

## Perception and practice of self-medication by parents on their children: A study carried out in the saint joseph health area of Kisangani (The democratic republic of Congo)

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### Abstract

**Introduction:** Self-medication is a major public health problem in view of the risks involved, such as therapeutic failures and the emergence of multi-resistant bacteria. The aim of the study is to demonstrate how self-medication of children is perceived by parents living in the Saint Joseph Health Area, to identify the satisfaction that parents derive from self-medication, to determine the way in which these parents self-medicate their children, and to present what parents can expect from self-medication.

**Methodology:** This was a qualitative, phenomenological study based on free, face-to-face interviews. It concerned 4 mothers found in pre-school consultations at the Saint Joseph Reference Health Centre from June 15 to 30, 2023.

**Results:** With regard to perception, the respondents had demonstrated the significance of self-medication, the determining factors, and their experience on this subject by often resorting to old prescriptions and medicine leaflets. Low income and the time it takes to get to the hospital were the determining factors. The respondents found self-medication satisfying. They were aware of the dangers and risks associated with self-medication. Risk prevention consisted of giving the child palm oil and skimmed milk. Their expectation of self-medicating was always to be cured.

**Conclusion:** Self-medication in Kisangani is a real phenomenon, with the majority of parents practicing it for themselves and their children due to a lack of financial means, as medical care is expensive. Free medical care would be one way of combating this practice.

**Keywords:** Perception; Practice; Self-medication; Parents; Children

### 1. Introduction

Self-medication is a major public health problem in view of the risks involved, such as therapeutic failures and the emergence of multi-resistant bacteria. Self-medication, a relatively restrictive definition of which would be the consumption of medicines without the prior advice of a professional, is a widespread practice throughout the world. Self-medication reflects and even reinforces individual autonomy, in a global context where this autonomy is becoming an increasingly shared value. Compared with other therapeutic options, medication (even in its prescribed form) fosters this autonomy by virtue of its material and easily manipulated or concealed nature, making it possible to treat oneself "when we want, how we want" [1,2].

Self-medication can involve both modern and traditional medicine [3]. Regarded as a phenomenon that is increasingly threatening public health, studies that have looked into the subject have emphasized the abuses that can result from it

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[4], highlighting the main risks, both plausible and proven, in particular acquired microbial resistance to drugs, drug-related accidents, non-beneficial drug interactions, drug dependence, and drug abuse [5].

According to the World Health Organization [6], self-medication is the use, without medical prescription, by individuals on their own initiative, for themselves or for their family members, of medicines considered as such and having received marketing authorization (MA), with the possibility of assistance and advice from pharmacists.

Delrue [7] points out that parents of infants and children often resort to self-medication. There are many specialties sold over the counter in pharmacies. Errors are common. Healthcare professionals still need to do a great deal of therapeutic education work with parents to prevent misuse.

According to Moulin and Coquerel [8], in Europe in 2012, self-medication accounted for a growing share: 7.6% (€2.189 billion), representing growth of 3.2% compared with 2011, whereas the prescription drug market recorded a decline (in value terms) of 2.4% (€26.640 billions) (Pouillard, 2021). In 2015, the self-medication market was worth €2.256 billions.

The French Pharmaceutical Industry Association for Responsible Self-Medication points out that, whatever form it takes, self-medication is now practiced throughout the world. It is a social phenomenon with a growing trend. The reasons for self-medication are many and varied. In fact, self-medication is part of a commercial strategy pursued by pharmaceutical companies and pharmacies [9].

In France, a study of children aged between 1 month and 12 years showed that 89% of parents took their child's temperature correctly and that 61% of parents waited for a temperature above 38°, 11% for a lower threshold and 27% for a higher threshold before administering an antipyretic. This study also shows that 90% of parents use non-medicinal methods before consulting a health professional (pediatrician, general practitioner, or pharmacist). Above all, 91% of children received an antipyretic before the consultation (85% paracetamol alone, 13% ibuprofen and 1% aspirin). In addition, the recommended intervals between two administrations were only observed in 24% of paracetamol treatments and 14% of ibuprofen treatments [10].

In Africa in particular, self-medication with industrial pharmaceuticals is combined with self-medication using plant leaves, roots and barks, as well as certain foodstuffs, to form the primary means by which individuals seek medical care when faced with an episode of illness [11, 12].

Self-medication is a real phenomenon in DR Congo. It is exacerbated by the fact that most of the Congolese population is unaware of the risks of taking medicines without a doctor's advice. Self-medication has become an emerging phenomenon that is increasingly threatening public health [13]. The prevalence of self-medication in DR Congo was estimated at 49% of the population in 2001, and 57% in Goma in 2013 [14], and 57% in Goma in 2013 [15].

The economic crisis that has been raging in the Democratic Republic of Congo for the past 3 decades has led the Congolese to engage in small-scale survival activities. It is in this context that the sale of medicines on the street has become commonplace. This crisis has also made the population very poor, which is the reason for resorting to medicines sold on the street, as access to healthcare in appropriate facilities is difficult [16,17].

In Kisangani, data on the prevalence and characteristics of self-medication are unknown. Self-medication is widespread in the Democratic Republic of Congo. There are many reasons for this. These include culture, poverty and the failure of the therapeutic relationship. It can bring good results, but also consequences. From a physiological point of view, it can bring relief or cause various side-effects, and from a behavioral point of view, it can lead to bad habits such as interrupting prescribed treatment or prolonging the waiting time before a consultation.

Self-medication in the Saint Joseph Health Area of Kisangani is not a trivial matter; many parents practice it for themselves and for their children for appropriate reasons, and this deserves to be analyzed with a view to enlightening public opinion.

Generally speaking, the study aims to combat the practice of self-medication in all its forms, with a view to improving children's health. Specifically, the study aims to demonstrate the perception of self-medication of children by parents living in the Saint Joseph health area, to identify the satisfaction that parents derive from the practice of self-medication, to determine the way in which these parents practice self-medication on their children and to present what parents in the Saint Joseph health area can expect from self-medication.

## **2. Material and Method**

### **2.1. Study plan (design)**

In order to understand parents' perceptions and practices with regard to children's self-medication, we conducted qualitative research of the phenomenological type.

This qualitative approach was chosen because it attempts to reveal the meaning of certain human experiences by analyzing the descriptions of these experiences by the people who have lived them [18]. For his part, Depelteau asserts that in qualitative research, you don't have to have an a priori view of the object of the study; you have to understand the point of view of the actors who have lived through the phenomenon. The priority here is the meanings that people attribute to the phenomena of their experiences [19].

It is a descriptive cross-sectional study, given that we collected the data once at a given time in the study population.

We opted for the interview as the data collection technique, the interview guide and the Dictaphone as the data collection and storage instruments.

### **2.2. Presentation of the study site**

We conducted this study at the Saint Joseph Reference Health Centre, located on 11th Avenue in the Tshopo commune of Kisangani, within the precincts of the Saint Joseph Artisan Parish.

The Saint Joseph Referral Health Center is bounded to the east by a number of residential houses along 11th Avenue as far as the small market on 11th Avenue, commonly known as "Limanga ya 11è avenue", and to the west by the parish football pitch, which is located just opposite the premises of the National Police, Section Tshopo II, to the north by the building housing a number of classrooms at Saliboko primary school and the school management office, and to the south by other classrooms at Saliboko primary school and the convent of the Catholic priests of Saint Joseph Artisan.

### **2.3. Study population and sampling**

#### *2.3.1. Study population*

For the purposes of this research, the study population consisted of 12 mothers attending pre-school consultations at the Saint Joseph Reference Health Centre.

#### *2.3.2. Study sample*

We used a non-probability sampling design, which is a selection procedure in which each element of the population does not have an equal probability or chance of being chosen to form a sample.

We therefore opted for the network, cumulative or snowball sample. According to Côté and Turgeon [20], the network sample consists of asking individuals who were initially recruited to suggest the names of other people they feel would be suitable to take part in the study.

Moreover, in qualitative studies, the sample is not representative, although its small size is not synonymous with a limited study. Nevertheless, it is clear that this sample is not representative.

For this study, our sample consisted of 4 mothers interviewed who had self-medicated their children. So, in the qualitative approach, the number of participants is not determined a priori. It is usually dictated by data saturation (redundancy) and the search for different points of view, or negative cases, i.e. a saturation in which the data from the interview and even from the questionnaire no longer provided any new information because this was happening progressively at the same time as the data collection was taking place.

### **2.4. Data collection process**

#### *2.4.1. Data collection technique*

We used the phenomenological qualitative survey method. The choice of this method is justified by the fact that our study is based on subjective knowledge. We study the significance and meaning of certain human experiences through descriptive analysis by the people who have lived them.

#### *2.4.2. Data collection technique*

The technique of choice for data collection was the unstructured individual face-to-face interview. This technique enabled us to collect data on parents' perceptions and practices regarding self-medication for their children.

For the rest of the study, we used the unstructured interview, which is the preferred technique in qualitative research. Under this procedure, the wording and order of the questions are not determined in advance but left entirely to the discretion of the interviewer. The respondent is free to answer as he or she wishes while still allowing the data to be collected.

#### *2.4.3. Data collection instruments*

In order to reconcile the technique with the instrument of this study and to enable us to collect and store the information needed for analysis, the interview guide and the recorder (Dictaphone) were used as data collection tools.

The interview guide consists of two main parts: the first part collects information about the socio-demographic characteristics of the respondents, while the second part focuses on parents' perceptions and practices regarding self-medication for children. This data collection instrument was initially designed in French, then translated into Lingala and Swahili to facilitate data collection from respondents who did not speak French.

### **2.5. Conduct of the survey**

#### *2.5.1. Preliminary approach*

Before making contact with the respondents, we drew up the interview guide that enabled us to collect the data at the Saint Joseph Referral Health Centre, before obtaining authorization from the Head Nurse and Head of the Health Centre.

#### *2.5.2. Survey proper*

The actual data collection took place at the Saint Joseph Reference Health Centre, considered to be our investigation site.

Using the phenomenological method, which has the weakness of a small sample size, we surveyed 5 mothers who came for pre-school consultations at the Saint Joseph Reference Health Centre during the period from June 15 to 30, 2023. The number of subjects surveyed was built up as the data was collected, thus avoiding redundancy.

#### *2.5.3. Ethical aspects*

The approach consisted of seeking the free and informed consent of the mothers undergoing pre-school consultations at the Saint Joseph Reference Health Centre. To this end, the consent form was read out to them for some or submitted to them for others, depending on whether they could read it for the latter or not for the former.

During data collection, the aims and objectives of the work were explained, the expectations of the respondent were defined, any questions the respondent might have were answered, the data collection procedures were explained, and a quiet, noise-free location was chosen in collaboration with the respondents. To guarantee the confidentiality of the information obtained and the anonymity of the subjects, each was identified without his or her name being mentioned in the recorder containing the respondent's information and data analysis, which will be erased for security reasons. Finally, the respondent had the right to refuse to answer any question deemed sensitive and to interrupt our interview at any time.

#### *2.5.4. Data analysis plan*

The analysis was carried out as the data was collected, mainly because of the theoretical sampling procedure. We therefore proceeded to the floating reading of the materials (interviews), then the application of codes qualified as in vivo codes. The in vivo codes are named using the respondent's language, so that they are as close as possible to the raw data.

The data collected in the course of this study is therefore analyzed in a systematic way, known as phenomenological reduction, which aims to bring out the hidden meanings inherent in the descriptions that the respondents give of the phenomena under study, which will be present during the survey. Based on the themes selected, we identified the sub-themes, and finally the categories, and supported them with verbatim reports.

The truth, here, must be put in inverted commas "...", because the understanding we have of a phenomenon is valid only in the context in which it took place [19].

Once the information had been collected in the field, the data was analyzed manually, taking into account the variables studied. In the process, we carried out a categorical analysis.

### 3. Results

#### 3.1. Identification of study subjects

**Table 1** Profile of respondents

<b>Identification Respondents</b>	<b>Code</b>	<b>Age (Year)</b>	<b>Marital status</b>	<b>Level of study</b>	<b>Occupation</b>
1 <sup>st</sup> respondent	R32L12	32	Married	Graduate	State worker
2 <sup>nd</sup> respondent	B32D11	32	Married	Certificated	Seller
3 <sup>rd</sup> respondent	C36D11	36	Married	Certificated	Housewife
4 <sup>th</sup> respondent	J31L11	31	Married	Graduate	Housewife
Total	-	-	Married:4	Graduate:2 Certificated:2	-

Legend: R, B, C et J: Initial of respondents names , 1 : Married; 1 : graduate; 2 : Certificated

Considering that the names of the subjects surveyed are masked during the data collection process, the elements derived from the socio-demographic and professional characteristics allow us to better constitute the codes in order to differentiate the statements collected from the respondents.

For example, we can consider R32L12: Code assigned to the 1st respondent, aged 32, with a degree of education, married and a civil servant.

Analysis of the data collected on the profile of mothers attending pre-school consultations at the Centre de Santé Saint Joseph shows that the majority of study subjects were four mothers aged 32, 36, 32 and 31, respectively, all of whom were married. With regard to their level of education, two had a degree and two had a state diploma. Finally, in terms of occupation, two mothers were housekeepers, one a shop assistant and one a civil servant.

#### 3.2. Comparison of variables with study objectives

The central theme of our research is "Perception and practice of self-medication by parents for their children". To this end, we have identified four sub-themes in accordance with the objectives assigned to this research.

The thematic analysis of the above-mentioned central theme revealed the following four sub-themes:

- Sub-theme 1: Parents' perceptions of self-medication;
- Sub-theme 2: Parents' satisfaction with self-medication;
- Sub-theme 3: Parents' use of self-medication on children;
- Sub-theme 5: Parents' expectations regarding self-medication.

Taking into account the sub-themes mentioned above, we have identified the categories from which the verbatim reports are drawn:

- Sub-theme 1: Mothers' perceptions of the practice of self-medication
  - Category 1: Meaning of self-medication ;
  - Category 2: Factors determining self-medication;
  - Category 3: Experience of self-medication.
- Sub-theme 2: Parental satisfaction with self-medication
  - Category 1: Satisfaction with self-medication;

- Category 2: Reasons for satisfaction with self-medication;
- Category 3: Difficulties encountered when self-medicating
- Sub-theme 3: Practice of self-medication
  - Category 1: Risks associated with self-medication
  - Category 2: Prevention of risks associated with self-medication
  - Category 3: Knowledge of the disease underlying self-medication
- Sub-theme 4: Parents' expectations regarding the practice of self-medication
  - Category 1: Improvement in the child's state of health
  - Category 2: Negative outcome of self-medication

Having identified the different categories that emerged from each sub-theme, we present the results in the various tables on the following pages.

**Table 2** Mothers' perceptions of the self-medication practice

Sub-topics	Categories	Verbatim
Perceptions of the self-medication	Meaning of self-medication	"... For me, self-medication was a way of giving medicines to children without a doctor's prescription. Very often we did it as we understood it, according to our own knowledge and experience. Self-medication was the use of medication, on one's own initiative or that of a relative, to treat a condition identified by oneself, without consulting a health professional.... " B32D13
		"... In our opinion, self-medication could be understood as the use of medicines without a doctor's prescription. This meant that the patient did not go to the doctor for a consultation in order to undergo medical treatment on the basis of a medical prescription. It should also be pointed out that self-medication can involve both modern medicines and medicinal plants to treat children ...". C36D11
		"... I didn't know the French term for using medicines without consulting a doctor, which means self-medication ( <i>a little smile</i> ). That's exactly what I often did, using doctors without consulting them. I often self-medicated by seeking advice from my family doctor, who gave me instructions on dosage, for example, and on the precautions to be taken when giving medicines to children.... " R32L12
		" ... I'm very interested in your question. In my opinion, self-medication is when an individual uses a medicine, on their own initiative or that of someone close to them, to treat a condition or symptom that they have identified themselves, without consulting a healthcare professional. Self-medication can involve both modern and traditional medicine.... " J31L11
	Factors determining self-medication	"... As far as I'm concerned, I resorted to self-medication for several reasons, such as my low socio-economic level. In this world, when you're desperately short of money to access medical care in hospitals, it's a serious problem. People may need to be seen by a doctor in hospital and continue the treatment process, but all this requires money...". J31L11
		"... What prompted me to self-medicate was the lack of time to go to hospital. As you know, I'm a saleswoman at the small market where I used to spend all day. This job helps me a lot to meet the needs of my household. You have to recognise that when you go to hospital, there are a lot of things to do, the process is often long and I couldn't spend a whole day in hospital with the child, I had to get back to the market quickly to look for something to feed my family...". B32D13
		"... The factor that encourages self-medication at home is nothing other than the cost of medical care, which is very often exorbitant. First of all, you have to buy the consultation form, which is expensive, add to that the laboratory tests, and buy medicines at the pharmacy, which often lacks essential medicines and sends you back to the city, where it costs more than at the hospital ...". R32L12
		"... I have a lot of children to look after at home and it was myself who looked after the children at home, because I don't have a cleaning lady who could look after my house

		and other children while I had to go to hospital. So when my husband was away, I was often on my own and I couldn't afford to go to hospital because of all the demands made on me there...".C36D11
	Self-medication experience	"... My experience of self-medication comes from the number of children I have at home. I started self-medicating with my eldest child and it worked without any complications. This has given me experience in always self-medicating for any illness that doesn't require a doctor's consultation ...". B32D11
		"... Self-medication became an experience for me because one of my children suffered from sickle-cell anaemia. Because the child often had sickle-cell crises at home, I gave him medication as explained by the doctor, and this was often successful. Given that sickle-cell anaemia is always accompanied by repeated attacks ... ". C36D11
		"... As for me, I got my experience of self-medication from my mother-in-law, who had already experimented with it, including my relatives who also self-medicated. They had taught me how to self-medicate by showing me the type of medicine, the dosage, how long to take it for, etc. ...". R32K12
		"... On the subject of experience, I could say that I didn't have that much experience, but I often read the leaflets for medicines and I only followed the instructions, taking into account the age of my child. The leaflets clearly explained how to use the medicine and how long to take it for. I didn't need to go and see a doctor, because I already knew each medicine and how to use it...". J31L11

In relation to the first question, here are the respondents' reactions to their perception of self-medication, as recorded in the verbatim report.

As we can see in this table, all the respondents demonstrated the meaning of self-medication as they understood it, the determining factors, and their experience on this subject. They said that they often used old prescriptions and leaflets for medicines, and that lack of money and time to get to the hospital could be the determining factors for self-medication.

**Table 3** Parents' satisfaction with the self-medication of their children

Sub-topics	Categories	Verbatim
Satisfaction with self-medication	Satisfaction with self-medication	"... For me, I could simply say that I was perfectly satisfied with the practice of self-medication, since the recommendations made by my mother-in-law on how to give the medicine to my child were scrupulously respected. This could be seen in the dosage and duration of treatment, which I insist on so as not to have harmful consequences for my child's health ...". B32D13
		"... In my opinion, I could consider that I was satisfied with self-medication for my sickle-cell anaemic child. The satisfaction was shown by the relief of the sickle cell crises. So many times, I could say that there was a great deal of satisfaction with the relief of the attacks of the disease and that there was little lack of satisfaction ...". C36D11
		"... I'm not completely satisfied with my experience of self-medication. When it comes to a few episodes or less high-profile ailments such as headaches, convulsions and fever, satisfaction is perceptible. But when it came to complicated illnesses, especially infections and other illnesses requiring paraclinical examinations, I didn't find satisfaction ...". J31L11
		"... I was absolutely satisfied, because I use both medicinal plants and modern medicines. I use herbal remedies first of all because I am often satisfied and if I am not satisfied with herbal remedies, then I use modern medicines and I can say that I am not totally satisfied, because modern treatment is completely different from herbal medicine which does not require such dosage and which can bring about a change as soon as you take it for the first time ...". R32L12

	Reasons to be satisfied	"... I was only satisfied when I saw my child recover, when his state of health actually improved after taking the medicines I gave him at home to combat an illness. As you know very well, there was no other reason for self-medication than to combat an illness that was blocking the child's autonomy". B32D11
		"... Generally speaking, I have to tell you that I was perfectly happy with the practice of self-medication. Taking into account the various problems associated with medical care in hospital, in particular the high cost of care bills, the negligence of care providers, the distances separating homes and hospitals, I resorted to self-medication and that gave me satisfaction ...". C36D11
		"... For me, there was great satisfaction every time I self-medicated my child with simple fevers, simple malaria, gastroenteritis, constipation, vomiting and so on. When I gave my child the medicine, after a few days I noticed that he was starting to play like he used to and was eating normally ...". R32L12
		"... As far as I was concerned, I wasn't afraid of self-medication, because I'd already had a lot of experience since I started this practice. So I was perfectly happy, especially when I saw the total change in my child after giving him the medication without the doctor's advice. So I didn't blush when it came to cases such as low-grade fever, simple malaria, vomiting, diarrhoea, rashes and constipation, etc." J31211
	Difficulties encountered	"... Since I started self-medicating, I've never had any problems. The only thing I was afraid of was that often children, in their curiosity, would pick up the medicines out of sight of me or their dad, and use them unconsciously, not knowing that this could have harmful consequences for their health. The worst thing was that these medicines, when used by children, could have harmful consequences for their health, in particular undesirable side effects...". B32D11
		"... On the whole, I didn't often have problems with self-medication, especially when I carefully read the leaflets inside the medicine tables. What I was afraid of were the side effects and contraindications. However, I could assume that the risk of using the drugs after their expiry date was fairly low...". C36D11
		"... I had already encountered difficulties in the exercise of my profession, because in all circumstances there was no shortage of difficulties of various kinds, particularly in the administration of care and in the relationship between carer and patient. The main difficulty I had was with the youngest of my children, once I'd given her a dose of the drug, she developed enormous complications which scared me so much...".R32L12
		"... Every problem has its difficulties. I too had already encountered difficulties in self-medicating my children. As you can see, sickle cell anaemia was a very dangerous disease in children, when there were multiple attacks. I realised that giving him medication at home, especially in the event of a sickle-cell crisis, fever and other complaints, caused me a bit of worry and indignation when the medication was ineffective and the fever didn't go down...". J31211

In the table above, we present what mothers had to say about their satisfaction with self-medication in terms of the reasons for satisfaction and the difficulties encountered.

As can be seen in this table, all the subjects surveyed found the results of self-medication to be satisfactory, and the majority confirmed that they had not experienced any major difficulties with this practice, with the exception of the inherent side-effects and sickle-cell crises in children.

**Table 4** Self-medication of children by parents

Sub-topics	Categories	Verbatim
Risks of self-medication	Risks associated with self-medication	"... I knew that there were a lot of risks involved in self-medication. This happened when I gave the child medication myself at home as part of my self-medication practice, but I did it anyway. The risks of self-medication are first of all overdosing on the medication given, i.e. when it's a much higher dose, but also when it's a much lower dose, i.e. lower than the normal dosage...". B32D11
		"... In my opinion, I could say that self-medication was not without its risks. There were many risks in this practice for my sickle-cell anaemic child, for whom it was necessary to be exact in administering the medicines I gave him at home. As it was a disease characterised by attacks, all it took was one small mistake and that could lead to complications for my child, such as death...". C36D11
		"... When I asked myself this question, I had to expect an answer, because self-medication always entailed risks. Long before that, I didn't realise that there were any risks involved in self-medication. In any case, I was in total ignorance until one of my children, who was ill, fell victim to drug poisoning ...". J31211
		"... Yes, I had always been aware of the risks that could arise from self-medication, especially when it came to children. To tell the truth, I was afraid to do it, because I didn't want to give an exaggerated dose. Self-medication entailed considerable risks for the patient's health, and taking non-prescribed medicines on one's own was a matter of comfort, impatience and saving money ...". R32L12
	Preventing the risks associated with self-medication	"... For me, the best way of preventing the risks associated with self-medication was to use palm oil, often in cases of drug intoxication, which often occurs. If I realised that I'd given my child a medicine in a much higher dose, I'd make him drink the palm oil, one or two tablespoons at a time, and the reaction would be quick and promising...". R32L12
		"... As for me, I didn't really have any means of preventing the risks that could arise from self-medication. I often gave skimmed milk to my child when I noticed complications, either from an overdose or from over-mixing the drugs. However, since the incident that happened to my little boy, I had resolved to refrain from this practice; in case of fever or other minor ailments ...". J31211
		"... In my opinion, I must clearly admit that I had no means of prevention, given that we always took medicines at home without prior medical advice, but it was by trial and error that we resorted to self-medication and this could lead to an expected result, but we also had to expect a bad result which ended in drug intoxication ...". C36D11
		"... In my opinion, I should point out that I avoided mixing medicines, for example broad-spectrum antibiotics and antiparasitics. I also had to be very careful about the dosage of these drugs. This allowed me to avoid the dangers that could harm my child's life. For example, if I had to give paracetamol ...". B32D11
	Knowledge of the disease as a basis for self-medication	"... I didn't have any particular knowledge of children's illnesses, but I often thought of malaria whenever they fell ill at home, with symptoms dominated by fever, headache, vomiting, etc. As you well know, perfect knowledge of an illness, starting with knowledge of the cause, its mode of transmission and its treatment, could lead to better treatment ...". B32D11
		"... My child with sickle cell disease was already 7 years old, so I already had some knowledge of this disease, which I knew inside out. I knew how the attacks affect my child, how the child reacts and how to mitigate sickle cell attacks. Knowing about sickle cell anaemia also gave me knowledge of other illnesses that I could easily treat without the doctor's advice...". C36D11
		"... The knowledge of the illness that I often treated at home was already there, because in fact, considering the number of children I had at home who had often been treated for

		whatever illnesses they had, the results had proved positive. That's how I knew about most of the illnesses that can be treated by self-medication...". J31211
		"... I have to admit that I didn't have that much in-depth knowledge of the illnesses that I often treated at home without consulting a doctor, and without a doctor's prescription either. As you well know, self-medication is not only practised on children, but also on adults ... " R32L12

The table above shows what mothers had to say about the practice of self-medication by parents in terms of the risks associated with this practice, risk prevention, and knowledge of the illness on which self-medication is based.

In this table on self-medication, the subjects in the study expressed their views on the risks associated with this practice, referring to drug intoxication leading to overdose. As for ways of preventing the risks, the subjects in the study said that they gave palm oil and skimmed milk, while others had no means of prevention. Lastly, when asked about their knowledge of the disease underlying their self-medication, the subjects in the study indicated that they had such knowledge, taking into account the most common symptoms.

**Table 5** Expectations regarding the practice of self-medication

Sub-topics	Categories	Verbatim
Expectations on self-medication	Improving the child's health	"... When I resorted to self-medication, I always expected my child's state of health to improve, because when illness came along, I had to do everything I could to stop it by giving the child effective medication. A mother's only wish was to see her child regain his pace and independence...". B32D11
		"... For me, improving my child's health was and will remain the only concern. I couldn't apply medication that wasn't suitable for my child's life-threatening illness. The aim was for my child to be cured and that's how I was completely relieved...". C36D11
		"... When the disease appeared in my child, I didn't panic, because I knew that at the end of my treatment he would be cured. The main aim of the treatment was to improve my child's health ...". J31L11
		"... The fact of administering medication to a child who was ill implied that we were looking for a cure, and a cure is expressed when there is an improvement in the child's state of health. I wasn't looking for anything other than an improvement in the child's state of health. If it didn't improve, I would change the medicine ...". R32L12
	Waiting for negative results from self-medication	"... Once a treatment of some kind had been started, it was to be expected that the child's state of health would be cured or improved. However, it was also necessary to expect failure or a negative result from self-medication. This negative result could be due to many factors, such as the administration of an inappropriate drug, the low dose, and the duration of treatment...". J31L11
		"... I could never expect a negative result when self-medicating, because I had already acquired a certain amount of knowledge and experience. For me, I considered that a negative result was due to poor management of the child through self-medication. All you had to do was respect the dosage, the duration of treatment and the times when you gave the medicines...". R32L12
		"... I couldn't pretend that my practice would always lead to positive results. Negative results can obviously happen and the reasons can be varied. As far as I was concerned, I shouldn't expect a negative result, especially as I already had a great deal of knowledge about self-medication, as I'd never experienced any complications in this practice...". B32D11
		"... In the practice of self-medication, I expected everything. I could expect a positive result if things hadn't gone wrong from start to finish, and this would materialise when I noticed an improvement in my child's health. However, a negative result was also to be expected, contrary to what I had expected, i.e. no improvement in the child's state of health...". C36D11

This table shows what the subjects in the study said about the improvement in their child's state of health and the expectation of a negative outcome from self-medication.

As can be seen in this table, the study subjects always expected a positive result from self-medication, not a negative one, because they claimed to have demonstrated all their knowledge about self-medication.

## 4. Discussion

### 4.1. Mothers' perception of self-medication

It emerged that all the subjects in the study had demonstrated the meaning of self-medication in different ways. Here is what the subjects had to say about the meaning of self-medication: *"... For me, self-medication is a way of giving medicines to children without a doctor's prescription. Very often we do it as we see fit according to our own knowledge and experience. Self-medication is the use of a medicine, on one's own initiative or that of a relative, to treat a condition identified by oneself, without consulting a health professional..."*. B32D13

In any case, this is the same observation made by the other subjects in the study on self-medication.

*"... In my opinion, self-medication can be understood as using medicines without a doctor's prescription. This means that you don't go to the doctor for a consultation in order to undergo medical treatment on the basis of a medical prescription. It should also be pointed out that self-medication can involve modern medicines as well as medicinal plants to treat the child..."*. C36D11

We can therefore see that the study subjects' perception of self-medication is in line with the literature stipulated in several studies. According to the WHO, self-medication is the use of a medicine by an individual, on his or her own initiative or that of a family member, to treat a condition or symptom that he or she has identified without consulting a healthcare professional [6]. Camara et al [12] consider self-medication to be the use of a drug, on one's own initiative or that of a relative, to treat a self-identified condition without recourse to a healthcare professional.

With regard to the factors determining self-medication, the subjects in the study had different opinions, such as low socio-economic level, lack of time to go to the hospital, medical care charges that are very often exorbitant, etc.

Speaking of low socio-economic status, here's what one of the respondents had to say: *"... As far as I'm concerned, I resort to self-medication for several reasons, such as low socio-economic status. In this world, when you're desperately short of money to access medical care in hospitals, it's a serious problem. You may need to be seen by a doctor in hospital and continue the treatment process, but all this requires money. At the moment, medical care is extremely expensive, with prices on the market going up at a galloping pace..."*. J31L11

The factors determining self-medication have been reported in other studies in the Democratic Republic of Congo, Senegal, and Guinea Conakry. In 2016, in Senegal, Ndiaye et al [21] established that self-medication is justified by the "trivialization" of the incriminated diseases as well as by the claim to "possess appropriate remedies". The subjects consulted in this study were of a similar opinion. The predominance of adolescence as the age group for first self-medication can be justified by the fact that, in this age group, the individual, in search of his identity, conscience, morality, scale of values, and well-being, will tend to do his best to preserve his health. In Guinea Conakry, on the other hand, Camara et al [12] reported low household income (65.3%) and ignorance (34.7%) as factors favoring the practice of self-medication. At the Kasapa Campus of the University of Lubumbashi, Chiribagula et al [13] reported the low socio-economic level of students (65.3%) as the main factor determining the use of self-medication.

We believe that optimal health is a fundamental right for every human being. The health of populations is also one of the driving forces behind a nation's development. This optimal health, is in principle, supported by the use of the health infrastructure of each country's health system. The right to access healthcare is a fundamental human right. At the international level, Universal Health Coverage (defined by the World Health Organization) is being promoted to guide public policies in favour of access to healthcare for all. However, the conditions for its implementation have not been defined.

With regard to their experience of self-medication, the subjects of the study stated that they often resorted to old prescriptions and leaflets for medicines.

*"... On the subject of experience, I can say that I don't have that much experience, but I often read medicine leaflets and only follow the instructions, taking into account the age of my child. The various leaflets clearly explain how to use the medicine and how long to take it for. I don't need to go and see a doctor, because I already know each medicine and how to use it. I often read the old prescriptions prescribed by the doctor, which produced good results for my child..."*. J31L11

In France, Pourrier [22] found that 63.70% of parents who practiced self-medication stated that they systematically consulted the package leaflet for a new medicine before using it.

The experience acquired by the subjects of the study on self-medication cannot justify the importance of this practice for the health of children and even adults. Most developed countries have taken measures to avoid excesses that are harmful to health. This is not the case in our country, where weak educational resources for self-medicators, socio-economic problems and limited training exacerbate the risks and dangers of self-medication.

#### **4.2. Mothers' satisfaction with self-medication of their children**

On this subject, we noted that all the subjects in the study were satisfied with the practice of self-medication and the majority confirmed that they had not experienced any major difficulties in this practice, with the exception of the inherent side effects and the sickle cell crises in their children.

*"... For me, I can simply say that I am perfectly satisfied with the practice of self-medication, since the recommendations made by my mother-in-law on how to give the medicine to my child have been scrupulously respected. This can be seen in the dosage and duration of treatment, which I insist on to avoid any adverse effects on my child's health..."*. B32D13

Camara et al. [12]. reported a satisfaction rate of 78.3% in their study. In Lubumbashi, Chiribagula et al. [13] reported that the majority of subjects in the study (85.4%) were satisfied with self-medication.

The subjects in the study may have found relief in the home treatment of some illnesses, which could explain their satisfaction. However, this relief may be only apparent.

Concerning the reason for satisfaction with self-medication, the opinions of the subjects in the study are divided, but all converge on the healing of the child with self-medication: *"... I'm only satisfied when I see my child get better, when his state of health actually improves after taking the medicines I give him at home to combat an illness. As you know very well, there's no other reason to self-medicate than to fight an illness that's blocking a child's autonomy..."* B32D11

Relief, as a reason for satisfaction, was mentioned in the words of another subject in the study, who emphasized the recovery of the child's state of health under self-medication: *"... Generally speaking, I have to tell you that I was perfectly satisfied with the practice of self-medication. ... After a while I noticed that my child's health was improving and I no longer needed to go to hospital, except in serious cases. But when it came to headaches, low-grade fevers or simple malaria, I had nothing to be ashamed of. I'd give my child the medicine and the result would be positive..."*. C36D11

Satisfaction was also reported in Senegal in the study by Ndiaye, et al. [21] where 75.6% of the subjects found satisfaction in self-medication by noting the children's relief. A study carried out in Burkina Faso by Wendpoulomdé et al. [23] on "Self-medication for oral diseases in Ouagadougou, Burkina Faso", reported that 29 patients (76.3%) said that their pain had been relieved by the drugs they had taken.

Medication primarily provides relief for the ailment complained of. When a drug does not provide relief from an illness, we may assume that it is not effective, and we tend to change the treatment.

However, as well as satisfaction, the subjects in the study also demonstrated the difficulties they encountered when self-medicating, such as children using medicines found in their parents' bedroom, for example; there were also the undesirable effects of the medicines involved, and so on.

*"... Since I started self-medicating, I've never had any problems. The only thing I was afraid of was the fact that often children, in their curiosity, might pick up medicines out of sight of me or their dad, and use them unconsciously, not knowing that this could have harmful consequences for their health..."*. B32D11

According to Camara et al [12], self-medication was mainly used in cases of fever, cough, headache or malaria (67.23%). The medicines used were mainly Western pharmacopoeia (78.73%), with paracetamol alone being used in 69.92% of cases. Third-party drugs were used in 60.17% of cases. Side effects were dominated by vomiting (66.09%).

There is a real fear of leaving medicines within the reach of children, who may use them as toys without realizing the effects they can have on the body, such as drug intoxication. This last point naturally attracted our attention insofar as it is universally acknowledged that certain medicines, when used, always have undesirable effects that cannot be blamed on the treatment.

#### 4.3. Self-medication by parents

With regard to the practice of self-medication, the subjects in the study spoke of the risks associated with this practice, referring to drug intoxication resulting in an overdose.

*"... I knew that there were a lot of risks involved in self-medication. It was happening when I was giving my child self-medication at home, but I was doing it anyway. The risks of self-medication were firstly overdosing on the medicines given, i.e. when a much higher dose was involved, but also when a much lower dose was given, i.e. less than the normal dosage..."*. B32D11

According to the study by Wendpoulomdé et al [23], in the practice of self-medication, a patient who had taken a street drug had to seek emergency treatment for abdominal pain linked to the consumption of the said substance. Of all the patients questioned, 71.1% said that self-medication was dangerous and thought there was a risk of drug intoxication and death. However, 2 patients (5.3%) saw no danger in self-medication.

Self-medication is a major public health problem, given the risks involved, such as therapeutic failures and the emergence of multi-resistant bacteria. It has already been addressed in its entirety by several studies. This is why it is imperative to increase public awareness of the risks associated with this practice in order to reduce the use of medicines without a medical prescription.

As can be seen from the words of one of the subjects of the study, who spoke of the errors made in administering self-medication: *"... I can indeed say that self-medication is not without its risks. There are a lot of risks in this practice for my sickle-cell anemic child, for whom accuracy is needed in administering the medicines I give him at home. As this is a disease characterized by attacks, all it takes is for me to make one small mistake and that could lead to my child's death..."*. C36D11

Self-medication often entails significant risks to patients' health, and the independent use of non-prescribed medicines is a response to the need for comfort, impatience and savings.

Considered to be a major public health problem on a global scale, given the abuses that can result, self-medication needs to attract everyone's attention. The risks, both plausible and proven, include acquired microbial resistance, drug-related accidents, drug dependence and drug abuse. As far as risk prevention is concerned, the subjects in the study said that they gave palm oil and skimmed milk, while others had no means of prevention. As a result, the subjects in the study indicated the use of palm oil in the event of drug intoxication.

*"... In my opinion, the best way to prevent the risks associated with self-medication is to use palm oil in case of drug poisoning, which often occurs. To this end, if I realize that I've given my child a much higher dose of medication, I make him or her drink the palm oil, one or two tablespoons at a time and the reaction is rapid and promising. Apart from this means of prevention, I don't know of any other..."* R32L12

Talking about the knowledge of the disease that forms the basis of self-medication, the subjects in the study indicated that they have this knowledge by taking into account the most frequently noted manifestations.

*"... I didn't have any particular knowledge of children's illnesses, but very often I thought of malaria whenever they fell ill at home, with symptoms dominated by fever, headache, vomiting and so on. As you well know, perfect knowledge of a disease, starting with knowledge of the cause, its mode of transmission and its treatment..."*. B32D11

In their study carried out in Lubumbashi, Chiribagula et al [13] found that several diseases (20) had already been self-medicated by the subjects. Malaria (82.4%), fever (65.5%), headaches (65.5%), coughs (62%) and bacterial infections (50.6%) were the five main causes. In the month preceding the present investigation, 48.4% of subjects had resorted to self-medication. Of these, 40.2% had used antibiotics, all had used painkillers and 38.6% had used anti-malarial drugs. At the time of the study, 20.4% were self-medicating, including 4.7% for an anti-infective, 19.0% for an antimalarial and 18.4% for an anti-inflammatory.

This was the case in Guinea Conakry, where Camara et al [12] found that self-medication was mainly used in cases of fever, cough, headache or malaria (67.23%). According to Ndiaye et al [21], a significant proportion of subjects (67.1%) considered that the medicine they were taking corresponded to the ailment they were complaining about. However, 78.8% of subjects said that the medicine they were taking corresponded to the illness they were complaining about.

This discrepancy can be explained by the choice of either an appropriate medicine for the ailment but with an incorrect dosage, or an inappropriate medicine. A number of studies have already condemned the abuse of self-medication as a failure to master indications and dosages.

In our opinion, knowledge of the illness involved in self-medication reflects the experience of the subjects under study. Fever, headache and vomiting, which are the main manifestations of malaria, would be the most familiar to the study subjects because we live in a malaria-endemic area which is characterized by these clinical signs indicated by the study subjects.

#### 4.4. Expectations regarding the practice of self-medication

As can be seen in this series, the study subjects always expected a positive result from self-medication and not a negative one, as they claim to have demonstrated all their knowledge of self-medication. With regard to the expectation of an improvement in the child's state of health, the subjects in the study would like to see an improvement in the child's state of health when self-medicating.

*"... When I resorted to self-medication, I always expected my child's state of health to improve, because when the illness arrived, I had to do everything I could to stop it by giving the child effective medication. A mother's only wish was to see her child regain his pace and independence. I couldn't use a drug that didn't cure my child..."*. B32D11

A study carried out among students living on the Kasapa campus of the University of Lubumbashi reported that 65.4% of the subjects in the study expected an improvement in their state of health by practicing self-medication [13]. Efforts to promote the rational use of medicines should be combined in such a way that, while it may be difficult to eradicate self-medication, it should nevertheless be controlled by healthcare staff in collaboration with political decision-makers. Similarly, as the use of plants remains an emerging phenomenon, the development of an interface for consultation between traditional medicine and biomedicine would be commendable. More often than not, by resorting to self-medication, the subjects in the study actually expect an improvement in their state of health, in the same way as those who decide to go for a consultation in a hospital. When asked about the negative results of self-medication, the study subjects expressed themselves differently.

*"... Once a treatment of some kind had been started, it was to be expected that the child's state of health would be cured or improved. However, it was also necessary to expect failure or a negative result from self-medication. This negative result could be due to many factors, such as the administration of an inappropriate drug, the low dose, and the duration of treatment..."* J31L11

Even in the context of modern medicine, a positive result must always be expected when treating an illness. The fact that self-medication has a negative result is not insignificant, especially when you know that this practice is carried out without the advice of a doctor and outside of a medical consultation.

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## 5. Conclusion

Self-medication, in whatever form, is now practiced throughout the world. It is a social phenomenon with a growing trend. In Kisangani, self-medication is a real phenomenon, with the majority of parents practicing it for themselves and their children.

The reasons for self-medication and the factors behind it are many and varied, including low socio-economic status, low levels of education, the distance to the hospital, parents' daily occupations, the high cost of medical care, etc.

Free medical care would be one of the solutions to combat this practice.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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