

EVALUATION OF THE DEGREE OF SEVERITY OF MALNUTRITION AMONG MALNOURISHED CHILDREN UNDER FIVE YEARS OF AGE IN THE PLATEAU OF ABOMEY



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RESUME

Background: Malnutrition is defined as a failure to adapt food to the living conditions of an individual or a population. It is directly or indirectly responsible for 60% of these deaths. **Methods:** This is a cross-sectional survey with a descriptive and analytical purpose, using questionnaires and anthropometric measurements targeted at 110 children under the age of 5. Several types of data were collected: anthropometric and health data of children as well as socio-economic data of households. The prevalence of different forms of malnutrition in children was determined from these data. **Results:** From the results obtained, it appears that almost all children (99%) were wasted (thinning), 40% were stunted and 71.82% were underweight. The survey on children's food consumption showed that the majority of children were taking cereal porridge before the age of 6 months. Also, the children suffered from at least one common childhood illness. **Conclusion:** According to our results, poor weaning practices, illnesses and low level of education of mothers are the associated determinants of malnutrition observed in children under 5 years of age seen in the two health facilities during the study period.

Key words: Nutritional status, malnutrition, wasting, underweight, weaning.

1. INTRODUCTION

Malnutrition is defined as a failure to adapt food to the living conditions of an individual or a population [1]. It kills silently and perpetuates poverty. More than 10 million children under the age of five die every year in the world [2]. It is directly or indirectly responsible for 60% of these deaths. More than two-thirds of these deaths are often associated with inappropriate feeding practices and occur in the first year of life [1]. In Africa, the prevalence of stunting is 40% and underweight is 25% [3]. In Benin, as in most developing countries, malnutrition is one of the major public health and welfare problems affecting young children. It is as much the result of inadequate nutrition as of a poor sanitary environment. The prevalence of underweight children under five years of age is an indicator for monitoring the Millennium Development Goal (MDG) of reducing by half the proportion of people who suffer from hunger [4]. In Benin, malnutrition causes a loss of growth of three percent (3%) of GDP [5]. Thus, the objective of this study is to evaluate the severity of malnutrition in children under five years of age who are seen at the Saint Camille health center in Davougou and at the CHD/Zou-Collines in the Abomey plateau (Benin).

2. MATERIALS AND METHODS

2.1 Setting

The present research work took place in two different health centers in the commune of Abomey, namely: the "Saint Camille" Health Center in Davougou and the Zou/Collines Departmental Hospital Center.

2.2 Equipment

The equipment used for this study consisted of weight measurement equipment, height measurement equipment and data collection equipment.

- Weight-taking equipment

In order to carry out weighings in accordance with the WHO standards, we used a FIRST NEW LIFE ENGLAND type baby scale with an accuracy of 100 g and a CAMRY type personal scale with an accuracy of 100 g.

- Height measuring equipment

To perform height measurements according to the WHO standards, a horizontal scale with an accuracy of 1 mm and a vertical scale with an accuracy of 1 mm were used.

2.3 Data collection materials

A pre-designed survey form was used that took into account the different aspects of our study.

2.4 Methods

The methodology used to carry out this work consisted firstly of collecting data, i.e. taking anthropometric parameters of the children and collecting information on their diet. Secondly, it consisted in processing the collected data in order to determine the nutritional status and the causes of malnutrition in these children.

2.4.1 Data collection

The data were collected on weekdays from 8:00 am to 4:00 pm. The study population was represented by malnourished children under five years of age who were seen in these health centers.

2.4.2 Anthropometric measurements

Anthropometric measurements such as weight and height were collected in order to calculate the corresponding anthropometric indices such as: Weight-for-Age (WFA), Height-for-Age (HFA) and Weight-for-Height (W/H).

2.4.3 Data entry and processing

All anthropometric data were entered into a nutritional surveillance file, created using WHO Anthro® software version 3.2.2. This software establishes the value in percentage and z-score of each parameter for a studied population. It gives in graphical form the distributions for each anthropometric index of the population in relation to the WHO Standards. The data processing was done with the WHO Anthro® Version 3.2.2 software and the software (Epi info).



Photo 1: Physical appearance of malnourished children. Source: photo by Akpoli, 2014.

3. RESULTS

1. General characterization of the study population

Figures 1, 2, 3 and 4 show the distribution of malnourished children according to sex, age, mother's education level and weight-for-height ratio. The analysis of these results shows that female children were the most represented, i.e. 53.73% (figure 1). The majority of the children in our study were between 24 and 35 months of age (35%) (Figure 2). Almost all the mothers have no education (90%) (Figure 3). The analysis of figure 4 shows that more than 99% of the children surveyed suffer from wasting.

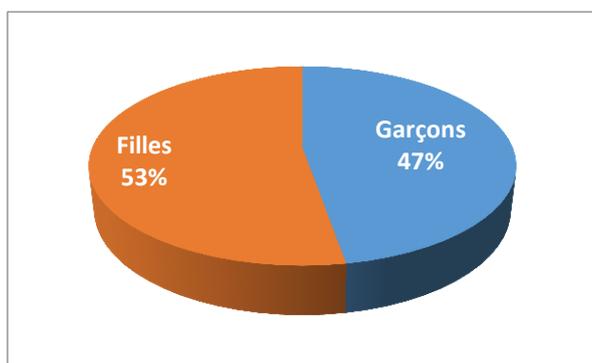


Figure 1: Distribution of children by gender.

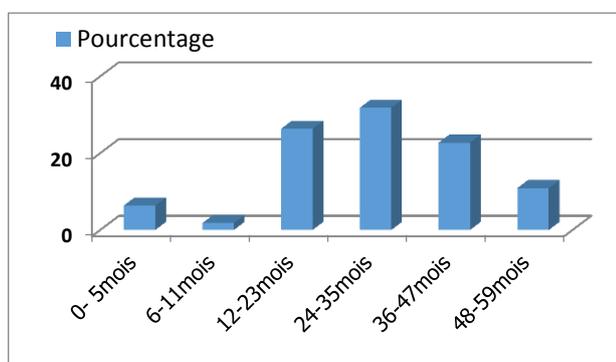


Figure 2: Distribution of children by age group.

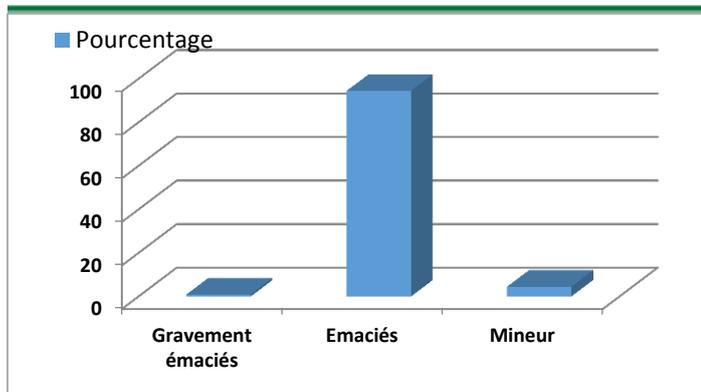


Figure 3: Distribution of children according to the educational level of their mothers.

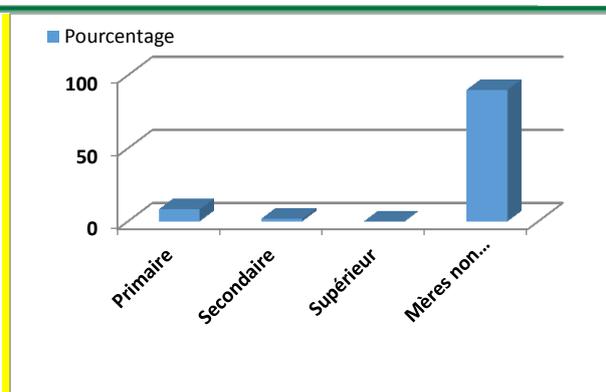


Figure 4: Distribution of children by weight-for-height ratio (W/F).

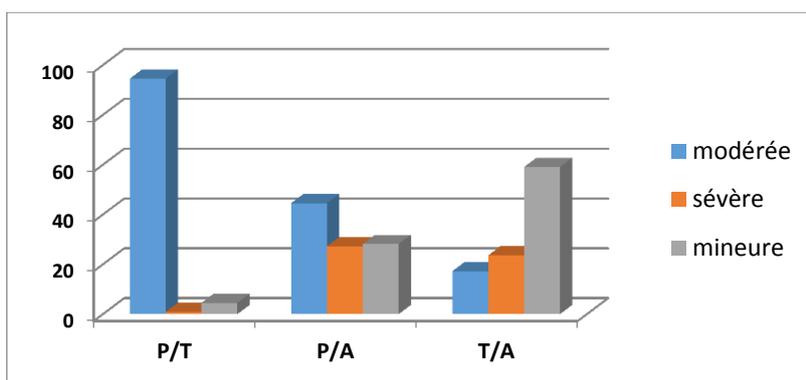


Figure 5: Evolution of nutritional status by P/T, P/A and T/A z-scores.

2. Determination of malnutrition in the population

Tables 1, 2 and 3 show respectively the distribution of children according to the age of introduction of the porridge, the age of weaning and the health status of the children. The analysis of the table showed that 63.63% of the children in our survey took the simple porridge between 4 and 6 months, 32.73% took it at less than 4 months. Only 3.64% took the simple porridge after 6 months. Table 2 reveals that 69.09% of the children underwent weaning at less than 24 months (< 24 months) versus 30.91% who underwent it at an age greater than or equal to 24 months (≥ 24 months). As for table 3, it revealed that 22.70% of children suffered from fever, 51% from diarrhea and 26.30% from acute respiratory infections during the two weeks prior to their arrival in the center.

Table 1: Distribution of children by age of introduction of cereal flour porridge alone.

Age of introduction of cereal flour porridge alone	(n)	(%)
< 4 mois	36	32.73
4 - 6 mois	70	63.63
>6 mois	4	3.64
Total	110	100

Table 2: Distribution of children according to age at weaning.

Weaning age	n(%)
< 24 mois	76(69.09)
≥ 24 mois	34 (30.90)
Total	110

Table 3: Prevalence of disease.

Diseases	n(%)
Fevers	25 (22.70)
Diarrhea	56 (51)
Acute respiratory infections	29 (26.30)
Total	110 (100)

4. DISCUSSION

According to the results, the study population is characterized by an almost equitable distribution of the two sexes. Nevertheless, the female sex is slightly more represented (53.73%) than the male sex, giving a ratio of 1.13. A study of the distribution of children by age group shows that more than 6% (6.36%) of the children seen in consultation are malnourished and aged between zero and five months. This should not happen if parents had followed the WHO instructions requiring exclusive breastfeeding for this age group [6]. The practice in this area of giving water and/or herbal tea to infants from birth could result in under-nutrition of the child. The water or tea may prevent the child from taking the necessary amount of breast milk [7]. Malnourished children aged 12 to 23 months represent 26.36% of the study population and are all weaned. The malnutrition observed in these children would certainly be related to poor weaning practices [8]. In fact, apart from the porridge based on differently enriched flours given to these children, the only substitute food is the family meal, which certainly does not meet the nutritional needs of these children's demanding bodies [9]. For the proper development of their organism, they need an increased intake of micronutrients and vitamins. The majority of malnourished children (31.82%) identified in our study were between 24 and 35 months of age. The malnutrition noted in these children can be explained by the fact that, wanting to go about their business, mothers leave these children to eat alone, which exposes them to flies, thus creating digestive disorders [3]. This type of child pathology observed during our study in the surveyed population is the result of lack of care, lack of information, poor hygiene practices observed in the parents and especially in the mothers of these children because of their level of education. In fact, nine out of ten mothers are not educated and the few who are have a level higher than primary school, which exposes them to a lack of knowledge of good hygiene practices and good weaning practices, which are unfortunately the primary cause of the malnutrition observed in their children [10]. According to the results of the survey, the rate of emaciated children is 99.1% in the study population. In other words, almost all the children surveyed suffer from emaciation [11]. The latter reflects acute malnutrition. According to the WHO classification scale, this prevalence is considered high and corresponds to a serious nutritional situation. It should be noted that despite the very low level of education of these mothers, they have the merit of bringing their children for consultation, which avoids cases of fatal malnutrition [12]. The prevalence of stunted children is 40%; at least one child out of three suffers from stunted growth. This corresponds to a situation of precariousness in the WHO classification [13]. The high prevalence of chronic malnutrition in this population can be explained by the combined effects of a number of factors, including inappropriate childcare practices, low household dietary diversity, the long lean period encountered in recent times often due to delayed rains associated with chronic or structural insecurity, poor infant and young child feeding practices (early introduction of family food in the child's diet, low frequency of breastfeeding), and poor domestic and personal hygiene practices [14]. The prevalence of underweight exceeds 70%, i.e. three out of four children. According to the WHO severity level, this prevalence is qualified as very high and the situation is classified as critical [13]. For this reason, the structures responsible for the care of malnourished children in these health centers spare no effort to try to recover these children at the risk of losing them [15]. The situation is even more dramatic for severely underweight children. Almost all of the children (96.36%) in our study take cereal flour porridge (millet or maize) [16]. Indeed, cereal flour porridge, which is the children's supplementary food, is essentially energy-rich and poor in building foods (proteins) and protective foods (minerals and vitamins). Also, the majority of children consuming porridge based on the three types of food take it before the age of 6 months, which calls into question the principle of exclusive breastfeeding for 6 months, so the practice of weaning would be one of the causes of this pathology [17].

5. CONCLUSION

This cross-sectional survey, which targeted 110 children, enabled us to classify malnourished children seen at the St Camille de Davougon health center and at the pediatric department of the CHD/Z-C. The results show that 72% of the children surveyed were underweight, 40% were stunted and 99% were emaciated. The analysis of the results allowed us to note that the determinants of this malnutrition observed in children are the poor weaning technique, the health status of the children and the drinking water. Several strategies must be considered to fight against this scourge; among others, the education of the population for good weaning techniques, good care of children's health and provisions for access to drinking water in a healthy environment.

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