

Research Article

The practice of self-medication in children by their mothers in Lubumbashi, Democratic Republic of Congo

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Summary

Self-medication is a common practice in Democratic Republic of Congo (DRC). There are few studies on mothers' practice of self-medication in children in DRC. Trying to draw an inventory of this practice, we carried out a survey of self-medication of children under 12 years of age by their mothers ($n = 392$) in Lubumbashi, DRC. The main objective was to assess frequency of self-medication and the secondary purposes were to describe habits, dangerous behaviors and common mistakes. The results speak for themselves: 96% of the mothers self-medicate their children; 95.7% do not know the exact dosage of the drug used; 97.17% do not check the expiry date; over 91% of the mothers use antimalarials, 41.3% antipyretics/analgesics and 26.3% antibiotics. Healthcare practitioners should involve household members in focused awareness on self-medication and its negative implications in order to encourage them to serve as change agents against the practice by mothers.

Introduction

The practice of self-medication and the irrational use of drugs is a major public health concern [1,2]. The concept of self-medication involves the use of medicines for curative purposes but without professional advice [3,4]. It is an act of obtaining and consuming drugs without the advice of a healthworker [5]. Inappropriate use of self-medication can increase "drug-induced illness", death and waste of public funds, bacterial infections, hypersensitivity and withdrawal symptoms [6,7].

This practice is more disastrous in children where dosages vary with weight or body surface. On the one hand, under dosage of a drug leads to reduced effects of the drug with risk of resistance to the drug. On the other hand, an overdose runs a risk of kidney, liver damage, etc. [8]. Still a risk of dependence and of abuse is it associated with a self-medication [9].

This misuse of self-medication has been attributed to several factors including ignorance, poverty, lack of functional health care services, high costs in health facilities, desire to take care of oneself, wide availability of over-the-counter medicines, availability of drugs outside pharmacies, extensive drug advertising, and inadequate family support [10-12]. Combination of drugs, use of non-prescription drugs, abuse of prescribed drugs, and medication errors by mothers or caregivers can harm children's health [13-15].

If the self-medication of adults, recently favored with access to certain drugs in pharmacies, is evolving, that of children may follow the same path. Few studies have been published on pediatric self-medication, either to assess the significance or the risks to children. However, drug overdose in pediatrics represents 40% of accidental poisoning in children [16].

Mothers play an important and vital role in the consumption

More Information

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Keywords: Self-medication in children; Mothers' self-medication; Pediatric self-medication; Medicine use in children





of curative medicines and can be encouraged to buy prescribed and non-prescribed medicines from different sources [17]. Consuming a drug without a medical prescription is a banal gesture of everyday life in the Democratic Republic of Congo (DRC).

Despite the prevalence of this practice, there is a shortage of literature on the extent of the phenomenon of self-medication in children in the DRC. Therefore, the practice of self-medication for the treatment of illnesses of children by mothers is what this study documents by examining prevalence of self-medication and reasons that influence self-medication in children under 12 years by their mothers in Lubumbashi, DRC.

Methods

This study was conducted in Lubumbashi, the capital of Haut-Katanga province, in the southeast of the DRC. Lubumbashi is made up of 7 municipalities with nearly 2 million inhabitants. Out of 7 municipalities in Lubumbashi, four are located near the surrounding villages on the outskirts of the city. A municipality (Katuba) was chosen for this study. This municipality has the largest number of inhabitants and has 12 health areas.

We used the random sampling technique of residents by health area. The health areas formed the clusters to avoid double interviews. Within each health area, the respondents were drawn exhaustively. A total of 600 questionnaires were distributed over a 2-month period between May 1st and June 30th, 2019.

The study focused on households where at least one child under-12 lived. The minimum sample size was 384 and was calculated using the following formula:

$$n = \frac{z^2 \cdot p(1-p)}{d^2}$$

where: n = sample size; z = confidence level according to the reduced normal centered law (for a confidence level of 95%, $z = 1.96$); $p = 50\%$ (because estimated prevalence was unknown in our setting); d = margin of error at 5% (typical value of 0.05). A household non-response rate of 20% was also used, so that 600 mothers had to be included in the sample.

If more than one household with an under-twelve resided in a sampled house, simple balloting was used to select only one household. Similarly, if no under-twelve resided in a selected house, or if the caregiver did not agree to be interviewed or was not available, the next available house with an under-five was selected. In the case of households with more than one child under twelve, mothers were asked to base their responses only on experiences with the youngest.

Two respondent inclusion criteria were used: being a mother who has an under-twelve child and willingness to participate in the study. Any mother who did not meet

the criteria was not interviewed. The consent of potential respondents was sought and those who did not consent to participating in the study were politely exempted. Completed copies of the questionnaire were edited on a daily basis and were kept in a safe place.

The questionnaire was assessed for face and content validity by experts in the Department of Public Health of the University of Lubumbashi after it was pretested. The self-administered, semi-structured, pretested questionnaires were printed on paper and were self-administered. The purpose of the study was explained to the respondents and their verbal consent to participate in the study was obtained before the questionnaires were administered. The confidentiality of the participants was guaranteed. The questions assessed the self-medication practices in the past one month in order to minimise recall bias.

Questions were formulated so as not to influence the mothers in their answers, they were open or closed, with a single answer or with multiple choices. The content of the questionnaire was pre-tested on a sample of 10 mothers to assess comprehension and acceptability. The purpose of the study and the definition of self-medication were reminded of the parents. The strictly anonymous questionnaires were given to mothers by non-medical staff. Data was coded and analyzed using Epi-Info software version 7.2. Data were analyzed using simple descriptive statistics.

All participants gave their consent to participation. To carry out the study, ethical clearance was obtained from the Medical Ethics Committee of the University of Lubumbashi (Approval number: UNILU/CEM/037/2019).

Results

Out of a total of 600 questionnaires distributed, 443 were returned, of which 409 were usable, representing a recovery rate of 92.3%.

As a result, 392 mothers (95.8% of our sample) have already self-medicated at least once their child; 17 mothers (4.2%) have never self-medicated their child. The reasons mentioned are mainly lack of information, non-qualification of parents to care for children, the child has a chronic disease.

The following percentages are calculated only in relation to the 392 mothers who have already self-medicated their child.

The mean age of the respondents was 28.3 ± 7.1 years (range 18-46 years). Table 1 shows that majority (71.9%) of the respondents were Catholics while 25.5% were Pentecostals. Most (96.7%) of the mothers had secondary school education as highest educational level attained. Only 2.3% of the mothers obtained primary school leaving certificate only. A majority (77.8%) of the respondents were married and 17.3% were single. Table 1 shows that 4 out of 5 (80.1%) of the mothers

**Table 1:** Sociodemographic characteristics of the mothers.

Variable	Number (n = 392)	%
Age		
< 20 years	37	9.4
20-24 years	89	22.7
25-29 years	96	24.5
30-34 years	74	18.9
35-39 years	77	19.7
≥ 40 years	19	4.9
Mean ± SD (range)	28.3 ± 7.1	(18 – 46)
Occupation		
Tradeswoman	314	80.1
Housewife	64	16.3
State worker	14	3.6
Marital status		
Married	305	77.8
Single	68	17.3
Divorced	19	4.9
Religion		
Catholic	282	71.9
Pentecostal	100	25.5
Muslim	10	2.6
Education status		
Primary school	9	2.3
Secondary school	379	96.7
University	4	1.0

were tradeswomen, 16.3% were housewives, and 3.6% were state workers. In all, 86.4% mothers reportedly practiced self-medication as an option to treat their children's illnesses in the previous month before the survey.

A large majority of the mothers (91.48%) frequently self-medicate, 5.1% do so rarely and 3.06% say they do so often. Among mothers who self-medicate, 97.2% believe that a self-medicated child is at risk. The risks spontaneously cited by mothers are therapeutic failure (63.68%), drug intoxication (14.07%), death (11.25%) and worsening of the disease (8.44%). In the event of consequences linked to self-medication, 55.1% of the mothers declared going to the hospital, 42.6% think to change the treatment and 2.3% say that they will consult a health worker.

The main reasons for this self-medication put forward by mothers are high cost of medical care (84.18%), long distance between home and health facility (10.2%), and life experience (5.61 %). Fever was the most cited symptom by mothers (91.1%), followed by diarrhea (32.4%) and cough (26.8%). Drugs given in self-medication are especially those already prescribed by a health worker (23%), kept in the family pharmacy (32%) or advised by the seller of drugs (64%). Over 91% of the mothers use antimalarials, 41.3% antipyretics/analgesics, 26.3% antibiotics, and 4.34% anthelmintics. A large majority of the mothers (95.7%) do not know the exact dosage of the drug used and 97.17% do not check the expiry date (Table 2).

Discussion

The present study shows that 95.8% of the mothers

Table 2: Mothers' responses regarding the practice of self-medication.

Variable	Number (n = 392)	%
Frequency of self-medication		
Frequently	360	91.8
Often	12	3.1
Rarely	20	5.1
Consequences of self-medication		
Therapeutic failure	249	63.6
Drug intoxication	55	14.0
Death	44	11.2
Worsening of the disease	33	8.4
Don't know	11	2.8
Measures to take in the event of a problem related to self-medication		
Go to the health facility	216	55.1
Change treatment	167	42.6
Consult a mobile health worker	9	2.3
Drug used during self-medication		
Antimalarials	359	91.6
Antipyretics/analgesics	162	41.3
Antibiotics	103	26.3
Anthelmintics	17	4.3
Reason for self-medication		
High cost of medical care	330	84.2
Long distance between home and health facility	40	10.2
Life experience	22	5.6
Types of symptoms related to self-medication		
Fever	357	91.1
Diarrhea	127	32.4
Cough	105	26.8
Vomiting	95	24.2
Abdominal pain	60	15.3
Knowledge of the dose to be administered in the event of self-medication		
No	375	95.7
Yes	17	4.3
Checking the expiration date of the drug before use		
No	381	97.2
Yes	11	2.8

reported using medication in their children without consulting a health worker. This is an important public health problem, not only in developing countries, but also in developed countries. Different studies have reported widely varying rates of self-medication by parents ranging from 43% to 95.7% [5,18,19]. In the United States, Kogan, et al. [20] reported that 70% of illnesses in preschool children were treated with non-prescription drugs. The reasons for this enormous variation are many, including different methods used for collecting information, parents' concern about the safety of drugs used by self-medication, high cost of medical care as well as the availability and accessibility of free medical care for children in public sector hospitals in some countries [21]. But also, it should be noted that some mothers may sometimes fear revealing the use of medication by self-medication in their children, which could also influence differences between prevalence rates noted.

Most of our respondents (95.7%) did not know the true dosage of each drug they had administered to their children.



It is important to have this knowledge in particular. Poor knowledge of the exact amount of drug to be given to children is a serious matter, since lack of this knowledge can lead to under- or overdose, both of which are associated with negative consequences. This is an issue of great concern as children are more vulnerable to unwanted consequences of drugs especially if used improperly.

Fever was one of the most common symptoms (91.1%) for which mothers practiced self-medication for their children. Most other studies of parental self-medication in children have also found the same [22,23]. Common medications used for self-medication in children were antimalarials (91.6%) and antipyretics/analgesics (41.3%). Other studies have reported that pain relievers and antipyretics followed by drugs for respiratory illnesses are the most commonly used drugs for self-medication in children [24,25]. Apart from these, other studies have also mentioned that antibiotics are the drugs commonly used during self-medication in children [18,22]. Surprisingly in this study, very few respondents (26.3%) mentioned the use of antibiotics in their children. The likely reason may be that people are not aware of the category of drugs they are using. It is likely that medicines used for fever could include antibiotics. The notion of self-medication with an antimalarial is reported in several African studies and varies from 21.4% to 50% of children [26] and is more common in children aged 0 to 7 years [27,28].

Mothers of children are more likely to go to pharmacies' counters, where they can more easily obtain antimalarial treatment without having to pay for a consultation in a health center; often the general state of children is not altered. In addition, vendors ignore recommendations for the management of fevers in endemic areas. In addition, problems of accessibility to health centers as well as information from the community about the real weight of malaria and new management strategies are another reason to go directly to a pharmacy.

In our series, the reasons cited for parents' self-medication in their children were more financial. Lack of financial resources is also a factor favoring the self-medication found in developing countries [29]. According to Sontakke, et al. [19], self-medication saves time and money spent on consulting health workers. Contrary to what is observed in developing countries, studies carried out in developed countries show that a study carried out in Germany shows that self-medication was at a high socioeconomic and educational level and that it was significantly more practiced among children aged 14 to 17 years old [30].

One of the main factors influencing self-medication in children has been the ready availability of over-the-counter drugs in several studies [31]. In most developing countries, including the DRC, it is not necessary to have a doctor's prescription to buy drugs from a pharmacy. Drugstore sellers

even recommend drugs to patients to generate more profit. These salespersons and parents of sick children often have no medical or pharmacological training, which makes the diagnosis of disease incorrect. In addition, the dosage of medication may not be appropriate for the patient due to their limited medical knowledge. It is important for parents to know that self-medication can have negative consequences, especially in children, as they are more vulnerable to side effects of medication. But also this could also favor the early emergence of antimalarial resistant malaria. The same is true for antibiotics. A high rate of self-medication use could not only hinder the development of children, but also lead to serious problems for clinical treatment such as drug resistance, distribution of unbalanced bacteria and a variety of toxic side effects [32].

One of the limitations of this study was that the study employed a cross-sectional study design and as such causal relationships between variables cannot be established. Also, the analyses were based on self-report with the possibility of over and under reporting. The results of this study cannot be generalized to a larger population of mothers in the state or the country.

Conclusion

Almost all mothers self-medicate their child. Our study has highlighted the very important place of health workers. Whether they are doctors or pharmacists, their role of advice and information seems essential to parents in the choice and use of the drug in self-medication. Healthworkers must fulfill their primary role of educating patients to avoid trivialization of the drug and unnecessary risk-taking.

This study presented the practice of self-medication in children under 12 by their mothers in an urban population, but the situation may be different in rural or remote areas of the city of Lubumbashi. Other studies in the future to compare self-medication in children by mothers in rural and urban areas are therefore suggested.

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