

Sources of health funding in households in the Barrière health area, Kenge Health Zone, Kwango, Democratic Republic of Congo

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Abstract— Several studies carried out in low- and middle-income countries show that common sources of distress financing can take the form of interest-bearing or interest-free loans from a financial institution, friends, or family members, selling assets such as crops and property, livestock, and mortgaged assets. The study aimed to determine sources of financing for healthcare in households in the Barrière health area. The sampling for this study was non-probability, chosen for convenience. The target population consisted of 83500 heads of households in the Barrière health area, from which 200 heads of households were selected. The survey method was used to collect the data, using a semi-structured interview technique. Data analysis was descriptive, based on the calculation of frequencies and proportions. The Chi-2 test was used to check the links between the characteristics of the participants and the sources of funding for care in the households. The results showed that 35% came from the sale of agricultural produce; 30% from the sale of household valuables; 15% received assistance from third parties; 12% obtained funding from other sources; and only 7.5% financed care from household reserves. In the Barrière health area, as elsewhere in the Democratic Republic of Congo, households are the main sources of health funding.

Keywords—sources of financing, health financing, health care financing, households, health

Introduction

On an international scale, healthcare systems have been subject to significant transformations since the early 1980s. The rapid increase in healthcare expenditure and the challenges associated with its funding are evidence of the changes underway in healthcare systems, shaped by socio-

economic, demographic and epidemiological transitions affecting virtually all populations. These developments have led to profound changes in the way healthcare is financed. Overall, responsibility for financing healthcare expenditure has shifted substantially away from households. Households now bear more than half of total costs, while the share allocated by the State has fallen considerably, particularly impacting the incomes of vulnerable groups such as the unemployed. Indeed, the share of healthcare expenditure in the family budget is rising steadily. Health economics experts are highlighting growing dissatisfaction among the population.¹ Access to healthcare services can have a significant positive impact on a population's overall state of health. In 2013-2014, Moroccan households spent just 6% of their budget on medical care, sacrificing other essential goods and services and risking impoverishment. The approach adopted by the World Health Organisation to measure catastrophic expenditure makes it possible to assess inequalities in access to medical care and the potential impoverishment of households. The results show that in the absence of formal medical cover, the direct financial contribution of households to medical costs increases, contributing to a deterioration in living standards within the population.² Difficulty in financing healthcare occurs when an individual is forced to resort to borrowing or selling assets to meet their healthcare needs. High health expenditure, inadequate insurance coverage and limited public resources for health are among the main factors contributing to this form of precarious financing. Studies in low- and middle-income countries have shown that the average rate of borrowing is 22%, while the average rate of selling assets is 10%. In critical circumstances, it is common for individuals to resort to forms of loan with or without interest, taking into account their socio-economic position, the terms of repayment and the nature of the loan granted. According to various findings from studies carried out in low- and middle income countries, common forms of precarious financing include interest-bearing or interest-free loans from financial institutions, close individuals or family members, as well as the pledging of assets such as crops, property, livestock and mortgaged assets. It is relevant to note that interest-bearing loans generally appear to generate significant economic hardship compared to interest-free loans, due to the substantial amount that must be repaid. Previous research in Argentina, India, Tanzania and rural China has highlighted the uneven distribution of precarious financing, which mainly affects vulnerable populations.³ Direct payments for health services can have a significant impact on households,

particularly among disadvantaged populations. In some situations, the cost of healthcare may be covered by the liquidation of family assets or by borrowing. This reality can undoubtedly influence the choices made by households, which could be led to forego access to healthcare services.⁴ International comparisons show that the proportion of GDP allocated to the health sector in Tunisia tends towards the standards observed in developed countries. As observed on a global scale, it is notable that health spending in Tunisia is following a more sustained upward trajectory than economic growth. As a result, a significant proportion of healthcare expenditure is financed by households, which pay more than half of all health-related costs. The current level of household expenditure to cover these medical costs remains unacceptable. As a result, many households find themselves in a precarious situation due to the financial burdens they must assume to guarantee their access to healthcare.⁵ Households incur direct healthcare costs when they use healthcare services, which include promotional, preventive, curative, rehabilitative, palliative (or long term) and laboratory services. Direct payments for these services can have a negative impact on patients and their families in the absence of adequate protective mechanisms. High healthcare costs are often correlated with increased poverty and mental health problems such as depression, anxiety and stress. In the event of financial insufficiency, individuals are forced to resort to various means to finance their medical treatment, such as liquidating assets, taking out a loan, cutting back on food expenditure, taking children out of school or even postponing or giving up seeking medical care.³ Based on the 2014/2015 Sudanese household survey, the findings highlight the impact of various parameters such as health insurance membership, age and gender of the household head, level of education, presence of elderly members or young children, family income, socio-economic status of the household head, chronic health and access to improved water sources on health expenditure choices borne by households. Furthermore, an in-depth analysis highlights their significant contribution to the likelihood of these expenses exceeding critical thresholds and ultimately reaching catastrophic proportions. In addition, the survey shows that the significant effect of this expenditure is to push a considerable number of households below the poverty line.⁶ The population's use of health services is a direct reflection of effective access to the care available. This is a crucial factor in promoting people's health and fostering socio-economic development. In the Democratic Republic of Congo, a country facing a multifaceted crisis, access to healthcare services is

hampered by inappropriate payment policies (in particular the use of direct payment by users and households or a fee-for-service system). This is partly the result of a lack of public funding for healthcare services, as well as insufficient coverage by health insurance schemes or mutual insurance companies.⁷ Access to basic social services for people on modest incomes is hampered by a number of obstacles, including high costs, geographical distance, unsatisfactory quality of provision, inadequate supply, social barriers and lack of financial support. In addition, the prohibitive cost of medical treatment is a major barrier to equal access to healthcare. Every year, around one hundred million people fall into poverty because of the financial burden of their medical care. For a further 150 million people, medical expenses account for almost half their income. In many countries, the lack of social protection systems and affordable health insurance compromises access to public health services. The trends observed in certain health regions show that significant improvements in access to healthcare can be achieved when consultation fees are lowered, the price of medicines is reduced (while guaranteeing improved quality) thanks to the introduction of external assistance programmes. Taking into account the social and economic context prevailing in the Democratic Republic of Congo in general, and more specifically in the Kimbanseke health zone, it would appear that households often do not have the necessary resources to meet the basic needs of the population, given the heavy burden they bear. As a result, there are major health problems whose repercussions on society as a whole cannot be ignored by any informed observer.⁸ The financing of a national healthcare system is characterised by a pyramid structure, with the state as the main provider of funds, followed by the rest of the world and finally households. It is undeniable that the financing of the health sector in the Democratic Republic of Congo (DRC) as a whole, and more specifically in the province of Sud Ubangi, relies mainly on households, then on the Rest of the World, before being taken over by the Government or the State.⁹ Various studies have examined the situation of national health accounts in the African region. However, there is still a gap in the analysis of national health accounts in Central Africa, particularly in the Democratic Republic of Congo (DRC), in order to assess the contribution of households to current health expenditure, the distribution of these payments across the health care system, and any explanations for this. The majority of current healthcare expenditure is borne by households (40%) and is mainly made through direct payments without cost sharing (93.7%). It was found that 71.58% of hospital

expenditure, 96.49% of outpatient expenditure, 98.48% of laboratory costs and 72.42% of pharmaceutical costs were borne by households. These findings underline the need for mechanisms to pool health-related risk. Indeed, the largest proportion of health care and services funding comes essentially from households. The contribution of international cooperation, including bilateral and multilateral aid and international non-governmental organisations, only marginally exceeds the 5% allocated by households.¹⁰ Total health expenditure per person per year remained stable at US\$12.02, well below the US\$20 needed to guarantee implementation of the Minimum Package of Activities and the Complementary Package of Activities, and a long way from the US\$44 recommended by the International Working Group on Innovative Financing of Health Systems to ensure a well-functioning health system.¹ In the Democratic Republic of Congo, the cost of treating cases of severe malaria varies according to the type of hospital attended. The heads of the households concerned often find themselves unable to cover these major health expenses in such a short space of time. A total of 46% of household heads reported having to draw on their own resources, while 54% had to resort to external sources of funding such as business, family living abroad, donations and associations (38%), selling assets (7%), borrowing (6%) or pledging assets (3%). Households in a lower socio-economic bracket were particularly notable for having greater recourse to external resources (59.4%), while use of the family budget was more common among households in the middle (50.3%) and upper (52.3%) socio economic brackets.¹¹

An observation was carried out in a number of households in the Barrière health area, more specifically in households that had sought care for severe cases of malaria in children aged 0-59 months at the Kenge General Referral Hospital in 2022. It was found that these households had to pay an average of 55130 Fc (\$29.01) to treat an episode of malaria in a child, a sum that proved to be out of reach for many of them. Some households were forced to pledge precious assets to pay for their children's treatment, while others resorted to borrowing money at up to 50% interest. Still others had to resort to selling agricultural produce or precious goods to meet their children's medical needs. More than half the households had to combine various sources of finance to get by. The main aim of this study was to analyse the financial sources used to provide medical care in households in the La Barrière health area, with two specific objectives: (i) to

identify the main sources used by households to finance care, and (ii) to assess the extent to which they resorted to external resources to cover medical care expenses.

Materials and methods

A. Presentation of the study environment

The study was carried out in the Barrière health area, which is one of the health subdivisions of the Kenge Health Zone, part of the Kwango Provincial Health Division, in Kwango Province, Democratic Republic of Congo. According to current figures, this health area has a population of 11,444. The climate is humid tropical, with two distinct seasons: a dry season running from mid-May to August, covering four months, and a rainy season running from September to April, covering eight months. The predominant vegetation in this area is grassy savannah, with occasional small gallery forests along the streams leading to the Bakali. Hydrography is defined by the river basin of the Bakali River. There are a number of water springs whose courses converge on the district before emerging from the valleys to finally flow into the said river. This health area is cosmopolitan in character, with a population made up mainly of Suku, Yaka, Pelende, Mbala, Tshokwe, Hungani, Ngongo and Lonzo tribes; however, it is also home to various other tribes from not only the whole of Kwango province, but also from other provinces in the country. In addition, several private establishments offering medical services are located within the area itself, and the main town in the health area has a medical centre offering a minimum package of medical activities. It has a doctor, an administrator and 120 nurses. The Barrière Health Centre organises preventive, curative and promotional activities.

B. Sampling techniques

The sampling for this study is non-probabilistic, chosen by personal convenience of the researcher for reasons of feasibility and availability of heads of households to participate in the study.

C. Target population and sample

The target population consisted of all heads of households in the Barrière health area, estimated at 83500 households. The sample size was 200 households, depending on the availability of respondents.

C. Selection criteria

1. Inclusion criteria

To be included in this study, the following conditions had to be met:

- Head of household, Living in the Barrière health area,
- Have had at least one family member admitted to hospital in the 12 months preceding the survey,
- i.e. from 1 January to 31 December 2021.
- Ability to speak Kikongo, Lingala, French or any other language that may facilitate exchanges with the interviewer Agree to take part in the study

2. Exclusion criteria

Excluded from the study :

- Anyone who does not speak any of the languages spoken by the interviewers;
- Any head of household whose physical or mental condition prevents him or her from answering the questions ; Any refusal to take part in the study.

D. Data collection methods and techniques

The data for this study were collected using a survey methodology based on the semi-structured interview technique. Data collection was made possible by an interview guide specifically designed for the subject under study, comprising various questions grouped into two main themes: the characteristics of respondents and the sources of funding for healthcare expenditure within households.

E. Data analysis techniques

The data collected was carefully entered individually using SPSS 17.0 software, based on all the grids obtained from the interviews. The data was analysed twice. The first analysis was descriptive, based on the calculation of frequencies and proportions, while the second was based on statistical inference. The Chi-2 test was used to examine the links between the characteristics of the participants in the study and the sources of funding for household healthcare expenditure. the sources of funding for household healthcare expenditure.

F. Ethical considerations

It should be emphasized that this study was conducted with the utmost respect for the individual freedoms and rights of the participants. Their participation in this research was voluntary, unpaid and based on informed consent obtained thanks to a precise explanation provided beforehand. The absolute confidentiality of the information transmitted was guaranteed throughout the process.

Results

A. Characteristics of respondents

In terms of the age of heads of household, just over 60% are over 50, 91% of them men and 9% women. With regard to the level of education of the people surveyed, 75% had a secondary school diploma, 18% had reached university level, 5.5% had primary schooling and 1.5% had no formal education at all. As for their occupation, 65% work in the informal sector, while 12% are unemployed. A further 8.5% work in the private sector, 7.5% in the public sector and 7% are self-employed (Table 1).

Table 1: Characteristics of respondents

Age	Frequency	Percentage
18-23 yearsold	6	3,0
24-29 yearsold	6	3,0
30-35 yearsold	14	7,0
Age 36-41	14	7,0
42-49 yearsold	35	17,5
Age 50-55	52	26,0
56-61 yearsold	56	28,0
62-67 yearsold	15	7,5
68 and over	2	1,0
Total	200	100,0
Gender of respondents		
Male	182	91,0
Female	18	9,0
Total	200	100,0
Level of education of respondents		
No level	3	1,5
Primary	11	5,5
Secondary	150	75,0
University	36	18,0
Total	200	100,0
Occupations of respondents		
Unemployed	24	12,0
Self-employed	14	7,0
Privatesectorworker	17	8,5

Age	Frequency	Percentage
18-23 yearsold	6	3,0
24-29 yearsold	6	3,0
30-35 yearsold	14	7,0
Age 36-41	14	7,0
42-49 yearsold	35	17,5
Age 50-55	52	26,0
56-61 yearsold	56	28,0
62-67 yearsold	15	7,5
68 and over	2	1,0
Public sectorworker	15	7,5
Informal sector	130	65,0
Total	200	100,0

Source : (Author, 2022)

B. Sources of funding for healthcare

In terms of monthly income, 34.5% do not know their monthly income; 25% receive between 201000 300000 Fc; 18% receive 301000-400000 Fc; 17.5% have an income between 100000-200000 Fc and finally 2.5% respectively earn less than 100000 Fc and 401000-500000 Fc (Table 2).

Table 2: Distribution of respondents according to monthly income (2500 Fc = 1\$ US)

Monthlyincome	Frequency	Percentage
Lessthan 100000Fc	5	2,5
100000 to 200000Fc	35	17,5
201000 to 300000Fc	50	25,0
301000 to 400000Fc	36	18,0
401000 to 500000Fc	5	2,5
Unknown	69	34,5
Total	200	100,0

Source : (Author, 2021)

Among the sources of funding for care in households, 35% came from the sale of agricultural produce; 30% from the sale of household valuables; 15% received assistance from third parties; 12% obtained funding from other sources; and only 7.5% financed care from household reserves (Table 3). Table 3: Source of household care funding

Table 3: Source of household care funding

Source of financing	Frequency	Percentage
House reserve	15	7,5
Sale of householdvaluables	60	30,0
Sale of agricultural products	71	35,5
Help fromthird parties	30	15,0
Other (loan, mortgage)	24	12,0
Total	200	100,0

Source : (Author, 2022)

C. External recourse to finance healthcare

In terms of debt, 39.5% of households have had to take on debt to finance all or part of their care package, compared with 60.5% who have not (Table 4).

Table 4: Contraction of debt to finance care

Debt	Frequency	Percentage
Yes	79	39,5
No	121	60,5
Total	200	100,0

Source : (Author, 2022)

Of those who borrowed money, 98.7% borrowed less than 100,000 Fc (\$40), while 1.3% borrowed between 101,000-300,000 Fc (\$40-120). (Table 5).

Table 5: Amount of money borrowed

Amount	Frequency	Percentage
Lessthan 100000Fc	78	98,7
101000Fc to 300000Fc	1	1,3
Total	79	100,0

Source : (Author, 2022)

There was a highly significant relationship between occupations and the reduction in childcare debts (chi square=1.649E2a; ddl=4; pv=.000). (Chi-2=1.649E2a; ddl=4; pv=.000) (Table 6).

Table 6: Relationship between occupations and contracting care debts

Occupations	Debt contraction		Total	Chi-2	ddl	pv
	Yes	No				
Unemployed	24	0	24	1,649E2 ^a	4	,000
Self-employed	14	0	14			
Privatesectorworker	17	0	17			
Public sectorworker	15	0	15			
Informal sector	9	121	130			
Total	79	121	200			

Source : (Author, 2022)

Discussion

A. Characteristics of respondents

The vast majority of heads of household, over 60%, are over 50 years of age, 91% of whom are men. As for their level of education, 75% have completed secondary school, 18% have a university degree, 5.5% have primary education and 1.5% have no formal education. Findings from the Sudanese Baseline Household Survey conducted in 2014/2015 show that several factors, such as enrolment in health insurance, the age and gender of the household head, his/her level of education, the presence of elderly members or young children in the household, income, socio-economic status of the household head, chronic health problems and access to an improved water source, influence decisions on health expenditure borne by households. These factors increase the likelihood of health expenditure exceeding a critical threshold and thus becoming catastrophic. The results indicate that the level of education of the head of household appears to play a significant role in household health expenditure. However, this observation does not apply uniformly to all levels of education. For example, there is a positive correlation between primary, secondary and university education levels and the increase in household health expenditure. However, the coefficient for post-secondary education is insignificant, suggesting that it does not have a tangible impact on health spending by the rural population.⁶

In terms of occupation, 65% are in the informal sector, 12% are unemployed, 8.5% are in the private sector, 7.5% are in the public sector and 7% are self-employed. According to the conclusions of the analysis conducted in Sudan, the coefficient relating to the salaried employment variable is positive and statistically significant, highlighting the beneficial impact of

salaried income on the increase in household healthcare expenditure. On the other hand, the coefficient associated with wealth status is not significant in the five models examined. This observation suggests that a household's economic situation does not influence its financial commitments to healthcare.⁶

B. Sources of funding for healthcare

The results on monthly household income showed that 34.5% were unable to estimate or did not know their monthly income; 25% earned between 201,000-300,000 Fc; 18% received 301,000-400,000 Fc; 17.5% had an income between 100,000-200,000 Fc and finally 2.5% earned less than 100,000 Fc and 401,000-500,000 Fc respectively.

As far as income is concerned, it has been established that higher income is positively correlated with health spending by households in the lowest, middle and highest socio-economic quintiles. The limited health insurance coverage among the most disadvantaged households suggests that these individuals are forced to devote a larger proportion of their income to healthcare expenditure.⁶ Among the sources of household care funding, the results showed that the sale of agricultural produce was the main source at 35%, followed by the sale of household valuables at 30%; 15% received assistance from third parties; 12% obtained funding from other sources; and only 7.5% financed care from household reserves. Research has examined the various strategies used by households to meet their healthcare costs. Households mainly use their own financial resources, the sale of assets and borrowing. ¹² In terms of sources of funding for healthcare, our results, although in different proportions, appear to be consistent with a study conducted in Kinshasa, where 46% of heads of household used their own household funds, while 54% had to turn to external sources such as business, emigrant family, donations and associations (38%), sale of assets (7%), borrowing (6%) and pledging assets (3%). The sale of assets was more common among heads of household working in the informal sector (adjusted odds ratio = 2.4) and among female heads of household (adjusted odds ratio = 3.9). ¹¹ According to the results of a study conducted in Kimbanseke, in the city of Kinshasa, a significant proportion of respondents emphasised the positive impact of healthcare expenditure on household income (61.9%), with own-source revenue the predominant source of funding (75.1%), mainly from the purchase of healthcare by the population (61.1%). ⁸ In a study carried out in Morocco, the author notes that in the absence of formal medical cover, the contribution of

households to direct payments for healthcare increases, contributing to the impoverishment of the population. 2. A number of studies emphasise that in a context of poverty, access to quality healthcare for vulnerable groups can be improved by setting up solidarity mechanisms to cover the risk of illness. However, it is unrealistic to expect people with no income, living on less than \$1 a day, to be able to contribute freely and regularly to health insurance. With this in mind, the Manzambi Model proposes that, in order to finance quality care, disadvantaged populations should first benefit from an increase in their purchasing power (through micro-credit), conditional on (i) the compulsory building up of savings (which increases people's purchasing power) and (ii) the compulsory contribution of \$1 to a health micro-insurance fund. This micro-insurance fund redistributes the funds collected to the entire healthcare system, in particular for the supply of quality medicines and consumables, as well as for the adequate remuneration of staff, thus gradually eliminating the financing of healthcare by direct payments from households, and aspiring to gradually achieve the universal health coverage (UHC) advocated by the WHO.¹³

C. External recourse to finance healthcare

In terms of debts, 39.5% of households had to take out a debt to finance all or part of the cost of care, compared with 60.5% who did not. Of those who had borrowed money, 98.7% had borrowed less than 100,000 Fc (\$40), while 1.3% had borrowed between 101,000-300,000 Fc (\$40-120). Although indifferent proportions, all social strata (depending on their occupation) were involved in borrowing. (Chi 2=1.649E2a; ddl=4; pv=.000).

A study has identified the various methods used by households to cover their healthcare costs, including recourse to borrowing. The researchers found that households' own financial resources are often not sufficient to cover the full cost of healthcare. Indeed, a number of studies show that households are forced to resort to borrowing or selling their assets to meet these expenses. For example, one study found that 68% of households finance their healthcare costs by borrowing or selling assets. In addition, solidarity mechanisms are underdeveloped, with only 15.4% of households with a sick member receiving financial support from other households. 12. The risk of borrowing is significantly higher when the socio-economic level of the household is lower, particularly among heads of household working in the informal sector and female heads of household.

Conclusion and recommendations

A. Conclusion

A. Conclusion In the Barrière health area, as elsewhere in the Democratic Republic of Congo, households remain the main providers of funding for healthcare expenditure. In the virtual absence of a social security system, households continue to bear a significant financial burden for access to healthcare. To finance their healthcare needs, these households mobilise a variety of sources, both internal and external, including the use of household cash reserves, the sale of valuable assets, the marketing of agricultural products, donations and recourse to borrowing. Many households combine several of these sources of finance to meet their health needs. In addition, the results showed that all social categories resorted to borrowing, underlining the fact that the cost of healthcare exceeds the financial capacity of households.

B. Recommendations

To the Congolese government

- To guarantee health insurance and social security for the population in order to reduce the burden on households in financing healthcare; To subsidise healthcare facilities in order to ensure quality care that is accessible to all. Households
- Create discussion forums to find self-financing mechanisms for health; (ii) Join health mutuals.

References

- [1] Kuwekita, M. Health financing and cost recovery: the heavy burden on Congolese households. Results of the national health accounts. (2015).
- [2] Ezzrari, A. Les dépenses catastrophiques de santé et leur impact sur l'impauvrissement des ménages : le cas du Maroc. Cah. Plan 21-42 (2022) doi:10.34874/PRSM.cahiers-du-plan i54.42035.
- [3] Mohd Hassan, N. Z. A. et al. The inequalities and determinants of Households' Distress Financing on Out-of-Pocket Health expenditure in Malaysia. BMC Public Health 22, 449 (2022).
- [4] Youness, J., Houda, L. & Hicham, O. Health care expenditure and utilisation: A review of theoretical and empirical literature. Eur. Sci. J. ESJ 14, 156 (2018).

- [5] Ben Ammar Sghari, M. & Hammami, S. Impact of the problem of financing health expenditure on households in Tunisia. *Éthique Santé* 12, 217-224 (2015).
- [6] Elhaj Mustafa Ali, M. & Mahjoub Ebaidalla, E. Révision des Determinants et de l'Impact des Dépenses de Santé à la Charge des Ménages au Soudan (2022).
- [7] Many, K. K. et al. Factors limiting the use of health care services by households in Lubumbashi, Democratic Republic of Congo. *Rev. Infirm. Congo*. 7, 17-22 (2023).
- [8] Hélène, B. M. et al. Household income and access to quality health care in the Kimbanseke health zone, KINSHASA/RDCONGO. *Int. J. Soc. Sci. Sci. Stud.* 4, 3597-3611 (2024).
- [9] Benjamin, A. M. J. et al. Accessibilité financière des ménages aux services et soins de santé primaires a l'ère de la couverture sante universelle en RD Congo à travers les mécanismes de financement public dans la province du SUD-UBANGI, RD CONGO. *Int. J. Soc. Sci. Sci. Stud.* 3, 3357-3374 (2023).
- [10] Manzambi Kuwekita, J. How to alleviate the burden of households in health financing in Southern countries: Results of the 2010-11 National Health Accounts in DR Congo (2014).
- [11] Ilunga-Ilunga, F., Levêque, A. & Dramaix, M. Financing household management of severe childhood malaria in Kinshasa, Democratic Republic of Congo. *Santé Publique* 27, 863 869 (2015).
- [12] Ridde 1, V., Belaid 1, L., Samb 1, O. M. & Faye 2, A. Health financing collection modalities in Burkina Faso from 1980 to 2012. *Santé Publique* 715-725 (2014).
- [13] Manzambi Kuwekita, J. et al. Étude des conditions de vie et d'accessibilité aux soins de santé de qualité des populations en situation de précarité, dans la zone de sante de Bandalungwa à Kinshasa (Congo) grâce à la micro-assurance santé en 2008. *J. D'Épidémiologie Santé Publique* 12, (2013).