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RESEARCH ARTICLE

IMPACT OF MOTHER DIET PRACTICE ON THE NUTRITIONAL STATUTE OF THEIR CHILDREN AGED 0 TO 36 MONTHS

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ABSTRACT

In spite of the efforts carried out by the Cameroonian government and international partners to resolve the problem of malnutrition, the rate of malnutrition remains high in the Adamawa region in particular where the prevalence of acute malnutrition in children aged 6 to 59 months is 5.1%. A case-control study of the impact of mother diet practice on the nutritional statute of their children aged 0 to 36 months realized at the Regional Hospital of Ngaoundéré enrolled 155 couple of mother and child (75 cases and 80 controls). The nutritional indicators, weight/height, and information's concerning maternal breastfeed practice and dietary supplements were collected and compared between the case and control groups. Nutritional practices that impacts the unexpected arrival of malnutrition are: non-exclusive mother breastfeed from birth to the age of 6 months ($p=0.001$), breastfeed of new born babies 24 hours after birth ($p=0.001$), early introduction of supplementary food in the diet of children ($p=0.003$), consumption of baby food of weaning non enriched ($p=0.01$) and the consumption of tea by children ($p=0.004$). Changing these bad habits of dietary practices of mothers will help prevent and treat malnutrition in children.

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INTRODUCTION

Malnutrition has become a public health issue in the world now our days. Children below 5 years constitute the most vulnerable groups (UNICEF, 2013; Ohiniba and Dorothée (2012); WHO, 2012). In fact, 55 million children aged below 5 years in the world suffer from acute malnutrition among which 19 million suffers from the severe form of malnutrition (WHO, 2012). Thus, it is directly or indirectly responsible for 60% of the 10.9 million deaths of children of less than 5 years. In sub-Saharan Africa, 40% of children below 5 years suffers from late growth, 21% (30 million) suffers from insufficient weight and 9% suffers from emaciation (UNICEF, 2013). In the same vein, the probability of a child to die before the age of 5 years is 15 times greater in less developed countries than in developed countries. In Cameroon, according to EDS-MICS (2014), 5.2% of children below 5 years are suffering from acute malnutrition of which 1.3% are affected by the severe form. In the Adamawa region, the prevalence of acute malnutrition is 5.1% (SMART, 2014). The dietary practices in young children is as a result of a series of habits developed by mothers. These practices are fundamental and important for the survival and harmonious development of children (WHO, 1997).

The first two years of a child is particularly very important because an optimal alimentation during this period will as a result reduce the rate of morbidity and mortality and thus decrease the risk of chronic diseases contributing to a better development in general (WHO, 2015). During this period, the child goes from a milky (liquid) diet to a diversify semi-liquid and then solid diet (Benoist and al, 1995). Mother Breastfeed and dietary complements are two closely linked steps. However, bad alimentary practices of the child such as inadequate breastfeed (non-exclusive maternal breastfeed), the introduction of inadequate food supplement with age and the consumption of poor aliments in micronutrients have as a consequence the appearance of all forms of malnutrition (marasmus, kwashiorkor, anemia) in children and thus exposes them to multiple infections. These inadequate dietary practices have immediate negative consequences on health and with time, consequences on the development and growth of the child (USAID/AED, 1999). The general objective of this study was to examine the influence of mother dietary practices on the nutritional statute of their children aged 0 to 36 months.

MATERIALS AND METHODS

It is a case-control study carried out with mothers and their children aged 0 to 36 months without distinction of sex visiting the pediatric Regional Hospital of Ngaoundéré. Only mothers that never breastfed their children were not included in the study.

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This study took place within a period of 5 months going from September 6, 2015 to February 28, 2016. A total couple of 155 mother and child took part to the study. Data collection was carried out in two phases: the first phase concerned anthropometric parameters of the child (height, weight, brachial perimeter) and the second phase concerned a questionnaire addressed to mothers. The following Software were used for the treatment and analysis of data: Sphinx-plus², Stat graphics 5.0, SPSS 16.0 and ENA for SMART. Sphinx-plus² was used for the elaboration of questionnaires. The determination of the nutritional statute of children was carried out based on the following indicators: weight/height, z-score and brachial perimeter. The index were evaluated according to the reference norm NCHS/WHO-2006 of ENA for SMART. Stat graphics 5.0 permitted us to realize comparison test and SPSS 16.0 permitted us to carry out link test. The statistic test of khi carré of Pearson was used to the threshold value of 5% to test the significance between the nutritional statute and factors that influences it.

RESULTS

General characteristics of the population sample

This part concerns the socio-demographic characteristics of the mother and child nutritional statute

Table 1. Distribution of mothers following their socio-demographic characteristic

Characteristics	Number (n)	Percentage (%)	
Mother age (years)	Less than 20 years	18	11,6%
	20-29 years	79	51,0%
	30-39 years	58	37,4%
	>40 years	0	0
Matrimonial statute of the mother	Single	15	9,7%
	Married	136	87,7%
	Divorce	3	1,9%
Matrimonial regime	Widow	1	0,6%
	Monogamy	101	65,2%
	polygamy	37	23,9%
Level of education	Non	55	35,5%
	Primary	33	21,3%
	Secondary	54	34,8%
	University	13	8,4%

Table 2. Distribution of children following their nutritional statute

Parameters	Malnourished children	Well nourished children	P
Weight (kg)	6,6 ± 1,8	10,6 ± 2,5	0,0004
Height (Cm)	70,3 ± 10,3	74,1 ± 7,6	0,01
Brachial perimeter (Cm)	11,6 ± 2	13,7 ± 0,8	2,23.10 ⁻⁷
Z-score (W/H)	-3,1 ± 1,9	0,3 ± 1,9	0,0001

P=probability of the significance of each parameter.

Socio-demographic characteristics of mothers

The table above shows that, the most represented group age of mothers was that between [20-29] years with a rate of 51%. The majority of mothers 87.7% are married with 65.2% in a monogamy regime; 54.2% of the mothers are housewives. The most part of the mothers are non-educated (35.5%).

Nutritional statute of children

From the table above, the average weight of children was 6.6±1.8 kg and 10.6±2.5 kg in malnourished children and well-nourished children respectively. The average brachial perimeter in the malnourish group was 11.6±2 cm and 13.7±0.8 cm in the well-nourished group.

The z-score is -3.1±1.9 in the malnourished group and 0.3±1.9 in the well-nourished group.

Moment of breastfeed after birth

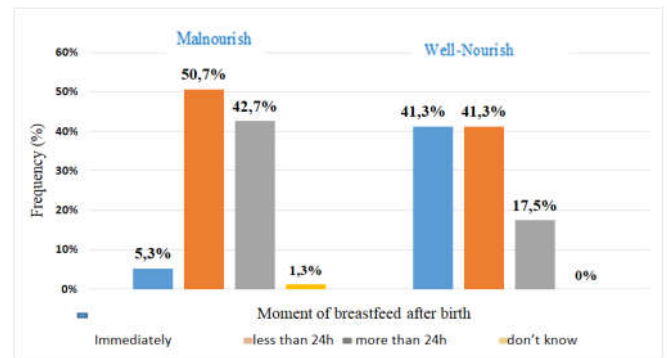


Figure 1. Distribution of children following the time moment of breastfeed after birth

This figure shows that only 5.3% of malnourished children were fed to breast immediately after birth against 41.3% of well-nourished children. Before 24 hours after birth, more than 80% of the well-nourished children were put to breast. Meanwhile, only 56% of the malnourished children were put to breast during the first 24 hours of birth.

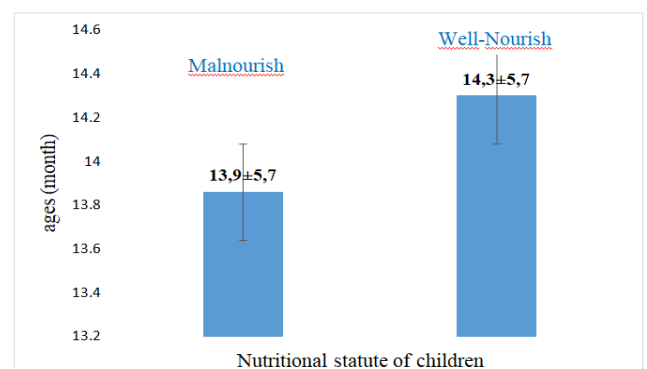


Figure 2. distribution of children following their average age of ab lactation

The above figure shows that, the average ab lactation ages of children lies between 14.3 ± 4.7 months for well-nourished and 13.9 ± 5.7 months for the malnourished.

Complimentary alimentation

Consumption of pre-milked liquids

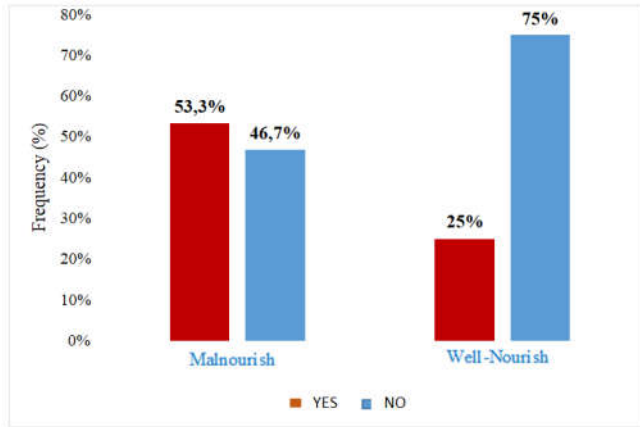


Figure 3. distribution of children following the consumption or non-consumption of pre-milked liquid preparations

Here, more than half of the malnourished children (53.3%) have taken other alimentary food (simple water, sugared water, artificial milk) at birth before maternal breastfeed against 25% of well-nourished children who have equally taken other foods. The prevalence of children who received liquid food before their first breastfeed is twice greater in the malnourish group than in the well-nourished group.

Nature of baby food of weaning

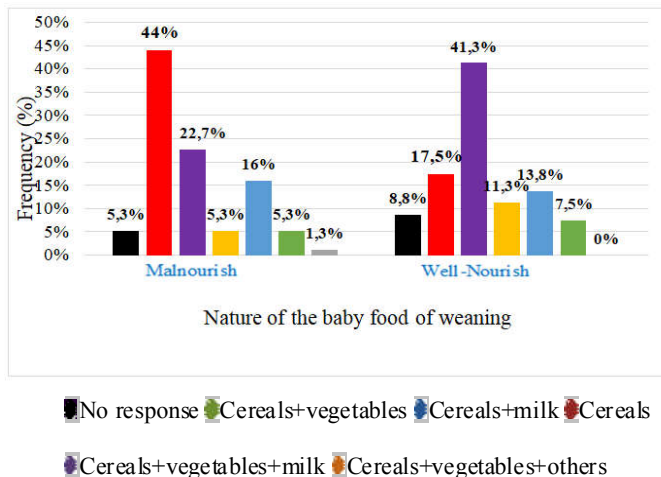


Figure 4. The distribution of children according to the nature of the gruel weaning

The figure above shows that almost 75% of the well-nourished children consumes enriched gruel against 49.3% of malnourished children. From the above figure, we notice that, the proportion of malnourished children (85.3%) that do not regularly (that is at least once a day) consumes fruits and vegetables is twice greater than the well-nourished children (45%). On the other hand, the proportion of children consuming regularly fruits and vegetables is 4 times greater in the well-nourished group (51.3%) than in the malnourish group (12%).

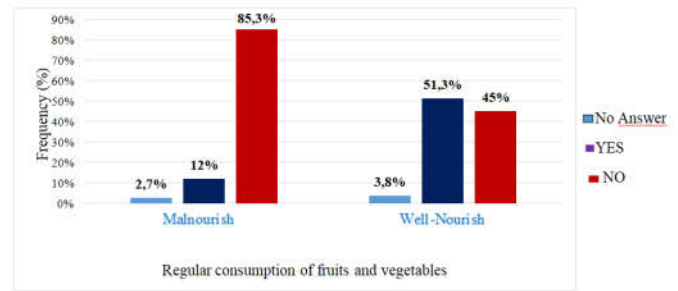


Figure 5. distribution of children following a regular consumption fruits and vegetables

DISCUSSION

Reported results shows that mother practices in terms of alimentation influences on the nutritional statute of children aged 0 to 36 months. The rate of exclusive maternal breastfeed during the first six months of childhood is two times greater in well-nourished children (46.2%) than in malnourished children (20%). Mixt mother breastfeed significantly impact the unexpected arrival of malnutrition ($p < 0.05$). This may be explained by the fact that, children under mixt breastfeed at this age taking equally artificial milk prepared not always following the required hygienic conditions, exposes them to chronic repeated infections. Moreover, only 5.3% of malnourished children were put to breast immediately after birth against 41.3% of well-nourished children. Early less than 24 hours, more than 80% of well-nourished children were already breastfed. Meanwhile in the malnourished group, we notice only 56% of the children that were breastfed during the first 24 hours of birth. The fact that children are breastfed late exposes them to malnutrition. This may be explained by the following arguments. The first argument is that, these children do not receive colostrum which is considered as a vaccine for children.

The second reason is that, at the place of colostrum, these children receives water (mineral, potable water, pit water, back water... etc) which is not nutritive and potential sources of infection. Besides, the period of introduction of supplementary foods in the diet of children is known that the nature of these complements influences the nutritional statute of the children. The supplementary food the most represented in this study was baby food (gruel) that is consumed by all the children and at all age groups. This study reveals that almost 75% of well-nourished children consumed enriched baby food (composed of cereals and vegetables) against 49.3% of malnourished children. Poor baby food in proteins, lipids and sources of micronutrients exposes children certainly to malnutrition. Moreover, the proportion of malnourished children (85.3%) that do not regularly consume fruits and vegetables is two time greater than well-nourished children (45%). Furthermore, the proportion of children consuming regularly fruits and vegetables is four times greater in well-nourished children (51.3%) than in the group of malnourished children (12%). In fact, above 6 months, the content in micronutrients of maternal breast is not sufficient to cover the child needs. If we just have to consider the three principal micronutrients that the infant of more than 6 months is more vulnerable to if it happens to be deficient in the body, that is calcium, iron and vitamin A, we notice that maternal breast covers just 10% of the needs in iron and less than 1/3 of the infant needs in vitamin A and calcium (WHO, 1989). Yet, a good consumption of fruits and

vegetables permits to cover the needs in carotenoid pro-vitamin A. Still, the addition of vegetables have an advantage to bring at once iron and vitamin A in a way that, the majority of vegetables rich in vitamin A are at the same time rich in iron. Besides the baby food of weaning, because of its composition that consist at mixing cereals or tubers and vegetables results to be poor in micronutrients particularly vitamin A, iron and calcium. We must add to the baby food cereals, one or two meals made of rich elements in iron or vitamin A as fruits, green vegetables and vegetables with yellow pulp (Benoist and al., 1995). In the absence of vitamins and minerals, lipids, glucose, and proteins brought by alimentation will be unusable. Vitamins and nutrients are indispensable for the good functioning of the organism.

Conclusion

Coming to the end of this study, where the general objective was to examine the influence of dietary practices of mothers on the nutritional statute of their children aged 0 to 36 months at the Regional Hospital of Ngaoundéré. This study reveals that, the matrimonial statute of children is negatively influenced not only by the negative practices in relation to maternal breastfeed but equally to the bad use of supplementary foods. Concerning practices related to maternal breastfeed, we can name factors that favor malnutrition such as: non-exclusive breastfeed from birth to 6 months, late put to breast of children after birth. For factors related to the supplementation of food, we can name the consumption of baby food of weaning not enriched and the non-regular consumption of fruits and vegetables. This design study permitted us to confirm the hypothesis that inadequate dietary practices from birth influences negatively the nutritional statute of children aged 0 to 36 months.

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