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Epidemiological and Clinical Profile of Severe Acute Malnutrition without Complications in Children Aged 6 to 59 Months at the CSCom of Fakola, Kolondièba Health District, from 2021 to 2024

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Abstract:

- ***Introduction:***

According to the WHO, malnutrition is a pathological condition resulting from the relative or absolute deficiency or excess of one or more essential nutrients, whether this condition is clinically manifested, or whether it is detectable only by biological, anthropometric or physiological analyses. To study the epidemio-clinical profile of severe acute malnutrition without complications in children aged 6-59 months in the Fakola health area from 2021 to 2024.

- ***Methods:***

We conducted a descriptive cross-sectional study. Severely malnourished children aged 6-59 months without complications from 2021 to 2024 are included and children whose records were not usable are not included. Used malnutrition registers, malnutrition monitoring sheets, consultation registers. Done exhaustive sampling. The data is analyzed in Epi Info version 7.6.2. We calculated the proportions, frequencies, ratio, the mean with its standard deviation, the rate.

- ***Results:***

These were children aged 6 to 59 months with severe acute malnutrition without complications during the study period. We obtained a coverage of 116% in 2024, a male/female ratio of 0.90.53% female, the most represented age group was 6-23 months i.e. 89%.95% vaccinated, 52.43% a good appetite test, weight gain of 0.93, average length of stay 67 days, a cure rate of 75% in 2024 and a dropout rate of 25% in 2024.

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➢ ***Conclusion:***

Malnutrition is a problem in the process of good growth and psychomotor development of the child. Nutritional monitoring, early active and passive detection, exclusive breastfeeding for up to 6 months, complementary feeding, supplementation and awareness would allow us to avoid or reduce the disease and its sequelae.

Keywords: *Epidemio-Clinical Profile, Malnutrition, Acute, CSCom Fakola.*

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I. INTRODUCTION

Malnutrition is a pathological condition resulting from the relative or absolute deficiency or excess of one or more essential nutrients, whether this state manifests itself clinically, or whether it is detectable only by biological, anthropometric or physiological analyses[1] Acute malnutrition is a devastating public health problem of epidemic proportions[1] Child malnutrition remains a major public health challenge worldwide in general and in sub-Saharan Africa in particular[2] During early childhood, malnutrition affects vital and cognitive functions, contributing significantly to the onset of poverty[3] Severe acute malnutrition, which is one of the types of malnutrition, is characterized by a weight-for-height index (less than -3 z-score), or by a mid-upper arm circumference of less than 115 mm and/or by the presence of nutritional edema[3]

According to the WHO, malnutrition in all forms affects one in three people and children are the most vulnerable ([4] It is estimated that 149 million, or 31% of children under 5 years of age, are underweight [4]

In 2024 in West Africa and the Sahel, an estimated 12.6 million children under the age of 5 were affected by acute malnutrition in 14 countries in the region, of which 3.2 million were suffering from severe acute malnutrition [5] The countries of the Sahel, severely affected by conflict, were on the front line of this crisis[5] Nigeria's northeastern and northwestern states had nearly 4.4 million malnourished people, of whom more than 1 million were suffering from severe acute malnutrition [5]

In 2024, in a study carried out in Cameroon, shows that about 22% of children under 5 years old in Africa suffer from malnutrition which is a problem sometimes associated with poverty, limited access to nutritious food, inadequate dietary practices[6]

In Mali, 25% of children under 5 years of age are stunted or chronically malnourished and 7% are severely stunted[7] Less than one in ten children, or 5%, suffer from acute malnutrition[7]

In 2024 in DHIS2, 214,607 cases of uncomplicated malnutrition of which 194,976 were cured were recorded.

During the same period, the Sikasso region, source DHIS2, recorded 23,804 cases of malnutrition without complications, of which 23,266 recovered.

The health district of Kolondièba had 1,120 uncomplicated cases with 870 recovered with a prevalence of 8.3%.

In the Fakola health area for the same period, we recorded 92 uncomplicated cases and the number of recovered 55.

Despite the efforts made by the State and its partners in the fight against malnutrition, namely the training of actors (nutrition officers, Technical Directors of the Centers (DTC), Community Health Workers (CHWs), the Nutritional Support Group (GSN), the free care of malnourished children, community care by CHWs, Awareness-raising and cooking demonstrations, malnutrition remains a public health problem in the Fakola health area, hence the purpose of this study.

➢ *Objectives:*

- *General Objective:*

To study the epidemio-clinical profile of severe acute malnutrition without complications in children aged 6-59 months in the Fakola health area from 2021 to 2024.

- *Specific Objectives:*

To describe the socio-democratic and clinical characteristics of severely acutely malnourished children;

To determine the frequency of severe acute malnutrition without complications among children aged 6-59 months in the Fakola health area from 2021 to 2024;

To determine the outcome of severely malnourished patients without complications, cure rate and dropout.

II. METHODS

➢ *Study Setting:*

The CSCom of Fakola is located in the health district of Kolondièba, health region of Sikasso. The health area is located 75 km from Kolondièba with an estimated population of 17,134 inhabitants in 2024. It borders the south-west of the Gueya health area in the Republic of Côte d'Ivoire, the south by the Bamba health area, Bougouni health district, and the

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west by the Zeguere health area and the north by the Farako and Bougoula health area.

In terms of human resources, the CSCom has a state nurse, a midwife, an obstetrician nurse, a health technician, eighteen relays and six CHWs.

➢ *Type of Study:*
This was a descriptive cross-sectional study.

➢ *Study Period:*
The study took place from February 25, 2025 to April 30, 2025 on uncomplicated acute malnutrition data from 2021 to 2024.

➢ *Study Population:*
These were all severely acutely malnourished children without complications recorded in the database during the study period.

➢ *Inclusion and Non-Inclusion Criteria:*

- *Inclusion Criteria:*
All children aged 6-59 months with severe acute malnutrition without complications registered in the database whose data are usable during the study period.

- *Criteria for Non-Inclusion:*
Children aged 6-59 months with severe acute malnutrition without complications registered in the database whose data are not usable.

- *Sampling:*
We calculated the minimum sample size using Epi Info software version 7.6.2.

N = size of the target population

d = Desired precision

p = estimated prevalence in the population

Z1- $\alpha/2$ = desired confidence level

$$n = \frac{(p)(1-p)\,(Z_{1-\alpha/2})^2}{d^2}$$

The minimum sample size is estimated to be 180. In our study we have a database of 339 records.

➢ *Data Collection:*

- *Data Collection Technique:*
We will extract the variables of interest in the malnutrition register and on the malnutrition monitoring sheets using a questionnaire.

- *Data Collection Tools:*
The tools used are the malnutrition registry and malnutrition monitoring sheets.

➢ *Variables:* are, sex, year, age, residence, height, weight, mid-upper arm circumference, age range, relapse, readmission, non-breastfeeding, respiration, patient condition, vaccination, appetite test, live relative, fever, diarrhea, vomiting, cough, pallor, duration of treatment, cures and withdrawals.

➢ *Data Management and Analysis:*

- *Data Entry:*
The data is entered and processed on Microsoft Excel and analyzed with Epi Info7.2.6.0:

- *Descriptive Data Analysis:*
We calculated the proportions, frequencies, ratio, and the mean with its standard deviation or the median with the range, the rate.

➢ *Aspect Éthique:*
The study was done with the approval of the district health authorities and the work will be done in a context of anonymity and confidentiality.

III. RESULTS

In total we recorded 328 cases of SAM without complications, the mean age 13.29 months and standard deviation of 6.89, the sex ratio Male/female 155/171 = 0.90 in favor of girls, the weight gain of 0.93 and an average length of stay 67 days, 306 children were vaccinated or 95%, the average height of 67.42 cm and a standard deviation of 7.02, the mean breathing of 39.03 and a standard deviation of 1.35 per min, the mean upper arm circumference of 108 and a standard deviation of 15, the parents of 95.73% of the cases were alive and 95% of the patients had a good general condition and 84.75% of our patients were breastfeeding.

➢ *Description of the Socio-Democratic and Clinical Characteristics of Severely Acutely Malnourished Children*

Table 1 Distribution by Résidence

Villages	Number	%
Fakola	166	51
Diamoko	10	3
Dembasso	20	6
Dionkoni	6	2
Gouranko	35	11
M'pièssana	20	6

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Kotla	16	5
Santieni	5	2
Other outside the area	50	15
Total	**328**	**100**

51%, i.e. the majority of the distribution, was observed in the village of Fakola, followed by Gouranko, i.e. 11%, and the most was observed in Santeeni, i.e. 5%.

Table 2 Breakdown by Bracket

Age range	**Number**	**%**
6-23 months	292	89
20 -40 months	34	10
40-59 months	2	1
Total	**328**	**100**

The age group of 6-23 was the most observed, accounting for 89% of cases.

Table 3 Distribution by Appetite Test

Appetite	**Number**	**%**
Good	172	52,43
Medium	136	41,46
Weak	20	6,09
Total	**328**	**100**

52.43% of our patients had a good appetite test, 6.09% were poor.

Table 4 Distribution by Symptom

Symptoms	**Number**	**%**
Fever	181	27
Diarrhoea	269	40
Vomit	163	24
Pallor	2	0
Cough	57	8
Total	**672**	**100**

Diarrhoea was represented in 40% of cases, followed by fever with 27% and vomiting 24%, however cough was represented in only 8% of cases.

- *Determination of the Frequency of Severe Acute Malnutrition without Complications among Children Aged 6-59 Months in the Fakola Health Area from 2021 to 2024*

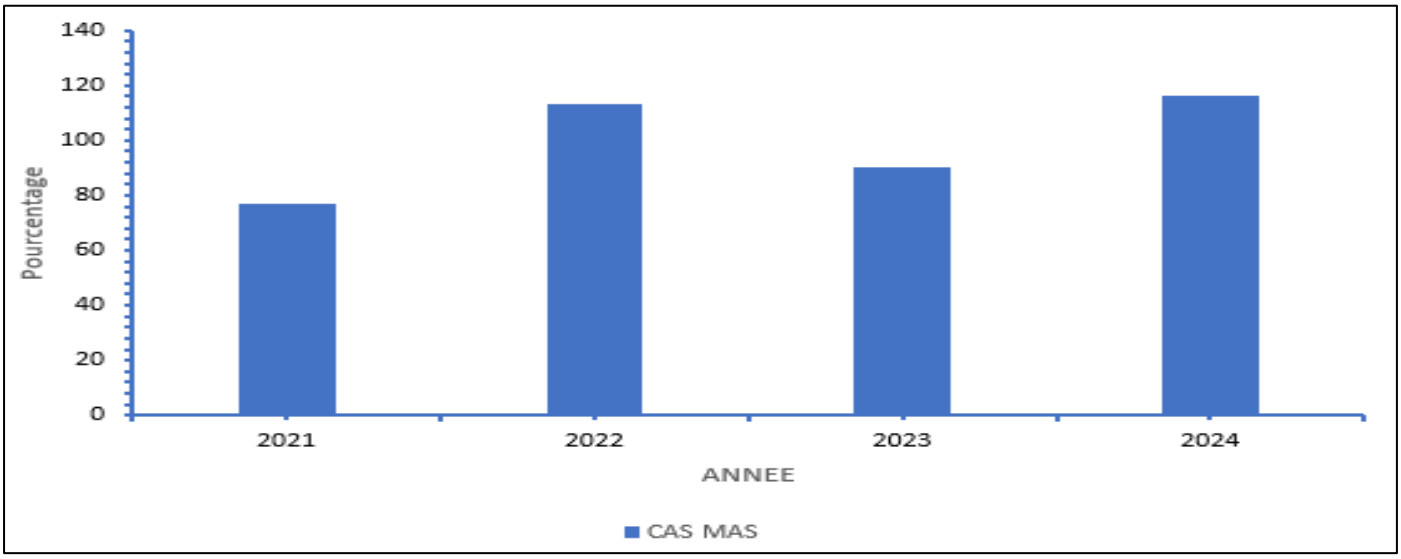

Fig 1 Breakdown by Case and Year

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The wide distribution of cases was observed in 2024, i.e. 116%.

➢ *Determination of the Cure Rate and Abandonment*

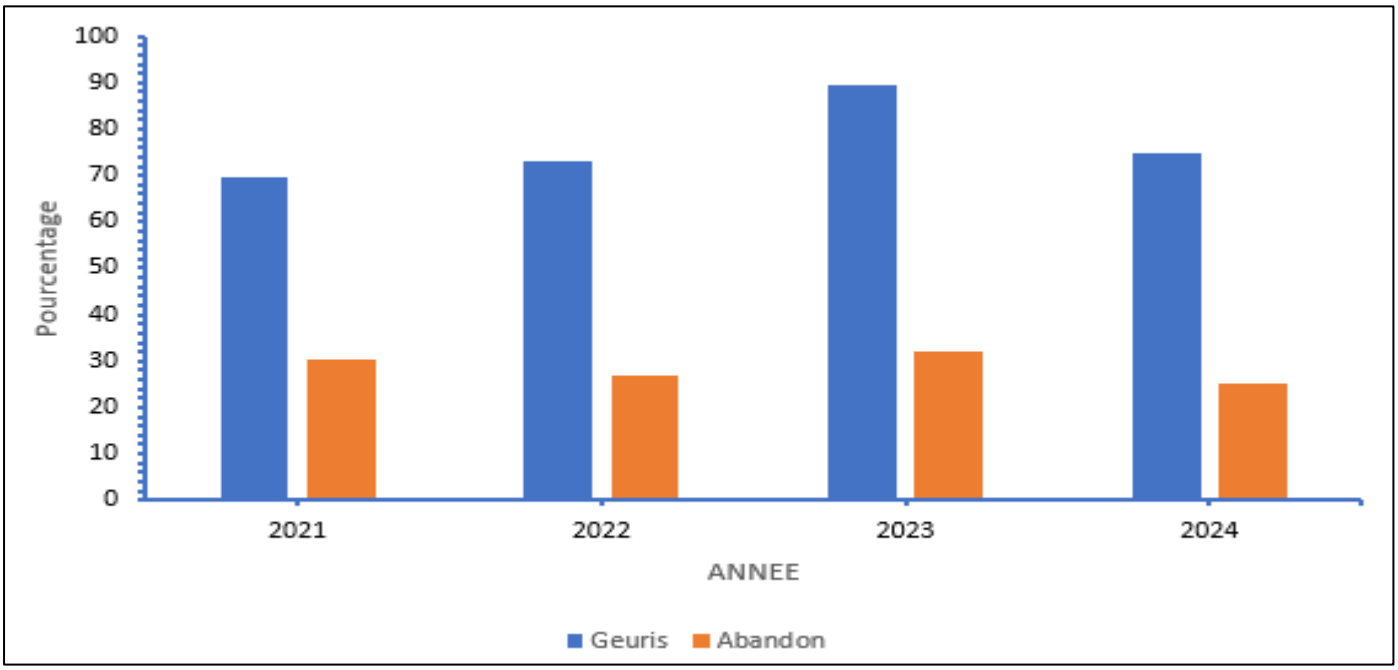

Fig 2 Distribution of Cure Rates and Discontinuations by Year

The highest recovery rate was observed in the year 2023 (89.50%) and the lowest in 2021 (69.50%) and the majority of dropout rates were observed in 2023 (31.88%).

IV. DISCUSSIONS

➢ *Determination of the Frequency of Severe Acute Malnutrition without Complications Among Children Aged 6-59 Months in the Fakola Health Area from 2021 to 2024*

We obtained a sex ratio of 0.90. On the other hand, this result is lower than that of Dembélé I1 et al in 2019 in Mali, sex ratio of 1.04[8] This could be explained by the high sample size of our sample compared to their sample.

➢ *Description of the Socio-Democratic and Clinical Characteristics of Severely Acutely Malnourished Children*

In our study, the female was the most represented, i.e. 53%, and a sex ratio of 0.90 without any gender significance. By account, this result, combined with that of Mr. Aboubacar Sidiki N'Faly BAGAYOKO et al in 2018, had obtained 56.5% female and a sex ratio of 0.77[9] The age group of 6-23 months was the most represented (89%). However, for Dembélé I1 et al in 2019 in Mali, the 6 to 23 months were the most affected by severe acute malnutrition, i.e. 56.72%[8] This could be explained by the size of our sample that is greater than their sample. In another study conducted by *1 DJIMOUKO Sabine et al in 2025 in Chad, the 13 to 24 month age group (66%) were the most exposed to the effects of SAM([10] This could be explained by the way in which the distribution by age group is made. Children who had a good appetite test were the most represented at 53%. This result is the opposite of that of Mr. Aboubacar Sidiki N'Faly BAGAYOKO et al in 2018, who had a higher average appetite test of 11.9%[9] This could be explained by the general condition of our patients on admission. For the living parent status, we obtained 95.73%. This result also collaborated with that of Mr. Aboubacar Sidiki N'Faly BAGAYOKO et al in 2018, who had obtained 96%[9] We obtained a mean age of 13.29 months and a standard deviation of 6.89. This result was in collaboration with that of Nicaise ZAGRE3,4, et al in Burkina Faso in 2017, who had obtained a mean age of 13.87 ± 6.85 months[11] In another study also by Abdoul Salam Diarra* 1 et al in 2025 in Mali, the average age was 25.75±16.85 mois[12] By account, this result is different from that of our and this could be explained by the level of care. Our mean height was 67.42 cm and a standard deviation of 7.02.This result is similar to that of Nicaise ZAGRE3,4, et al in Burkina Faso in 2017, who had obtained an average height of 70.60±6.60 cm [11] The mean upper arm circumference was 108 and had a standard deviation of 15. This result is lower than that of Nicaise ZAGRE3,4, et al in Burkina Faso in 2017, who had obtained a median upper arm circumference of 11.23±1.21cm[11] This could be explained by the general condition of our patients on admission. We got an average length of stay and 67 days. This result is lower than that of Nicaise ZAGRE3,4, et al in Burkina Faso in 2017, who had obtained 55.65 ± 59.10 days[11] This could be explained by the general condition of our patients on admission. In our study, the mother village of the health area (Fakola) was the most represented with 51%. This result is the opposite of that of Mr. Aboubacar Sidiki N'Faly BAGAYOKO et al in 2018, whose mother village was not the most represented with 16.17% followed by the village of

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Kalabougou 22.6%[9] This could be explained by the fact that the closest to this population than the other villages.

➢ *Determination of the Cure Rate and Abandonment*

We obtained an unacceptable cure and dropout rate, of 75% and 25% respectively. This result is acceptable compared to that of Konaté S1 et al in Mali in 2022, which had a cure and dropout rate of 67% and 27.5%, respectively[13] In a study also reported by Jean Axel T. KABORE1* et al in 2025 in Burkina Faso, the dropout rate for children suffering from severe acute malnutrition was de 89,7%, le taux de guérison de 10,4 % [14]. Cela pourrait s'expliqué par le niveau de prise en charge et la qualité de prise en charge de notre structure.

➢ *Dissemination of Results:*

The results of the study were presented to health authorities and the community. It was also presented at the International Scientific Congress of Public Health in Mali under the number CO104 and at the International Scientific Congress of the Burkinabe Society of Public Health under the reference number of 461 and currently being published in your scientific journal.

- Authors' Contribution: All authors contributed to this work.
- Conflict of Interest: None.

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