



Factors Explaining Self-Medication in Children Aged 0 - 5 years in the Town of Mwene-Ditu in the Democratic Republic of Congo: A Cross-Sectional Study

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Abstract

Introduction: Self-medication is widespread throughout the world, especially in developing countries. It is at the root of very harmful health consequences. This study was therefore conducted to determine its prevalence and identify the factors that explain this practice among children under 5 years of age, with a view to finding appropriate solutions. **Methods:** A cross-sectional analytical study was conducted in the City of Mwene-Ditu from July to August 2022. This study involved a sample of 422 children aged 0 - 59 months. Data were collected using a questionnaire, processed and analysed using Epi Info 7. The Chi-square Test of Independence was used to test the association between the dependent variable and the independents with a significant p-value < 0.05. **Results:** The prevalence of children self-medication was 94.5%. The explanatory factors identified were the child's age (6 to 59 months), the number of children aged 0 to 59 months in the household (2 or more), household size (≥ 2 people), unaffordable medical cost, parents' socio-economic level (low and medium), low household income, occupation (farmer) and level of education (secondary and university) with p-value < 0.05. Malaria was the disease most frequently self-medicated (36.5%). **Conclusion:** Self-medication is widely practised in Mwene Ditu as a result of factors identified by this study. Intensified action to change the behaviour of mothers and the community and the implementation of a policy to improve the economic status of the population is essential to tackle this problem.

Subject Areas

Public Health

Keywords

Explanatory Factors, Self-Medication, Children Aged 0 - 59 Months, Mwene-Ditu

1. Introduction

Self-medication is a very common practice throughout the world, particularly in developing countries [1]. It consists of taking medicines to treat disorders or symptoms on one's own initiative or that of others, without prior recourse to a healthcare provider [2]-[5]. This phenomenon affects everyone, but children are often given drugs by their guardians [1] [6]. Only around 10-30% of patients consult a doctor for treatment. The remainder most often self-medicate [7]. The prevalence of self-medication varies from one country to another, from one city to another and according to the type of medicine, ranging from 10% to around 85% [6] [8]. In the Democratic Republic of Congo (DRC), the prevalence of self-medication was estimated at 49% in 2005 for the population as a whole [3], and 57% in the city of Goma in 2013 [5]. Self-medication is the cause of several consequences, ranging from simple adverse effects, drug interactions, drug dependence, drug abuse, therapeutic failures, antibiotic resistance, prolonged hospitalisation, increased medical expenditure and even death, not to mention the financial losses it entails [3]-[5] [9] [10]. In addition to this list of harmful consequences, for developing countries, there is also the risk of access to substandard or falsified medicines, which is estimated at 10% by the WHO [11]. Self-medication concerns all social strata and all categories of medicines. It is practised for many reasons, including financial constraints, therapeutic failure in healthcare establishments, the existence of chronic diseases, and the inaccessibility of certain patients to healthcare [12] [13]. Self-medication by adults has recently been encouraged by free access to certain medicines in pharmacies and unconditional access to digital applications via the internet [1]. In the town of Mwene Ditu, self-medication has become a sad reality. However, there are no studies to determine the extent, consequences or reasons for this. With this in mind, this study was conducted to determine the prevalence of self-medication among children aged 0 - 5 years and the factors associated with this practice by their parents.

2. Methods

This cross-sectional analytical study was conducted in the town of Mwene-Ditu, located in the Province of Lomami in the DRC during the period from 01 July to 30 August 2022. The town is located at latitude 7°00'00"South and longitude 23°27'00"East, with an estimated population of 453,748 residents. It is divided into

three communes (Bondoyi, Musadi and Mwene-Ditu) and two Health District (Makota and Mwene-Ditu).

The target and source population for this study was young children (0 - 5 years) living in households in three communes of the town of Mwene-Ditu.

Multi-stage sampling was used to select the households in which the community survey was to be conducted. At the first stage, we selected 12 neighbourhoods using a simple random sampling technique. In the second stage, 2 cells were targeted in each of the 12 neighbourhoods using systematic random sampling. In the third stage, 3 avenues were selected in each cell, and in the fourth stage, 6 households per avenue were targeted for the survey. The interviewer threw the pen in the air and the orientation of the ball determined the first household to be surveyed. Once the first household had been identified, the other five were identified using a sampling step obtained by the following formula: interval = (total number of households on the avenue)/(the number of households to be surveyed).

The sample size was calculated using Statcalc in EpiInfo 7.1.4 based on the prevalence of self-medication in the DRC of 49% [3] and the 95% confidence interval. Given the non-response rate in the field, the risk of error was reduced by adding 10% to the initial sample size. The final sample size was therefore 422 children aged 0 - 59 months to be surveyed in the targeted households.

The inclusion criteria for participants in the study were “to be a child aged between 0 and 59 months” and to have a mother permanently resident in the town of Mwene-Ditu who had given her consent. A semi-structured questionnaire, previously tested on 40 households in the Kabila Kabenge, Musadi and Nkuna neighbourhoods in the town of Mwene Ditu, written in French and translated into the local language (Tshiluba), was used to collect data from the mothers responsible for the targeted children by 3 interviewers under the supervision of a team leader. The dependent variable was self-medication and the independent variables were socio-demographic, socio-economic and other variables.

The data collected were entered and analysed using Epi Info Version 7.1.4 software. The Chi² test of independence was used to look for associations between the dependent variable and the independents, with a p-value of less than 0.05 being considered significant.

Ethical considerations were taken into account when carrying out this study. Approval for the realization of this study was granted by our university’s ethics committee. Taking into account the age of the children, consent was obtained from their parents.

3. Results

At the end of the survey, 422 children aged 0 - 59 months were interviewed through their mothers. It was found that 399, or 94.5%, had benefited from self-medication by their mothers (**Figure 1**).

Among these children, 246 (58.3%) were male and 176 (41.7%) female. The parents of these children were married (72.04%) and the remaining parents were ei-

ther single, divorced or widowed. Around 58.1% of the parents of the children surveyed had secondary education. In the households visited, there were 2 or more children, with a household size of 2 to 5 (55.68%). The parents of 55.68% of the respondents were christian, while the remainder were animist, muslim, others religious or religiously affiliated. Around 58.1% of parents found the cost of medical care unaffordable (**Table 1**).

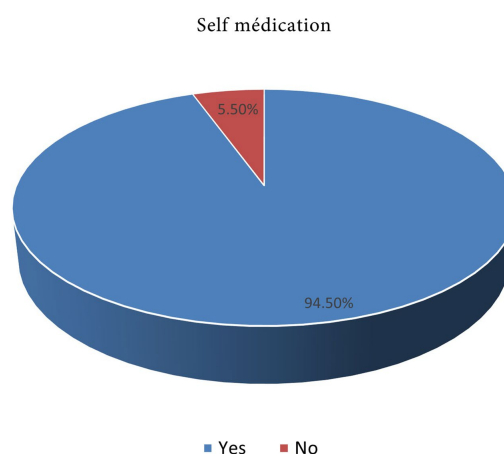


Figure 1. Prevalence of self-medication among children aged 0 - 59 months in Mwene-Ditu in 2022.

Table 1. Distribution of respondents according to socio-demographic variables in Mwene Ditu in 2022.

Variables	Size (422)	%
Gender of respondents		
Male	176	41.7
Female	246	58.3
Age of respondents (months)		
>6	101	23.93
6 à 23	116	27.49
24-59	205	48.56
Marital status of respondents' parents		
Single	37	8.77
Divorced	46	10.9
Married	304	72.04
Widowed	35	8.29
Education level of mothers of respondents		
No level	82	19.4
Primary	56	13.3
Secondary	245	58.1
Higher or University	39	9.2

Continued

Number of children aged 0 - 59 months in the household		
1	153	36.25
2 ou plus	269	63.74
Household size		
1	8	1.89
2 à 5	235	55.68
6 à 10	168	39.81
11 et plus	11	2.6
Religion of respondents' parents		
Animist	20	4.74
None	26	6.16
Muslim	49	11.61
Christian	279	66.11
Others	48	11.37
Respondents' parents' perception of the cost of medical care		
Affordable	177	41.9
unaffordable	245	58.1

Forty per cent of parents had to self-medicate children aged 0-5 for malaria and 24% for fever. Diarrhoea (10%), flu/cough (11%), various pains (11%) and other causes (4%) were also noted among the illnesses and signs concerned (**Figure 2**).

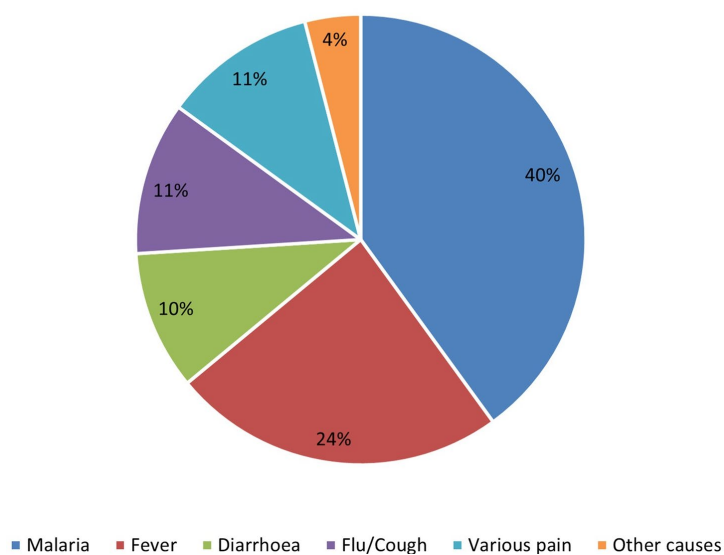
Disease/Symptom

Figure 2. Distribution of respondents by illness/sign justifying self-medication in Mwene Ditu in 2022.

The data collected in the field showed that the parents of the respondents were of average economic status (53.8%), 14.7% were of high economic status and 31.5% were of low economic status; 75.4% were not wage earners and 35.5% were self-employed (**Table 2**).

Table 2. Distribution of respondents according to economic variables in Mwene Ditu in 2022.

Variables	Size (422)	%
Economic level		
Low	133	31.5
Medium	227	53.8
High	62	14.7
Professional status of respondents' parents		
self-employed	318	75.4
Salaried	104	24.6
Profession of respondents' parents		
State official	62	14.7
Cultivator	126	29.9
Self-employed	149	35.3
Private-sector employee	43	10.2
Others	42	9.9
Monthly income in Congolese francs (CDF)		
10000 - 50000	64	15.2
51000 - 100000	144	34.1
101000 - 150000	57	13.5
151000 - 200000	106	25.1
201000 - 250000	15	3.6
251000 - 500000	28	6.6
501000 et plus	8	1.9

The association between self-medication and the various socio-demographic and economic variables of children aged 0-5 surveyed in the town of Mwene-Ditu was statistically significant for the following factors: age (children aged 6-59 months), mothers' level of education (secondary and university level), perception of the cost of medical care, economic level (low and medium), parents' occupational status (self-employed, farmer and monthly income of less than 200.000 CDF) including the size of the household (more than 2) and the number of children aged 0-5 in the household (2 or more) (**Table 3**).

Table 3. Association between self-medication and socio-demographic and economic characteristics of respondents in Mwene Ditu in 2022.

Variables	Self-medication			Khi ²	p
	Yes (399)	No (23)	Total (422)		
Gender of respondents					
Male	168	8	176	0.22	0.32
Female	231	15	246	1	
Age of respondents (months)					
< 6	84	17	101	1	
6 - 23	112	4	116	9.58	0.00
24 - 59	203	2	205	26.55	0.00
Marital status of respondents' parents					
Single	34	3	37	0.00	0.62
Divorced	42	4	46	1	
Married	290	14	304	0.66	0.19
Widowed	33	2	35	0.00	0.47
Education level of mothers of respondents					
No level	68	14	82	1	
Primary	52	4	56	2.08	0.07
Secondary	241	4	245	25.26	0.00
Higher or university	38	1	39	3.87	0.01
Number of children aged 0 - 59 months in the household					
1	135	18	153	1	
2 et plus	264	5	269	16.69	0.00
Household size					
1	5	3	8	1	
2 - 5	225	10	235	10.95	0.00
6 - 10	158	10	168	6.97	0.01
11 et plus	11	0	11	indéfini	
Religion of respondents' parents					
Animist	19	1	20	0.00	0.53
None	24	2	26	0.00	0.64
Muslim	45	4	49	0.00	0.63
Christian	267	12	279	0.69	0.19
Others	44	4	48	1	
Respondents' parents' perception of the cost of medical care					
Affordable	161	16	177	6.47	0.01
Unaffordable	238	7	245		

Continued

	Economic level				
Low	131	2	133	24.58	0.00
Medium	221	6	227	30.44	0.00
High	47	15	62	1	
Professional status of respondents' parents					
self-employed	314	4	318	40.77	0.00
Salaried	85	19	104	1	
Profession of respondents' parents					
State official	60	2	62	2.76	0.05
Cultivator	122	4	126	4.89	0.01
Self-employed	140	9	149	1.90	0.08
Private-sector employee	37	6	43	1	
Others	40	2	42	1.16	0.14
Monthly income in Congolese francs (CDF)					
10 000 – 50 000	63	1	64	27.05	0.00
51 000 – 100 000	142	2	144	51.26	0.00
101 000 – 150 000	55	2	57	19.63	0.00
151 000 – 200 000	102	4	106	27.66	0.00
201 000 – 250 000	12	3	15	2.49	0.05
251 000 – 500 000	22	6	28	3.20	0.03
501 000 et plus	3	5	8	1	

4. Discussion

This study involved a sample of 422 children aged 0 - 59 months from households in the town of Mwene-Ditu. After analysis using statistical tests, the factors found to explain self-medication were: the child's age, the educational level of the child's parent (secondary or university), the number of children aged 0-59 months, the size of the household, the unaffordable cost of medical care, the low or medium socio-economic level of the parents, household income of less than 201,000 CDF, employment status (self-employed) and occupation as a farmer, with $p < 0.05$. Malaria topped the list of illnesses for which self-medication was practiced.

The strength of this study lies essentially in the choice of the population studied in relation to the problem. This population, children aged 0 - 59 months, is the most vulnerable because their immune systems are still developing. Consequently, these children are subject to multiple illnesses, requiring regular use of health services and total dependence on adults for decision-making. However, it is noted that there are parents who resort to self-medication. Nevertheless, it is necessary to highlight certain limitations. Indeed, this research of self-medication and its explanatory factors by a questionnaire a posteriori could be tainted by biases linked

essentially to the forgetting of illness episodes and the behavior adopted which can lead to incorrect answers to the questions of the study. Furthermore, the estimates of the economic level and monthly income of the parents were not established on the basis of factual elements. Lastly, logistic regression would be useful for retaining only the most determining factors, but it was not carried out because the study aimed to broaden the range of explanatory factors for a consistent remediation plan. To minimise response bias, the period covered by the study was reduced to two months to allow parents to easily recall recent episodes of illness.

The prevalence of self-medication of children aged 0-59 by parents in Mwene Ditu was 94.5%. This prevalence is very high compared with that found in several studies, although it varies from one environment to another. It was 24% according to a systematic review [10]; 51% in Goma in the DRC [14], 60.9% in Burkina-Faso [15], between 12.8% and 77.1% [7] in Ethiopia and 10.9% in children under 5 in another study conducted in the same country [13], 38.2% in China [6], 58.8% in Indonesia [1], 59.7% in France [16], 40.4% in Brazil [8] and 49.6% in Mexico [4]. This observed difference is linked to socio-demographic, economic and environmental habits on the one hand, and on the other, to certain factors specific to each study environment, which will be developed below.

Five diseases/clinical signs (malaria, fever, flu/cough, pain, diarrhoea and other signs) led to self-medication of children aged 0-5 years in this study. According to a systematic review, parents self-medicated their children mainly for fever and cough [10]. In a study conducted in Ethiopia, 3 illnesses came top of the list, namely fever/headache, gastrointestinal illnesses and respiratory illnesses [7]. The same result was found in Burkina-Faso [15]. In a Brazilian study, pain, fever, cough and allergic rhinitis were the main illnesses for which children self-medicated [8]. According to a Chinese study, self-medication was more common in children suffering from chronic illnesses [6]. This last reason, chronic illness, was also reported by children's parents in a study carried out in Mexico [4]. In our study, malaria and fever came first, followed by cough/flu. Malaria is the leading febrile illness and the most widespread in the DRC, given the epidemiological profile. Its first clinical sign is fever. This is why, according to the country's health policy, in the event of fever, malaria is the first disease to be suspected. By living in this environment and suffering from malaria, people can easily recognise the symptoms. It is therefore highly likely that some cases, although not confirmed in the laboratory, and the majority of fever cases reported, are also linked to this disease. For the latter, it was a clinical diagnosis. On this point, it cannot be ruled out that some cases of other febrile illnesses may be assimilated to malaria for lack of biological confirmation. Epidemiological data for this region show that children under 5 years of age are mainly affected by 3 diseases: malaria, influenza/pneumonia and diarrhoea.

Analysis of the illnesses for which self-medication was used is almost identical to this epidemiological profile, with the exception of pain, which is an atypical situation probably linked either to illnesses or to falls, which are very characteristic

of children in this age group. A comparison of our results with those of the other studies mentioned above shows more similarities. However, two studies reported chronic illnesses, unlike the others. This difference is linked to specific situations linked to genetic diseases characteristic of these countries.

In-depth analysis of the factors explaining self-medication of children by parents in the town of Mwene Ditu provided the best information. The age of the child was found to be one of the factors. This result is similar to that of a Mexican study [4]. This may be justified by the fact that children under 5 years of age are at greater risk of falling ill and having up to 4 episodes of illness per year. Children under 6 months of age appear to be better protected than those over 6 months, as they are still using the antibodies they received from their mothers.

Mothers' secondary and university levels were also associated with self-medication. This result was also found in the Mexican [4], Chinese [6] and Indonesian [1] studies. An educated parent has easy access to information through the internet, reading previous prescriptions for similar symptoms, medication leaflets, radio, television, friends and their ability to think on their feet. All it takes is for the child to present the common symptoms, and parents tend to self-medicate. This explains the very high prevalence of self-medication among this category of parents, as well as among academic circles [3] [5].

Household size and the number of children aged 0 to 5 in the household were also identified as explanatory factors. This result is similar to those of Bert, Alonso and their colleagues [4] [10]. As household size increases, the more the family's needs multiply. Moreover, having more children under the age of 5 increases the risk of morbid episodes in the household. Mothers, already overwhelmed by the situation of one sick child, find it difficult to accompany a second or third child who may fall ill at the same time to a health facility. She tends to look after the seriously ill child and self-medicate for the other.

The cost of medical care was considered unaffordable in this study. Consequently, the cost of medical care was statically associated with self-medication. This result is not similar to that of Mbeva's study in Goma [14]. The majority of parents were of average or low economic status. These last two variables, statistically associated with self-medication, go hand in hand with low monthly income. Low monthly income was also identified as a statistically significant factor in the self-medication of children aged 0-5 years. This finding corroborates those of a systematic review [10], an Indonesian study [1] and an Ethiopian study [13]. This situation is comprehensive. When income is low, parents tend to give priority to buying food to the detriment of other needs such as health.

Being self-employed was also identified as an explanatory factor. This is understandable because it is similar to the situations described above. An unemployed person has no fixed monthly income and is in a situation of very low income and a very low level of economic activity, which were already identified as explanatory factors. This factor, unemployment, was also found in the study by Alonso [4]. However, the aforementioned author, in contrast to this study, found that medium

and high socio-economic level and lack of medical security were associated with self-medication. In our opinion, this is an exceptional situation, probably linked to the realities of Mexico.

The occupation of farmer was also identified as an explanatory factor in this study. In our opinion, this is not to be taken too lightly as it is the main occupation in this region, given that there are not enough other occupations.

The results of this study demonstrate the extent of self-medication in the town of Mwene Ditu, which should not be underestimated, as well as its main explanatory factors. Therefore, it is up to health and community workers to seize every opportunity to discourage people from this practice, which has many health consequences. Similarly, implementing a policy to increase the economic level of the population may be a better solution. It would also be advisable in the near future to carry out this research among adults, as they are the ones behind this common practice among children in the city.

5. Conclusion

Self-medication is a widespread practice among children aged between 6 and 59 months in the town of Mwene Ditu. It depends on the parents' level of secondary and university education, the size of the household, the number of children under 59 months in the household, the high cost of care, the low or average economic level and the parents' low monthly income. Malaria or fever, cough and diarrhoea are more common. In view of the above, intensifying health education and communication to change the behaviour of mothers and the community in general, and improving the economic level of the population in particular, are essential to combat this practice.

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Conflict of Interest

The authors declare no conflict of interest whatsoever.

References

- [1] Ahmed, N., Ijaz, S., Manzoor, S. and Sajjad, S. (2021) Prevalence of Self-Medication in Children Under-Five Years by Their Mothers in Yogyakarta City Indonesia. *Journal of Family Medicine and Primary Care*, **10**, 2798-2803. https://doi.org/10.4103/jfmpc.jfmpc_2457_20
- [2] WHO (2000) Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication. <https://iris.who.int/handle/10665/66154>
- [3] Chiribagula, V.B., Mboni, H.M., Amuri, S.B., kamulete, G.S., Byanga, J.K., Duez, P., *et al.* (2015) Prévalence et caractéristiques de l'automédication chez les étudiants de 18 à 35 ans résidant au Campus de la Kasapa de l'Université de Lubumbashi. *Pan African Medical Journal*, **21**, Article 107.

- <https://doi.org/10.11604/pamj.2015.21.107.5651>
- [4] Alonso-Castro, A.J., Ruiz-Noa, Y., Martínez-de la Cruz, G.C., Ramírez-Morales, M.A., Deveze-Álvarez, M.A., Escutia-Gutiérrez, R., *et al.* (2022) Factors and Practices Associated with Self-Medicating Children among Mexican Parents. *Pharmaceuticals*, **15**, Article 1078. <https://doi.org/10.3390/ph15091078>
- [5] Mboni, H.M., Tshikongo, A.K., Chirubagula, V.B., Shakalenga, C.M., Kanyegere, A.M., Rugema, B.B., *et al.* (2023) Evaluation des pratiques de l'automédication et leurs caractéristiques auprès des étudiants d'Uvira en République Démocratique du Congo. *Pan African Medical Journal*, **45**, 53. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10460111>
- [6] Ge, J., Sun, X., Meng, H., Risal, P.G. and Liu, D. (2021) Factors Associated with Self-Medication in Children and the Decomposition of Rural-Urban Disparities in China. *BMC Public Health*, **21**, Article No. 2123. <https://doi.org/10.1186/s12889-021-12137-1>
- [7] Ayalew, M.B. (2017) Self-Medication Practice in Ethiopia: A Systematic Review. *Patient Preference and Adherence*, **11**, 401-413. <https://doi.org/10.2147/ppa.s131496>
- [8] Pons, E.D.S., Pizzol, T.D.S.D., Knauth, D.R. and Mengue, S.S. (2024) Self-Medication in Children Aged 0-12 Years in Brazil: A Population-Based Study. *Revista Paulista de Pediatria*, **42**, e2022137. <https://doi.org/10.1590/1984-0462/2024/42/2022137>
- [9] OMS (2022) Journée mondiale de la sécurité des patients 2022. <https://www.afro.who.int/fr/regional-director/speeches-messages/journee-mondiale-de-la-securite-des-patients-2022>
- [10] Bert, F., Previti, C., Calabrese, F., Scaioli, G. and Siliquini, R. (2022) Antibiotics Self Medication among Children: A Systematic Review. *Antibiotics*, **11**, Article 1583. <https://doi.org/10.3390/antibiotics11111583>
- [11] OMS (2017) Dans les pays en développement, 1 médicament sur 10 est de qualité inférieure ou falsifié. <https://www.who.int/fr/news/item/28-11-2017-1-in-10-medical-products-in-developing-countries-is-substandard-or-falsified>
- [12] Arrais, P.S.D., Fernandes, M.E.P., Pizzol, T.D.S.D., Ramos, L.R., Mengue, S.S., Luiza, V.L., *et al.* (2016) Prevalence of Self-Medication in Brazil and Associated Factors. *Revista de Saúde Pública*, **50**, S13. <https://doi.org/10.1590/s1518-8787.2016050006117>
- [13] Abula, T. and Worku, A. (2001) Self-Medication in Three Towns of North West Ethiopia. *Ethiopian Journal of Health Development*, **15**, 25-30. <https://doi.org/10.4314/ejhd.v15i1.9893>
- [14] Mbeva, J.B.K., Prudence, M.N., Musubao, E.T., Nzanzu, M., Namegabe, N., Kimanuka, C., *et al.* (2021) Itinéraire thérapeutique du patient en milieu urbain africain: Cas de la ville de Goma à l'est de la RD Congo. *International Journal of Innovative Scientific Research*, **53**, 85-97. https://www.ulb-cooperation.org/wp-content/uploads/2021/02/ijisr_itineraire-therapeutique-du-patient-en-milieu-urbain-africain.pdf
- [15] Kabore, A., Ramde, D., Some, M.T., Dao, L., Savadogo, H., Ouedraogo, S.A.P., *et al.* (2014) Recours thérapeutique en pédiatrie: Place de l'automédication chez les enfants reçus au Centre Hospitalier Universitaire Charles de Gaulle de Ouagadougou (Burkina Faso). *Science Santé*, **37**, 77-84. https://revuesciences-techniquesburkina.org/index.php/sciences_de_la_sante/article/view/313

- [16] Pierson, C. (2014) Évaluation des pratiques d'automédication familiale en cas de toux aiguë chez les enfants de moins de 6 ans.
<https://books.google.cd/books?id=mkw6zQEACAAJ>