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### RESEARCH ARTICLE

#### PREVALENCE OF MALNUTRITION AMONG CHILDREN UNDER 5 YEARS IN THE MUNICIPALITIES OF 2KP (KÉROU, KOUANDÉ AND PÉHUNCO) IN NORTHERN BENIN.

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#### Abstract

Malnutrition is the set of disorders / conditions resulting from the deficiency or excess of one or more essential nutrients. It is a public health problem in many developing countries. In order to reduce the prevalence of malnutrition in a community, it is important to describe the nutritional status of the community and to look for the determinants of this situation. In view of the damage caused by this pathology, we were interested in determining the prevalence of malnutrition among children under five in 2KP communes. It is a prospective, descriptive and analytical study in which we collected the anthropometric measurements of 600 children and submitted their mothers to a questionnaire. The results show that the three forms of undernutrition are still present with 64.8% of stunted children, 11% of underweight children and 2% of emaciated children. Moreover, the dietary diversity scores recorded among the surveyed households are mostly low. The factors identified as responsible are, among others, the non respect of the principle of exclusive breastfeeding, the bad practices of weaning, the diseases. In sum, the very high level of stunting is indicative of chronic food insecurity. It urges an awakening of consciousness of the different actors involved in the fight against malnutrition for an improvement of the nutritional status of children in 2KP.

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#### Introduction:-

Under-nutrition is responsible for more than one-third of all deaths of children under five. It weakens children and worsens the effects of diseases that strike them. Undernutrition is a public health problem in the developing world: 90% of stunted children live in Africa and Asia (UNICEF, 2009). In Benin, 4.7% of children aged 6 to 59 months suffer from wasting, including 0.7% of severe cases.

Atacora is the most affected department with 7.8% of emaciated children, which reflects a poor nutritional situation according to the thresholds established by the WHO (WHO, 2006). Underweight affects 17.3% of children under 5 in Benin. Atacora is one of the departments where this prevalence is very high at 22.5% (AGVSAN, 2009). At the national level, 37% of children aged 6 to 59 months suffer from chronic malnutrition, 12% of which are severe cases. In Atacora, the prevalence even exceeds the critical threshold of 40% or 42.8% (AVGSAN, 2009). This level

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of chronic malnutrition is considered high and indicative of chronic food insecurity. Indeed, according to the report of the Global Analysis and Vulnerability in Food Security (AGVSA, 2014), 48% of households in the department of Atacora had inadequate food consumption that did not allow them to lead healthy and active lives while this problem affected only 23% of households nationally. In addition, Atacora is among the Departments with the highest rates of food insecurity (AGVSA, 2014). Also, it is not easy to see that all the strategies carried out on the ground to fight this scourge have remained vain because the prevalence of the various forms of malnutrition remain high in this zone.

In view of all the above, we proposed to evaluate the nutritional status of children under 5 years in three (03) Atacora Municipalities: Kérou, Kouandé and Péhunco (2KP), to identify the determinants of these malnutritations in order to improve the nutritional situation of the populations.

### **Material and Methods:-**

The study was conducted in the communes of Kérou, Kouandé and Péhunco (2KP) located in northwestern Benin and more precisely in the Atacora department (Figure 1). This is a prospective, descriptive and analytical study, which ran from July to October 2015, during which we collected the anthropometric measurements of 600 children under 5 years and submitted their mothers to a questionnaire. elaborated for this purpose. The size of the sample was determined from the Schwartz formula (1995). In the field, households are randomly determined in each district using the standard method. Demographic data for the identification of clusters in the area are provided by RGPH4 (2013)

### **Anthropometric measurements:-**

The weight of the children was collected by means of a suspended scale of Salter WeighStonx type of 25kg range divided by 100 grams. The height was taken using a 0.1 cm precision Sonatometer for all children. For children under two, the board has been placed horizontally on a flat surface parallel to the floor. For children 2 to 5 years old, the measurement was done while standing. Age was determined from the birth certificate extracts, and especially the children's health notebooks and mother's maternity notebooks or using the method based on the chronology of births socio-cultural events. Anthropometric measurements are used to characterize the nutritional status of the study population.

Data analysis: Nutritional Status Assessment: The P / T (Weight for Height), T / A (Age Size), P / A (Weight for Age) Indices were calculated based on WHO references (ONIS and al., 2006). Thus, there is respectively emaciation, stunting or underweight when P / T is below -2 ET, T / A is below -2 ET, P / A is below -2 ET of the reference median. Note that when Z-score is below -3ET, the associated malnutrition problem is considered severe. Dietary diversity score: The dietary diversity score of the child was calculated according to the construction of the MOURSI et al (2008) and Fanta (2006) score. Thus, children were classified in low dietary diversity (score 1-2), average (score 3-4) and high (score 5-6 and above).

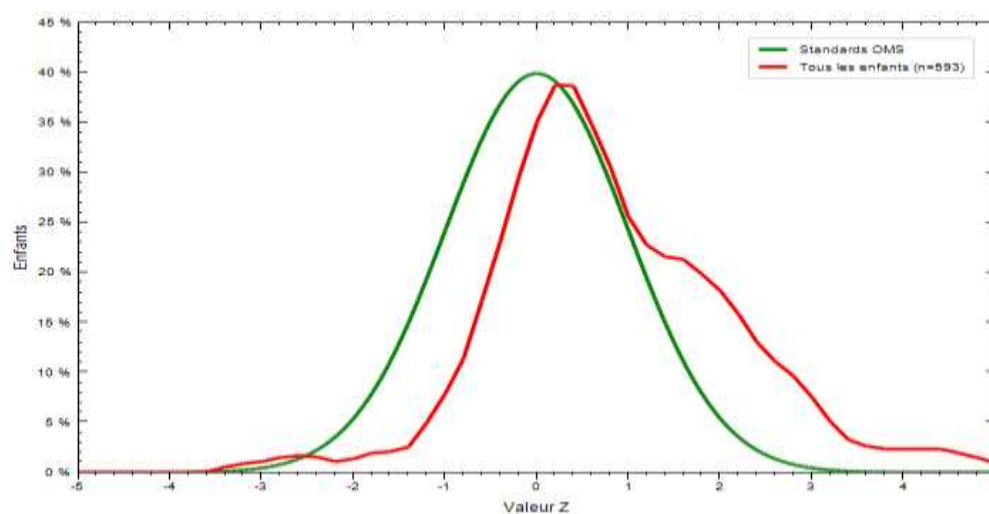
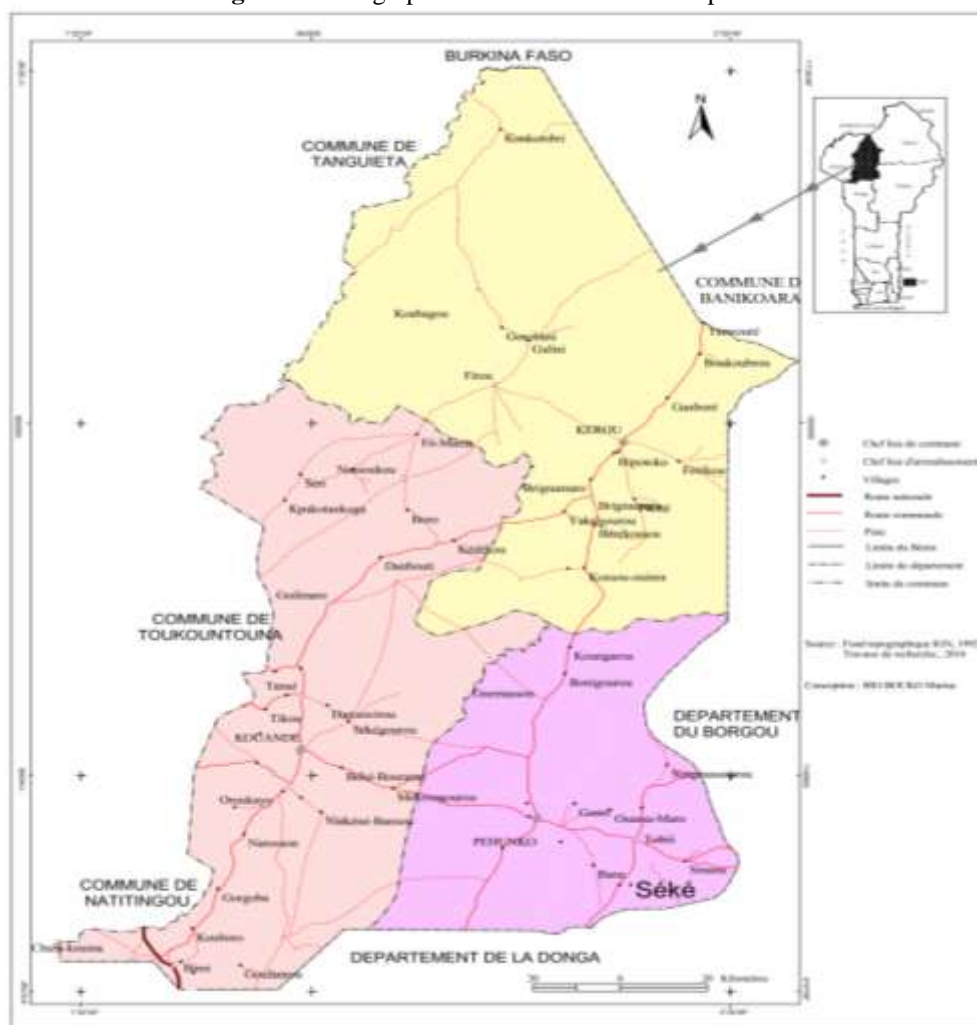
Statistical Processing and Analysis of Data: Data processing was done using Excel, WHO Anthro® Version 3.2.2, 2011 and SPSS. The chi-square test in uni-varied analysis was used to look for an association between the various factors and the nutritional status of the children. The higher the chi2 value, the less significant the test ( $p < 0, 05$ ).

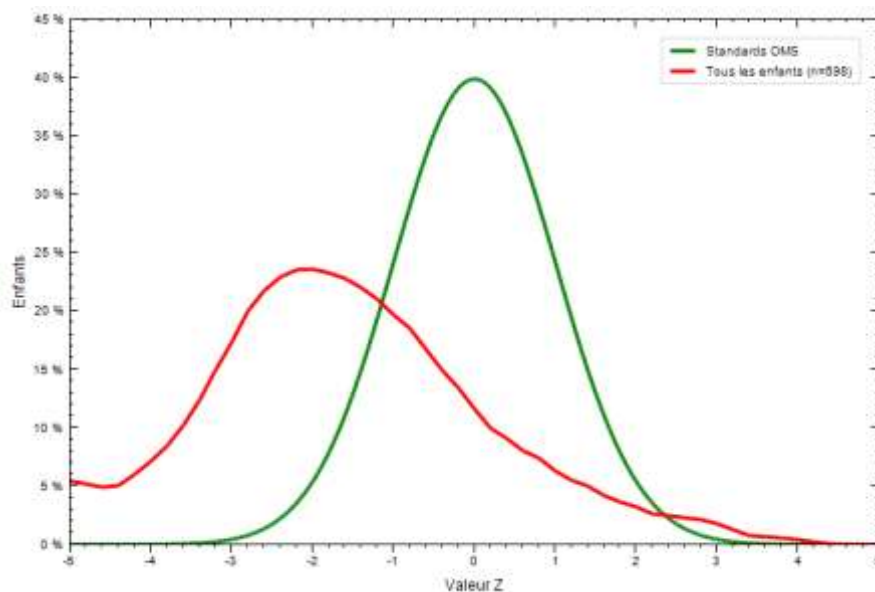
Ethical considerations: The investigation was carried out after the authorization of the politico-administrative officials of the concerned Communes. The people surveyed gave their consent orally for their participation in the study.

### **Results:-**

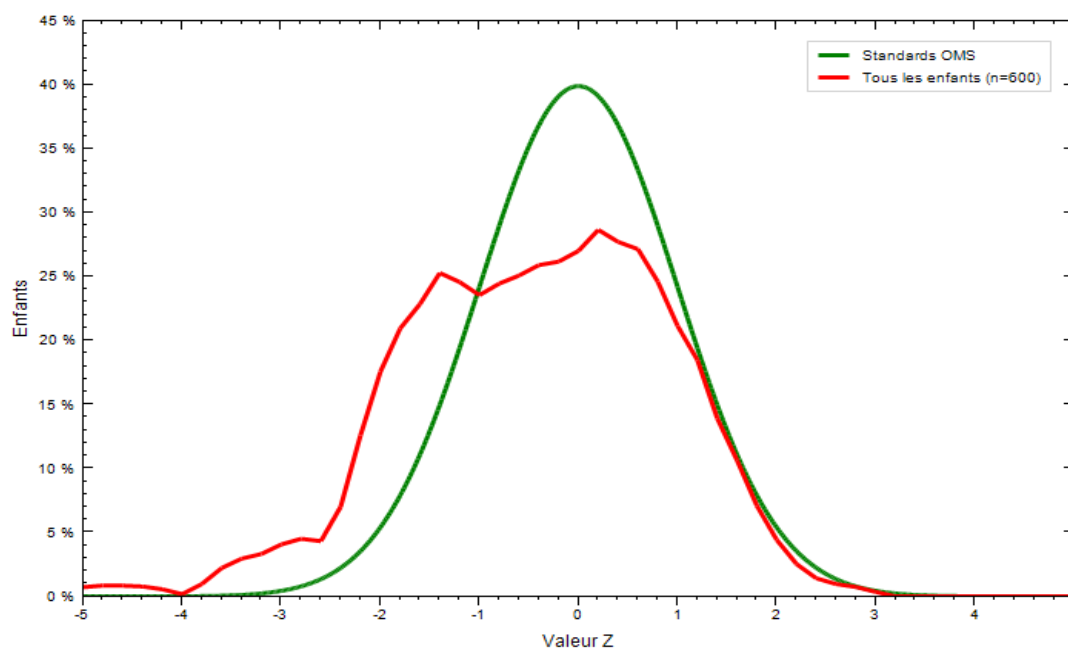
Of a total of 600 predominantly male children under 5 years (sex ratio 1.08), 2% were wasted, 64.8% were stunted and 11% were underweight. In addition, 33% of children have a low dietary diversity score, 38% an average score and 29% have a high diversity score.

The distribution curves of the surveyed population compared to the respective reference curves are shifted to the left for the T / A and P / A curves (Figure 3, Figure 4) and to the right for the P / T curve (Figure 2). The different chi-square tests have showed a significant relationship between weaning practices, diseases, dietary diversity of children and the three forms of undernutrition.

**Figure 1:-** Geographic location of 2KP municipalities.**Figure 2:-** Distribution of the Weight / Size (P / T) index in z-score relative to the reference population



**Figure 3:-** Distribution of the Size / Age (T / A) index in z-score relative to the reference population



**Figure 4:-** Distribution of the Weight / Age (P / A) index in z-score relative to the reference population.

## Discussion:-

### Nutritional status of the surveyed population:-

The results show that 64.8% of children are stunted, 11% are underweight and 2% are wasted. These results are superior to those obtained by Yessoufou and al. (2014) in the Communes of the Pendjari Plain (Cobly, Materi and Tanguieta) regarding stunting. On the other hand, the results are inferior to those obtained by these authors in the same area for emaciation and underweight. This difference could be explained by the survey period and / or the degree of food insecurity in each area of the Atacora Department. Moreover, the results are superior to those of the EMICOV (2010) and SMART (2015) surveys carried out in the Atacora Department with regard to stunting on the one hand, and lower on both (02) other forms of undernutrition. According to the WHO (2006), the prevalence thresholds for each of three forms of undernutrition must be less than: 20% for Growth retardation, 5% for wasting

and finally 10% for PI, which makes think of a critical situation with regard to stunting and poor for underweight. On the other hand, the nutritional situation for emaciation is acceptable in 2KP. Therefore, it is not useful to point out that the low prevalence observed at the level of wasting could be justified by the period of food abundance of the survey.

The comparison of the different Z-score P / A, T / A distribution curves with the respective reference curves, showed that these curves were shifted to the left compared to the reference curves, which indicates a less satisfactory nutritional state. in relation to that of the reference population evoking a tendency to a state of under-nutrition, as several authors have pointed out (Yessoufou and al., 2015; Yessoufou and al., 2016). On the other hand, the distribution curve Z-score P / T is slightly shifted to the right at the reference curve, which is confirmed by a very low prevalence for this form of malnutrition in the study population.

#### **Factors involved in the nutritional situation of children:-**

A statistically significant association was observed between nutritional status and dietary diversity of children. This corresponds to the results obtained by several authors: Yessoufou and al. (2014) in the Pendjari Plain, Kennedy and al. (2007) in the Philippines and Laoda and al. (2009) in Burkina Faso. On the other hand, other studies have revealed that there is no relationship between nutritional status and dietary diversity such as that of Abomey-Calavi in southern Benin (Yessoufou and al., 2016) and that carried out in Senegal ( Nyambose, 2005). These differences could be explained by the socio-economic characteristics of the populations in the survey area and / or the period during which the survey was conducted. Moreover, a significant relationship was established between the three forms of undernutrition and the disrespect of the principle of exclusive breastfeeding during the first six months of life on the one hand, and diseases on the other hand. Indeed, breastfeeding is a safe and hygienic source of sufficient energy, nutrients and liquids. Failure to respect this principle by mothers could also expose children to the most fatal diseases involving different forms of malnutrition, as several authors have pointed out (Barthélémy, 2002, Koné, 2008, Yessoufou and al., 2014).

#### **Conclusion:-**

In sum, the very high level of stunting is indicative of chronic food insecurity in the 2KP municipalities. This situation calls on all actors to enhance the benefits of appropriate actions aimed at considerably reducing the rate of this scourge.

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