), other miscellaneous products (19.4%), antimalarials (14.3%) and anti-inflammatories (12.6%) were the most representative classes of medicines.

Parents used one or more medications for self-medication such as amoxicillin (11.4% of parents, n = 20), paracetamol (73.1% of parents n = 128), quinine (7.4% parents, n = 13) etc.

Pharmacotherapeutic groups	Children (n= 175)	
	n	%
Antalgics/Antipyretics	162	92.6
Antibiotics	45	25.7
Herbal medicine (ginger, neem, kinkeliba)	39	22.3
Other products (vitago, night of rest, Daga, Misagrippe...)	34	19.4
Antimalarials	25	14.3
Anti-inflammatory drugs	22	12.6
Other antiparasitics drugs	13	7.4
Antitussives and decongestants	8	4.6
No remembered product name	4	2.3

**Table 4:** Pharmacotherapeutic categories of drugs and other products for children self-medication.

### Outcomes of Self-Medication in Children

Self-reported child self-medication events are summarized in Table 5. These are mainly nausea and/or vomiting (89.7%), anaemia (38.9%) and pruritus (7.4%).

Outcomes	Children (n=175)	
	n	%
Nausea and/or vomiting	157	89.7
Anaemia	68	38.9
Pruritus	13	7.4
Convulsive crises	6	3.4
Lesion of the digestive mucous membrane	2	1.1
Hematuria	2	1.1
Diarrhea	1	0.6

**Table 5:** Outcomes of children's self-medication.

### Discussion

To the best of my knowledge, our study was the first of its kind in Togo. As reported by Jensen et al. the number of published works about child self-medication is small [6]; when these studies exist, they focus on a symptom or a class of medicines, so that limited the data for comparison with our findings.

Our objective was to describe pharmaco clinic aspects and determine the outcomes of children self-medication by parents. The choice to carry out the survey in the inpatient pediatrics departments of the Teaching Hospitals can be explained by the fact that the most serious cases are brought into these centers.

### Prevalence of Self-Medication in Children

The results of our study indicate that the use of self-medication was found among 85.8% of respondents (parents/relatives). This prevalence is lower than that reported by Escourrou et al. (96%) [7] and higher than that reported by Jamaa et al. 62.5% among total delivered treatments prescription for paediatric population [8]. This difference in prevalence could be explained by several factors such as the target population, the study setting, the duration of the study, and the pathology or class of drugs studied.

The mean age of the respondents of the present study is 32 years with extremes of 17 to 65 years. Children aged between 6 and 10 years were self-medicated by 91.9% compared to 82.8% for children under 5 years of age. The latter are generally more vulnerable. This implies that some parents are aware of this vulnerability and have feared self-medication among children in this age group.

### Pathological Histories in Eligible Children

The majority of children in our series who received self-prescription from their parents had no pathological history. In contrast, 16% of self-medicated children had a history of asthma and sickle cell disease. In terms of pathological histories, we have not found any equivalent study in the literature. However, in Togo,

asthma is a public health problem. Its prevalence in schools has been estimated at 23.4% [9,10]. As for sickle cell disease, the "S" gene responsible for the disease is very common in the Togolese population [11] and constitutes a major problem of public health. According to Fleming et al., about 120,000 infants are born each year with Sickle Cell Disease (SCD) in Africa [12]. In the event of discovered sickle cell disease, 18.3% of the mothers stated to resort to self-medication [13].

### **Symptoms Having Motivated Children's Self-Medication**

The clinical manifestations reported by the parents and for which they used self-medication in children were represented by fever (85.1%), headache (49.7%), abdominal pain (28%), cough and cold (14.3%), diarrhoea (12.6%), nausea and vomiting (5.7%). The pattern of clinical manifestations that led to self-medication in our context differs from that reported by Du and Knopf in Germany who stated that the most frequently mentioned indication for all self-medication was prophylactic measures (17.1%), followed by acute rhino pharyngitis (16.7%) and other common-cold symptoms such as cough (12.7%), sore throat (3.3%) and fever (2.9%). Headache was also one of the most frequently mentioned indications (7.2%) [1]. For Escourrou et al. the reasons that motivated parents to self-medication were fever for 44% of them, cold for 31%, mild illness for 30%, pain for 30%, no immediate appointment for 23%, cough for 16%, then digestive disorders, personal experience, asthma, trauma or wounds, skin problems or a doctor in the family [7].

The epidemiological profiles of these studies are not superimposable, it is not relevant to compare these results. However, the clinical manifestations in our series could be explained by the epidemiological profile of morbidity characterised:

- For fever: by a national prevalence of malaria of 33.1% among children under five; while these latter hospitalized for malaria accounted for 60.6% of hospitalized children [14]; other acute infections (respiratory, meningitis, etc.) also contributed to the febrile state;
- For headache and abdominal pain: by malaria and sickle cell disease such as infarctive crises (hand-foot syndrome, bone, pulmonary and abdominal-pain) [12];
- For cough and cold: by respiratory infections, such as pneumonia (about 5% of children under 5 years old have been suspected of pneumonia) [14];
- For diarrhea: by diarrheal diseases whose prevalence is estimated at 20.6% in 2010 [14].

### **Sources and Pharmacotherapeutic Categories of Medicines for Self-Medication**

Pharmacies were the predominant source of self-medication (63.30%) followed by itinerant sellers (49.70%) and left-over prescribed medicine stored at home (21.1%). Several studies reported that most products of self-medication were obtained

from pharmacies (66.2%) [15], pharmacies (50.4%) and market (32.6%) [16]. The principal sources of obtaining antibiotics used for children in the study of Jasim accounted for 87.1% of cases was the community pharmacies followed by shops of other medical staff 8.1% and finally 4.8% of the parents used left over antibiotics stored at their homes [17]. Worldwide, it is estimated that more than 50% of antibiotics are purchased privately without a prescription, from pharmacies or street vendors in the informal sector [18].

The most reported pharmacotherapeutic classes used were analgesics/antipyretics (92.6%), antibiotics (27.5%), herbal medicine (22.3%), other miscellaneous products, antimalarials and anti-inflammatories. The main groups of self-prescribed drugs were: analgesic/antipyretic and anti-inflammatory drugs (65%), systemic antibiotics (48%), and drugs acting on the respiratory tract (38%) in a study reported Jemaa et al. in Tunisia [8]. For Escourrou et al. in France, 97% of parents had already self-medicated their children with paracetamol (an analgesic antipyretic drug), 87% with non-steroidal anti-inflammatory drugs, 31% with corticosteroids and 11% with antibiotics [7]. In Germany, drugs acting on the respiratory system (32.1%) were most frequently used, followed by diet and metabolism (21.6%), skin (14.2%), nervous system (11.3%) and the musculoskeletal system (6.5%), as well as homoeopathic preparations (8.6%) [1]. As for clinical signs having motivated self-medication, the categories of medicines used are not comparable since the profiles of epidemiological morbidity are not superimposable.

Paracetamol (PCM) is the most used medicine; indeed, 73.14% of parents used it during self-medication motivated by fever and headache as previous reported. In their study, Escourrou et al. found that over 97% of parents used paracetamol for self-medication [7]. PCM, introduced in the 1950s as a mild analgesic/antipyretic, is the most widely used analgesic/antipyretic to treat mild pain and fever worldwide. It is considered safe and effective for pediatric patients when administrated in therapeutic dosage and has few risks associated with intermittent use [6].

The most antibiotic self-prescribed by parents to children was amoxicillin (11.4% of parents, n = 20). This result is lower than those reported by Jemaa et al. and Jasim in their studies in which amoxicillin was found to be the most self-prescribed (55%) [8], the most frequently acquired and utilized antibiotic (47.6%) [17].

### **Outcomes of Self-Medication**

Among the serious consequences of "parental prescription" to their offspring, nausea and/or vomiting were most common (89.7%). No prevalence of these symptoms was found in the literature. However, they can be a symptom of some disease (viral stomach illness, problems with abdominal organs [19], coughing and high fevers [20]) and/or self-administration of some medicines such as antibiotics [19].

Concerning anaemia, it has led to 68/175 (38.9%) of children being transfused. In African children, anaemia is common and its aetiology is frequently multifactorial [21] namely:

- physiological aetiology: Anaemia is inversely related to age in healthy individuals, asymptomatic falciparum carriers and malaria patients independent of malaria transmission intensity [22-24].
- Pathophysiological aetiology: The rates of background anaemia in Africa are high (e.g. 40–60%) across all malaria transmission intensities [22, 25-29]. Taylor et al., reported the risk of acute haemolytic anaemia with primaquine [30] and other drugs (aspirin, paracetamol, chloramphenicol...) in glucose-6-phosphate dehydrogenase deficient (G6PDd) patient. Children present with anaemic crises in cycle cell disease (malaria, splenic sequestration, folate deficiency, and possibly aplastic) [12] are also predisposed to anaemia.
- Other aetiology: errors of diagnosis, of dosage and prolonged unsuitable treatments, in the case of haemolytic diseases could lead to anaemia.

Pruritus (itchy skin) was also reported with 7.4% of cases (n = 13). This result confirms that observed by Saint-Martin et al. in their studies, that the most common adverse drug reactions in pediatrics are dermatological manifestations (rash, urticaria) [31].

Another outcome could be expected from the two main medicines used for children self-medication such as paracetamol and amoxicillin. Paracetamol could be responsible of hepatotoxicity (which is most often ignored by the population) [31], headache when taken frequently [32], liver damage or even failure (overdosing) [33], intoxication (single overdose accident or repeated doses above recommendations) [34], as an analgesic it may mask serious symptoms and thereby postpone treatment of an underlying disease [35]. For amoxicillin, the risk of emergence and spread of resistance related to the irrational use of antibiotics as a major global public health problem could be expected [36-38]. The rapid increase in drug-resistant *Streptococcus pneumoniae* infections is a particular concern in paediatrics because pneumococci is the leading cause of bacterial meningitis, pneumonia, bacteraemia and otitis media in children [39] mainly in developing countries where these infections are not easy to treat [40].

Because self-medication is practiced, it raises concerns of incorrect self-diagnosis, adverse drug reactions, and the cost of self-treatment [15]. These concerns are not investigated in the present study.

The results of our study show that 36.20% of children are self-medicated for more than three days before being conducted in consultation. In a similar study, 41% of parents had to treat the cough of their children for 7 days before going for consultation [41]. That can delay the moment of the consultation and therefore

aggravate the pathology.

## Conclusion

Self-medication is a very widespread and universal phenomenon in adult patients including child patients who are particularly susceptible. The outcomes of the self-medication for the child are multiple notably the nausea/vomiting, anaemia having driven to a transfusion, the cutaneous allergic reactions etc. In regard to these outcomes, recourse to self-medication is a practice that must be controlled, reasoned and make it the object of a higher shrewdness especially if the medicine used is not intended for children.

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## Conflict of Interest Declaration

The authors have no conflict of interest (patent or stock ownership, membership of a company board of directors, membership of an advisory board or committee for a company, and consultancy for or receipt of speaker's fees from a company) to declare.

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