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Evaluation of the prevalence of malnutrition in children from 6 to 59 months living in the peri-urbandistricts of the city of Lubumbashi, RD Congo

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Abstract

This descriptive cross-sectional study is organized in the city of Lubumbashi. Its objective is to determine the prevalence of malnutrition in children aged 0 to 59 months living in the peri-urban neighborhoods of this city.

The principal result of our study is the following: the prevalence of malnutrition is 20.5%.

By way of conclusion, the peri-urban neighborhoods of the city of Lubumbashi have a prevalence of malnutrition of 20.5%. Children from 6 to 59 months who present severe acute malnutrition of 19.3%, moderate acute malnutrition is 46.0% of cases and the risk of malnutrition is high, it is equal to 34.7%.

Keywords: Number of Meals, Age, Malnutrition, Childhood, Lubumbashi, DRC

1. Introduction

In the world, the prevalence of severe acute malnutrition in children aged 0 to 59 months is high in pediatric hospitals. In 2019, the World Health Organization (WHO) estimates that 49.5 million children aged 0-59 months were suffering from wasting (too low in weight) in the world. And half of these children live in South Asia and one-quarter in sub-Saharan Africa ^[1].

In 2018, the Food and Agriculture Organization of the United Nations (FAO) states "chronic under nutrition affects about 821 million people worldwide. And, the majority of malnourished people (515 million) live in Asia, 256.5 million in Africa and 39 million in Latin America and the Caribbean ^[2]. This sad situation is denounced by Doctors Without Borders (MSF), which estimates that 2.5 million children aged 0 to 5 months die from malnutrition each year in the world; an average of one death due to malnutrition of a child in every twelve seconds ^[3]. Malnutrition remains a public health problem in sub-Saharan Africa.

In 2014, the United Nations Children's Fund (UNICEF) estimates that 2 million children from 0 to 59 months who suffer from malnutrition in DR Congo. The epidemics of measles, cholera and malaria threaten their survival. And this report states that more than 296,000 children suffer from severe acute malnutrition ^[4]. By the way, children who are malnourished, have a weakened immune system, this leads to a higher risk of infections and additional complications of their primary disease ^[5, 6, 8].

These adverse effects lead to prolonged hospitalization and increase the financial burden on the health system ^[9, 12]. In addition, in the long term, the growth potential and cognitive developments of the child are affected ^[13, 15]. That said, malnourished hospitalized children require special attention because their inadequate nutritional status certainly has a significant impact on their growth ^[16]. Chronic malnutrition is an indicator of household food security, when it is high; it indicates a situation of chronic food insecurity in households.

And this chronic malnutrition rate is a major nutrition problem according to WHO thresholds. And poverty, natural disasters, wars and lack of promotion of adequate agricultural policy contribute directly to the food shortage in the markets, and poor households will no longer have access to the food of their choice. This poverty is both the cause and the consequence of malnutrition. Malnutrition is the cause of half of all deaths in children under 5 and pregnant women ^[17].

The policy of exclusive breastfeeding for up to six months of age effectively contributes to the promotion of the fight against child malnutrition from 0 to 59 months. And according to the survey organized by OLEKO wa OLEKO with breastfeeding women from the city of Kisangani in DR Congo; Only 51.4% of mothers practice the strategy of exclusive breastfeeding until six months of age ^[18].

Although the opportunity that this strategy offers to ensure the health of our babies, because of the socio-cultural influence, many breastfeeding women continue to use formula (milk of substitution) to feed their children of less than six months.

Although WHO's new child growth and development standards, recommend exclusive breastfeeding for up to six months^[19]. Generally, children need a good diet to develop and grow harmoniously, to protect themselves against diseases and to have enough energy to study, learn and practice physical activity^[20]. Finally, to promote the health of our young children, the objective of this study is to

determine the prevalence of malnutrition in children from 6 to 59 months living in the peri-urban districts of the city of Lubumbashi.

2. Study area and method

2.1 Study area

The investigation is organized in the peri-urban district Kilombe-lombe of the municipality of Katuba located in the city of Lubumbashi. This neighborhood has 503 children aged between 6 and 59 months. And the survey took place from March 01 to April 30, 2021.

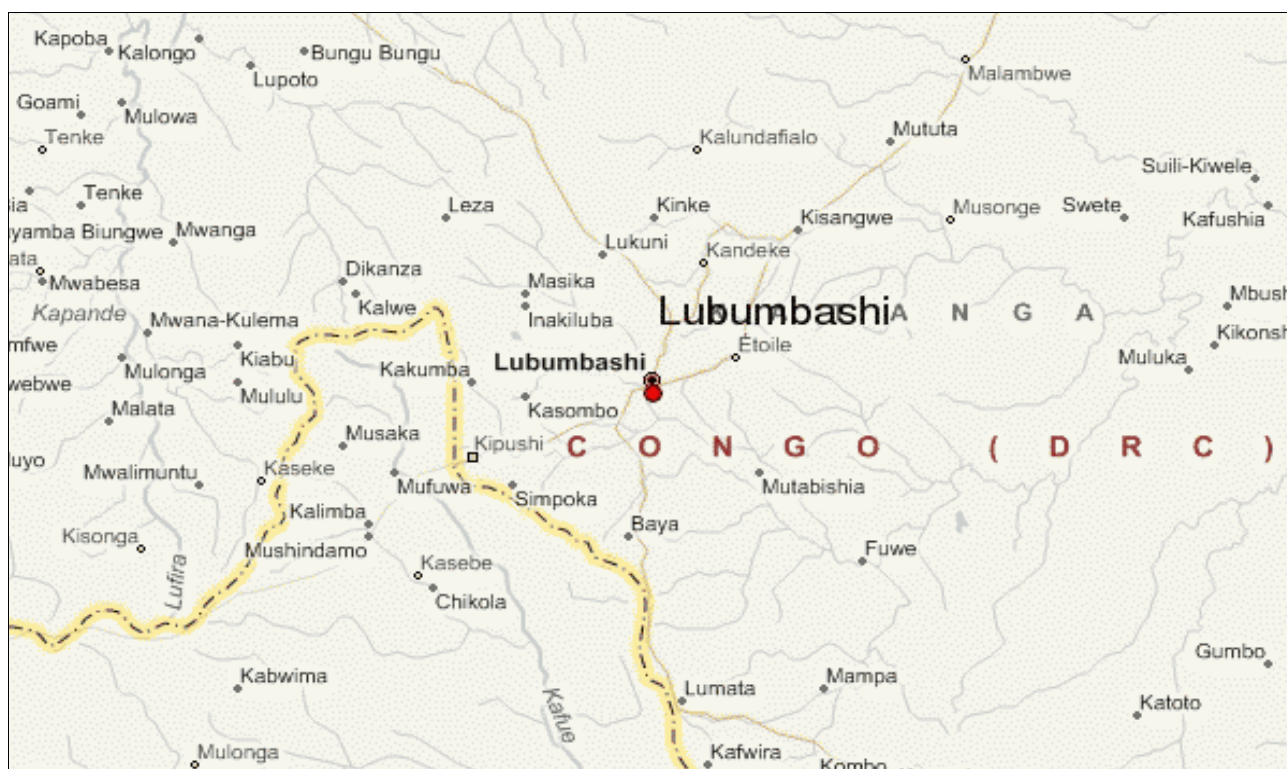


Fig 1: Location of Katuba municipality, Lubumbashi City, RD Congo

2.2 Methodology

By sorting lots of peri-urban districts, we obtained the district of Kilombe-lombe located in the commune of Katuba which is in the city of Lubumbashi. After having had the authorization of the district chief to organize the survey in the households in the Kilombe-Lombe neighborhood; our team traveled the various avenues with the Head of the neighborhood to reconnoitre the land. According to the quick survey, 531 children aged 6 to 59 months were identified. And only 109 responded positively to the selection criteria. The inclusion criterion is any child aged 6 to 59 months living in the city of Lubumbashi for at least half his age. The exclusion criterion is any child aged 6 to 59 months living less than half his age in the city of Lubumbashi. Data confidentiality has been guaranteed; the identity of the child has not been disclosed because each child is represented by a number.

2.3 Type of study

Our investigation is a descriptive cross-sectional study.

2.4 Study parameters

Our study used the following variables:

- Sex,

- Age,
- Weight,
- Size,
- MUAC,
- Nutritional status.

2.5 Analysis and interpretation

Our data was entered into the Epi Info 5.34 software. Their analyzes and interpretations were used in the various tables by percentage calculation according to the following formula: From where:

fo = observed frequency;

N = sum of frequencies or total frequency;

100 = transformation coefficient in percentage and % = percentage.

The evaluation of our sample was made by comparing the children's measurements (weight, age and height) with those of other children of the same age from a reference population of the new WHO growth standards^[20].

3. Results

According to the selection criteria, we selected 109 children as a sample.

Table 1: Distribution of children according to the prevalence of malnutrition

Malnutrition	Effective	%
Positives	109	20.5
Négatives	422	79.5
Total	531	100.0

The Table 1 show the distribution of neighborhood children according to the selection criteria. The prevalence of malnutrition in the Kilombe-Lombe district is 20.5%.

The Fig 2 show the distribution of malnourished children according to sex. The male sex has a high number (54.3%) against 45.7% of the female sex.

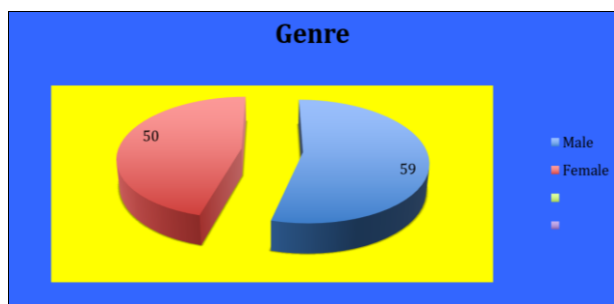


Fig 2: Distribution of malnourished children according to sex

Table 2: Distribution of malnourished children by age

Age (months)	Effective	%
[6 - 16[	15	14.0
[16 - 26[	26	23.7
[26 - 36[	28	25.7
[36 - 46[	20	18.3
[46 - 59[	20	18,3
Total	109	100.0

Table 2 gives the distribution of malnourished children according to age. The age of all children ranges from 6 to 59 months, the age interval of 16 to 36 months has a higher vulnerability (49.4%) and 6 to 16 months have a low count of 14.0%.

Table 3: Distribution of malnourished children according to weight

Weight (kilogram)	Effective	%
] 2 – 6]	19	17.4
] 6 – 10]	29	26.6
] 10 – 14]	22	20.1
] 14 – 18]	39	35.8
Total	109	100.0

The weight of all children ranges between 3 to 18 kilograms. More than 50% of malnourished children weigh between 11 to 18 kg.

Table 4: Distribution of malnourished children according to height

Height (Centimeter)	Effective	%
] 49 - 59]	11	10.1
] 59 - 69]	22	20.2
] 69 - 79]	25	22.9
] 79- 89]	19	17.5
] 89- 99]	20	18.3
] 99- 109]	12	11.0
Total	109	100.0

Table 4 provides information on the height of children, which ranges from 50 to 109 cm, the most abundant range of malnourished children (43.1%) is between the height of 60 to 79 centimeters.

Table 5: Distribution of malnourished children according to nutritional Status

Nutritional status	Effective	%
Severe acute malnutrition	21	19.3
Moderate acute malnutrition	50	46.0
Risk of malnutrition	38	34.7
Total	109	100.0

Table 5 gives the distribution of malnourished children according to nutritional status. Moderate acute malnutrition is the majority in 46.0% of cases, against 19.3% for severe acute malnutrition.

Fig 3 shows that malnourished children sharing two meals a day are exposed to malnutrition, they have a prevalence of 46.8% of cases.

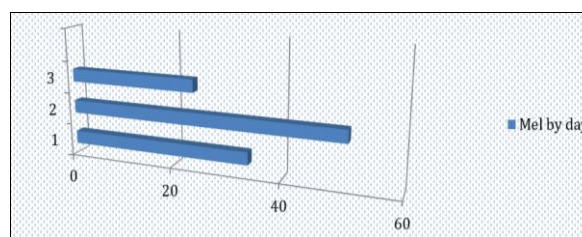


Fig 3: Distribution of malnourished children according to meal per day

4. Discussion

This study was conducted on the basis of a survey of children aged 6 to 59 months living in the peri-urban district Kilombe-lombe of the commune of Katuba located in the city of Lubumbashi. from March 01 to April 30, 2021. Our study sample was drawn from 531 children aged 6 to 59 months living in this neighborhood. 20.5% of these children responded positively to the inclusion criteria for this study. In other words, 109 children aged 6 to 59 months suffered from malnutrition. This result is similar to that of the OLEKO wa OLEKO survey, published in its article entitled "Prevalence of malnutrition in children aged 6 to 59 months hospitalized at the Kisangani university clinic", which identified 22.9% of children malnourished [21]. This resemblance testifies to the equality of standard of living between the households of the city of Kisangani and those of the peri-urban districts of the city of Lubumbashi. It appears from this study that male children are more vulnerable to malnutrition at 54.3% against 45.7% of female children. These results are similar to those of SALL who organized a nutritional recovery study in a regional hospital in KAOLACK (Senegal). He had worked on 600 cases of severely acute malnourished children hospitalized in Kaolack from 1988 to 1992. His sample consisted of 57% of boys and 43% of girls [22]. Our results are also similar to those of the BOUBACAR study, which was conducted in the pediatric ward of Gao Hospital in Mali, and reported that out of 107 cases of severe acute malnutrition, 70% of the children were male [23]. Contrary to our results, ILBOUDO in 2004, who conducted a study in Burkina Faso on the

determinants of child malnutrition, is 100 (55.87%) female compared to 79 (44.13%) male [24].

The age of malnourished children ranges from 6 to 59 months and the most vulnerable category, equivalent to 49.4% is between the age interval of 16 to 36 months. On the other hand, children from 6 to 16 months have a low prevalence of malnutrition, equivalent to 14.0%. About age, the results of our study show that children aged between 16 and 35 months are more vulnerable to severe acute malnutrition, they represent 45.7%. In 2012 in Burkina Faso, OUEDRAOGO had organized a study on the management of acute malnutrition at the CREN of CM Saint Camille de Ouagadougou and the results, similar to ours, gave a prevalence of severe acute malnutrition at the interval of age between 15 to 32 months [25]. But the contrary results were obtained by KALIDOU, in his study of malnutrition in children from 0 to 59 months in Bamako, he found a prevalence of severe acute malnutrition (85.1%) in hospitalized children aged 6 - 23 month [26]. This could be explained by the fact that during this period the majority of weaning takes place.

The result of this study shows that the weight of malnourished children ranges between 3 to 18 kg and 50% of malnourished children weigh between 11 to 18 kg. And the height of malnourished children is between 50 to 109 Cm. The taller malnourished children are, the more vulnerable they are to malnutrition. The table in this study shows that malnourished children with moderate acute malnutrition are in the majority in 46.0% of cases, against 19.3% for severe acute malnutrition.

The results of our study of the distribution of children according to their nutritional status are children suffering from severe acute malnutrition (19.3%), moderate acute malnutrition (46.0%) and the risk of malnutrition (34.7%). This result is similar to that of SY O., which had organized a survey on morbidity and mortality in pediatric ward B of CHU-Gabriel Touré in 2003 and found 18.4% of severe malnutrition and 16.5% of moderate malnutrition whose weight / height ratio has been evaluated [27]. In contrast to the result of SAVADOGO who had studied malnutrition among children aged 0-5 years at the Nianankoro Fomba Hospital in Segou, Mali, and had severe acute malnutrition 27.0% and moderate acute malnutrition (73.0%) [28]. This difference in results is explained by the fact that the Ségou survey in Mali was organized before the agricultural harvest period.

Fig 3 of our study shows that malnourished children eating two meals a day remain exposed to malnutrition at a frequency of 46.8%. This is explained by the difficulties of evaluating the quality of their food to share with the family. Often their food is low in essential nutrients [29].

5. Conclusion and suggestions

Worldwide, several studies have demonstrated the high prevalence of malnutrition living in peri-urban communities. However, updated data on this subject in the city of Lubumbashi are rare. The results of our study to assess the prevalence of malnutrition in children aged 6 to 59 months living in peri-urban communities in the city of Lubumbashi from March 01 to April 30, 2021 show that the number of children suffering from malnutrition is high.

Malnutrition in children aged 6 to 59 months is a public health problem because its prevalence is 20.5%. Children from 6 to 59 months who present severe acute malnutrition

of 19.3%, moderate acute malnutrition is 46.0% of cases and the risk of malnutrition is high, it is equal to 34.7%. The families of these malnourished children have the common characteristic, poverty. Despite the number of meals shared per day in some families, the quality of a balanced diet is not respected. To combat this ignoring, sessions of sensitization meetings for a change in behavior favorable to health will be organized. Poverty is also the lack of information on good nutrition.

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