

Research Article

Influence of Maternal Eating Habits on Milk Composition and Growth of Infants Aged 0 to 24 Months at the Albert Royer National Children's Hospital (CHNEAR) in Dakar

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Abstract

Breastfeeding is recognized as the best source of nutrition for infants, but the quality of breast milk varies depending on the mother's diet. This study conducted at the Albert Royer National Children's Hospital (CHNEAR) in Dakar aims to assess the influence of maternal dietary habits on milk composition and infant growth. A cross-sectional survey was conducted among 30 breastfeeding mothers and their children aged 0 to 24 months. The results reveal that the majority of mothers had a diversified diet, with only 57% respecting three meals a day compared to 33%. According to the values obtained, there were more housewives (54%) compared to (13%) for those who were professionals. The study showed that 36.7% of infants weighed ≥ 7.2 kg, while 23.3% of infants weighed ≤ 7.2 kg. Certain cultural practices and the consumption of ultra-processed foods could compromise the nutritional quality of milk. The infants' weight and height growth were generally satisfactory, but digestive problems were observed in a minority of them. The study recommends increased awareness of the importance of a balanced diet during breastfeeding and highlights the need for the food industry to develop suitable fortified products within an ethical framework that respects public health recommendations.

Keywords

Breastfeeding, Maternal Diet, Breast Milk, Infant Growth, Food Industry, Nutrition

1. Introduction

Breastfeeding is recognized as the best source of nutrition for infants. It not only guarantees an optimal intake of essential nutrients, but also plays a decisive role in the child's immune, cognitive, and metabolic development [1]. However, the nutritional quality of breast milk is not uniform. It varies according to

several factors, among which the mother's eating habits occupy a central place [2]. In many African contexts, particularly in Senegal, the dietary practices of breastfeeding mothers are strongly influenced by socioeconomic, cultural, and environmental determinants. Between deep-rooted culinary traditions, popular

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beliefs, economic constraints, and limited access to reliable nutritional information, it sometimes becomes difficult for mothers to adopt a balanced diet capable of meeting their increased physiological needs and those of their infants [3]. However, an unbalanced or deficient diet can impact the composition of breast milk, thus altering its benefits on the growth and health of the child, particularly during the first six months [27]. Furthermore, the World Health Organization recommends exclusive breastfeeding during the first six months, practices observed in the field reveal significant gaps, both in terms of breastfeeding frequency and the age of introduction of complementary foods [4]. These gaps can harm optimal development in children, increasing the risks of malnutrition, growth retardation or digestive disorders. This study was conducted to explore the

impact of the eating habits of breastfeeding mothers on the quality of breast milk and child growth at the Albert Royer National Children's Hospital (CHNEAR) in Dakar.

2. Materials and Methods

2.1. Study Area

As part of our research, we chose to conduct our study at the Albert Royer National Children's Hospital (CHNEAR) in Dakar. This choice was not made by chance: it is integrated within the National University Hospital of Fann (CHNUF).

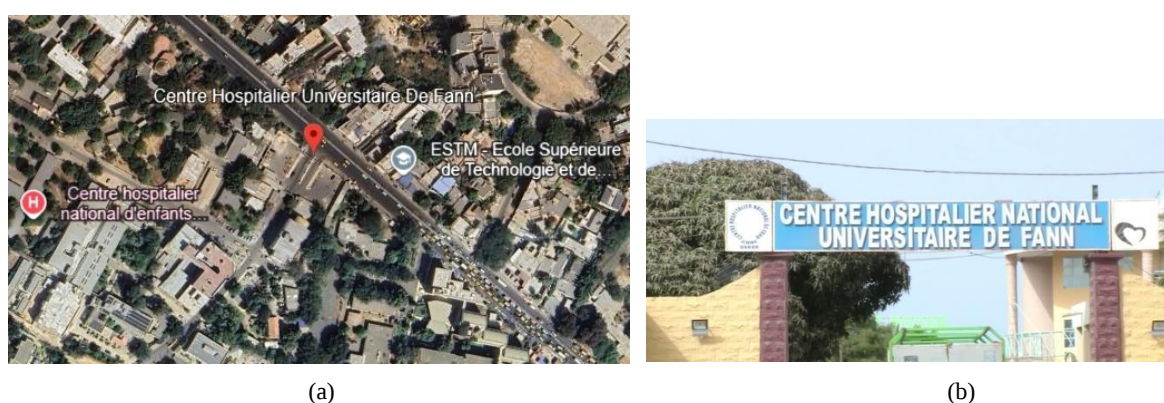


Figure 1. Location of the Albert Royer Hospital (a) in Dakar (a) and (b) the front door.

2.2. Material

To ensure optimal monitoring of infants' growth and nutritional status, the following equipment is used:

Baby scale: This accurately measures an infant's weight, an essential indicator for assessing growth and nutritional status.

Shakir Band This tool is used to measure an infant's arm circumference, a key indicator for detecting malnutrition. A measurement below a certain threshold can signal a risk of acute malnutrition, allowing for rapid intervention to correct the situation.



Figure 2. Baby scale.

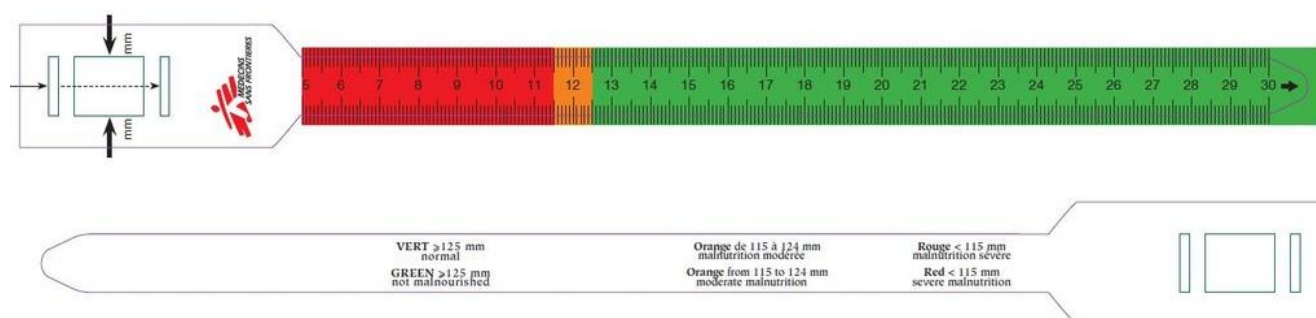


Figure 3. Shakire's Band.

Height Rod

It is used to measure the length of an infant in a lying position. This measurement is important for assessing the baby's height and weight growth and detecting possible growth delays related to nutritional deficiencies or health problems.



Figure 4. Height chart.

2.3. Methodology

Study Type: This is a cross-sectional observational study of breastfeeding mothers and their infants to examine the relationships between maternal dietary habits, milk composition, and infant growth.

Target Population: Participants will include breastfeeding mothers with different diets (omnivorous, vegan, etc.). Inclusion criteria will include infant age (under 12 months) and the absence of medical conditions affecting breastfeeding.

Data Collection: Dietary Questionnaires: To assess maternal dietary habits.

Anthropometric Measurements: To monitor infant weight and height to assess growth.

Statistical Analysis: Correlations will be established between dietary habits, milk composition, and infant growth indicators. Appropriate statistical tests (such as Sphinx, Excel) will be used to compare groups.

3. Results

Sociodemographic Characteristics

The average age of the children's mothers was 27 ± 1.5 years. 94.6% of the mothers were married, 78.9% were in a monogamous marriage, 71.5% were in school, and 69.6% of the mothers had more than two children in their care. **Figure 5** below shows the distribution of the population by mother's

age group. The results show that the majority of mothers were between 21 and 30 years old (43%), followed by 31 to 40 years old (30%). Results on education and occupation show that 10% of mothers had a primary education, while university, secondary, and illiterate mothers were equal at 30% each. However, housewife mothers were the most numerous (54%), followed by self-employed mothers (33%) and professionals were less represented (13%).

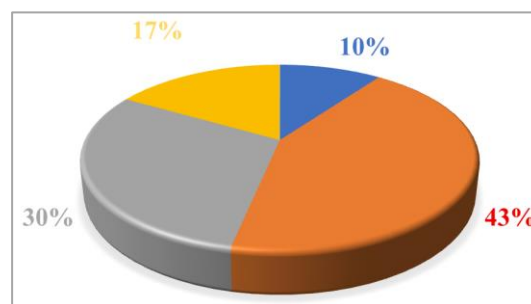


Figure 5. Distribution by age group of mothers.

Distribution by Meal Type and Number

Figure 6 shows that the majority of mothers surveyed (57%) consume three meals a day, a schedule generally consistent with traditional nutritional recommendations (breakfast, lunch, and dinner). However, 33% report consuming more than three meals a day, including snacks. Conversely, 10% of respondents consume only two meals a day, which could reflect economic constraints, poor appetite, or specific eating habits.

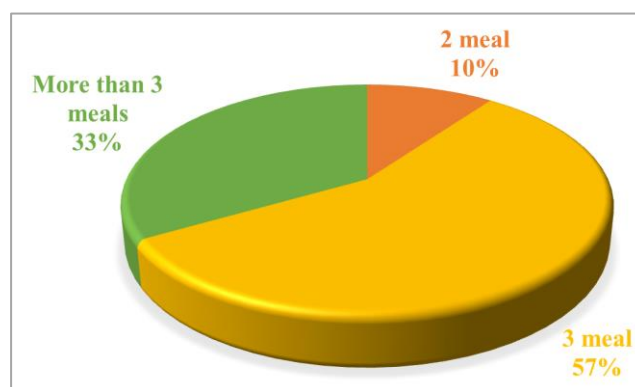


Figure 6. Distribution according to the number of meals.

Results by number of meals reveal that 90% of mothers consume meat and fish daily, 83.3% fruits and vegetables, 80% whole grains, and 66.7% dairy products. In contrast, 40% report consuming ultra-processed foods daily. This distribution reflects a predominantly diversified diet, although the significant consumption of ultra-processed foods may have negative implications on overall nutritional quality (**Figure 7**).

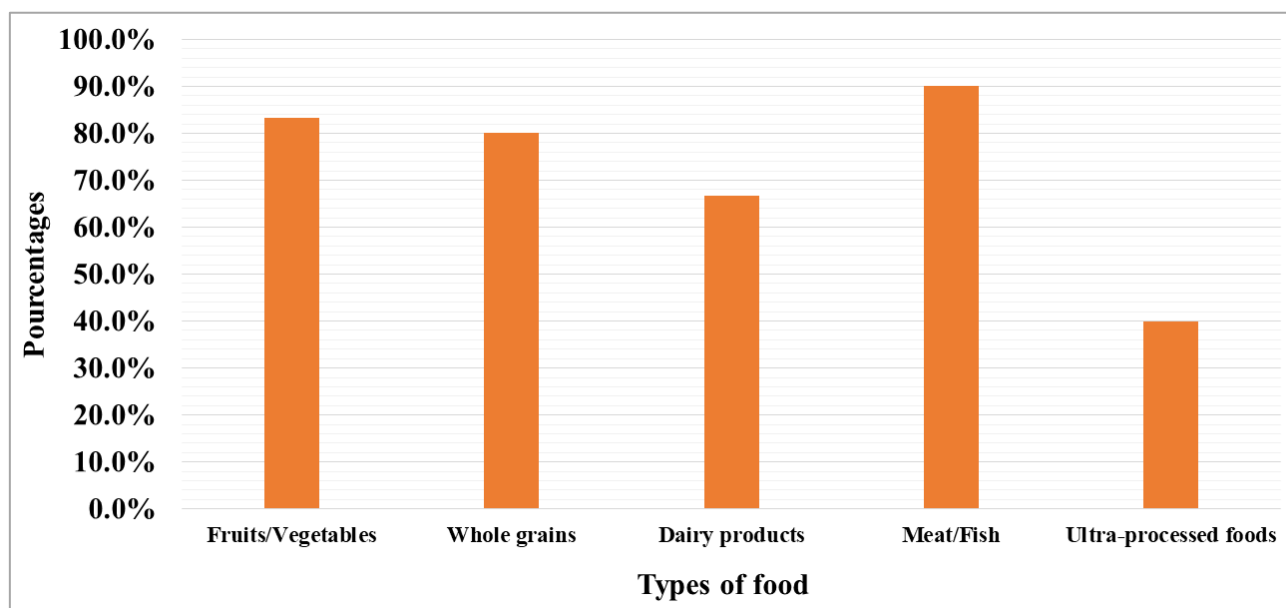


Figure 7. Distribution according to food types.

Distribution by nutritional supplements and dietary restrictions

The results revealed that 77% of mothers reported not taking nutritional supplements, compared to 23% who took

them. According to the surveys, 72% took both iron and magnesium supplements, compared to 14% who took only iron or only Niravet syrup.

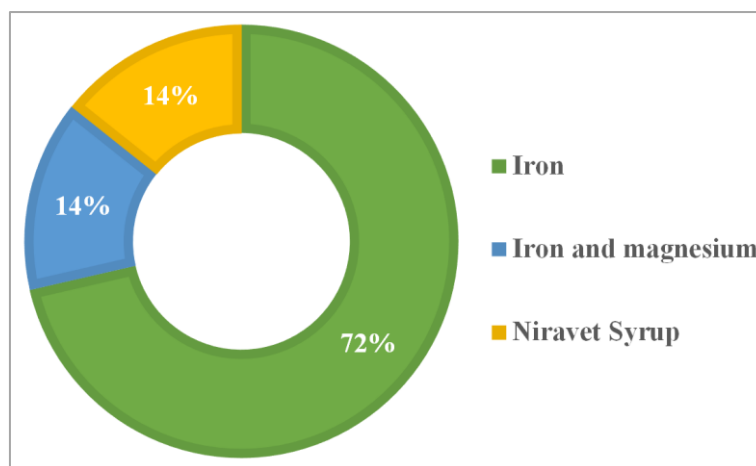


Figure 8. Distribution according to the type of nutritional supplements.

Distribution by Infant Age Group

Figure 9 shows the distribution of infants by age group in our study: 6.7% were between 0 and 6 months, 36.7% between 6 and 12 months, 46.7% between 12 and 18 months,

and 10% between 18 and 24 months. These results show that the majority of infants included in the study were between 12 and 18 months old.

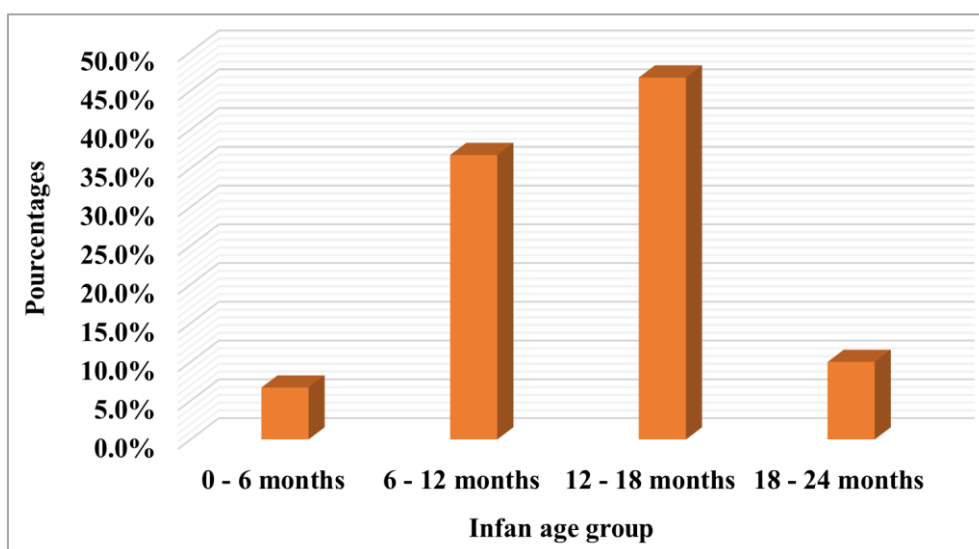


Figure 9. Distribution by age group of infants.

According to breastfeeding types and feeding frequencies

Figure 10 shows that the majority of infants monitored are exclusively breastfed, with a rate of 54%. Furthermore, 33% receive mixed feeding (breast milk and formula), while 13% are not breastfed. These results indicate a predominance of exclusive breastfeeding among the study population.

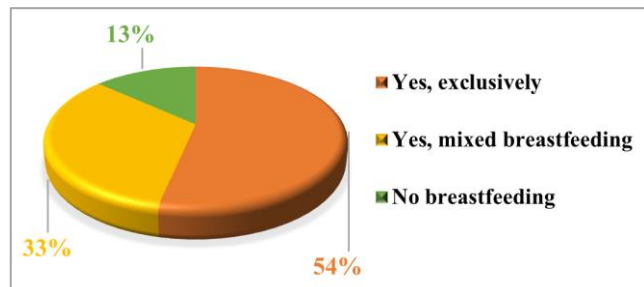


Figure 10. Distribution according to type of breastfeeding.

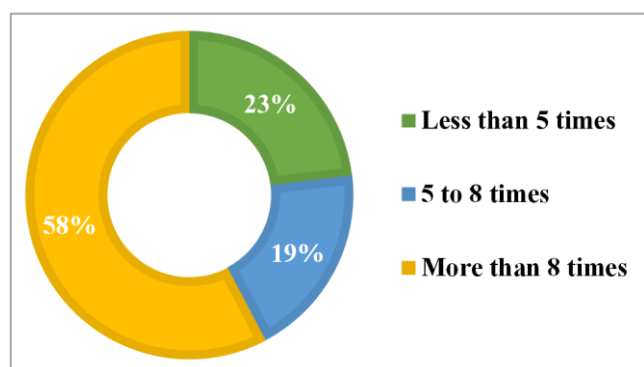


Figure 11. Distribution according to frequency of feedings.

The values showed that 58% of mothers breastfeed their

infants more than eight times a day, 19% between five and eight times, and 23% less than five times. These data suggest that the majority of mothers' breastfeeding frequency is consistent with recommendations, which recommend frequent feedings to stimulate lactation and meet the infant's nutritional needs (Figure 11).

By Age of Weaning

The results show that infants begin weaning primarily between 4 and 6 months, accounting for 60% of cases. Furthermore, 30% of infants began weaning after 6 months, while 10% began weaning before 4 months. These results reveal that the majority of mothers initiate weaning within the WHO-recommended window of 4 to 6 months (Figure 12).

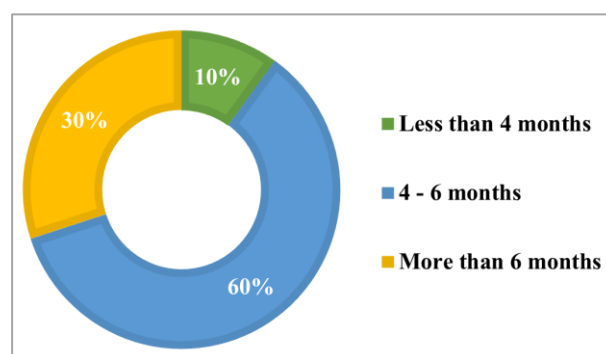


Figure 12. Distribution of dietary diversification by age.

According to follow-up weight (at 1 month) and the types of nutritional advice received

The distribution of infant weights after one month of monitoring their growth and health status reveals that 36.7% of infants weighed ≥ 7.2 kg, while 23.3% weighed between 6.3 and 7.2 kg. The minimum weight recorded was 3.2 kg, while the maximum weight was 8.8 kg. These results show a general

improvement in infant weights at the end of the follow-up, suggesting a beneficial effect of nutritional advice on their growth.

According to the data obtained, among the mothers monitored, 51% received nutritional advice from healthcare professionals, 37% received this advice from their family and friends, while 12% received no nutritional advice. These results show that the majority of mothers surveyed were made aware of good nutritional practices, mainly thanks to health professionals, which could have a positive influence on the nutritional care of their infants (Figure 13).

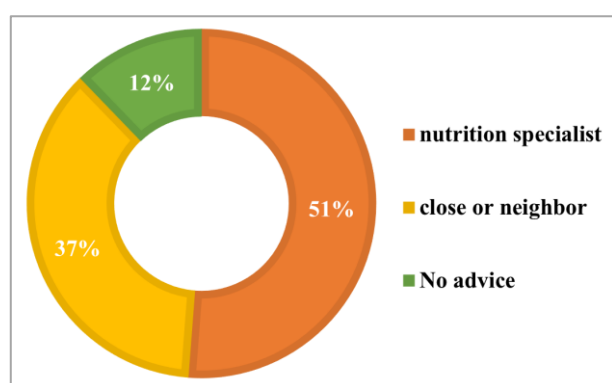


Figure 13. Distribution according to the types of nutritional advice received.

According to the relationship between diet and breast milk, and the influence of those around them.

Figure 14 illustrates how mothers perceive the influence of their diet on the quality and volume of their breast milk. Thus, 37% of mothers are unaware that their diet can influence the quality of their milk, which appears to be linked to a lack of information on the subject. It should be noted that 27% ($n = 8$) believe that the quality and quantity of breast milk are regulated by the body and that diet therefore has no influence on these parameters. These results highlight a diversity of beliefs about the role of maternal diet in breastfeeding and underscore the need for better nutritional support during this period.

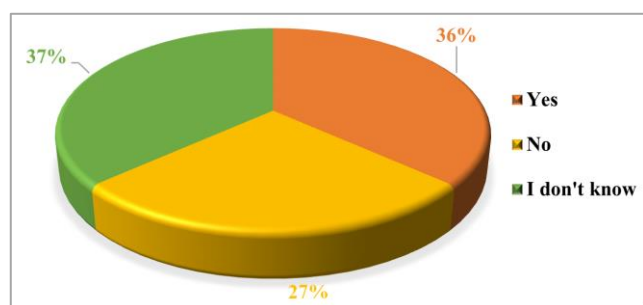


Figure 14. Distribution according to the ratio of food and breast milk.

Figure 15 presents the main influences of the environment on mothers' diet during the breastfeeding period. Thus, 44% ($n = 17$) of them declare that their diet is not influenced by their environment. On the other hand, 23% report an influence of the family, 18% an influence of traditions, and 15% an influence of beliefs. These results highlight that, although a majority of mothers claim to be autonomous in their food choices, a significant proportion are guided by sociocultural, family or religious factors during breastfeeding.

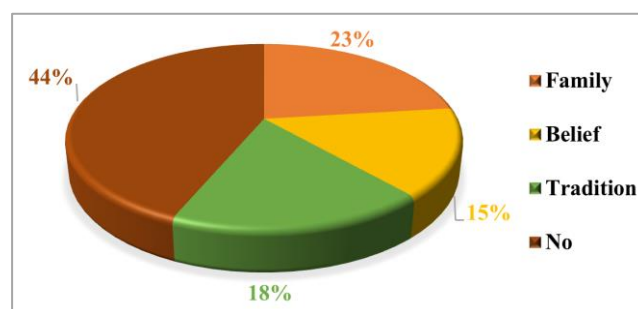


Figure 15. Distribution according to the influence of the environment.

4. Discussion

The results show a predominance of mothers aged 21 to 30, a favorable period from a reproductive and physiological point of view. This trend, also reported by Poudel et al. [5], is conducive to exclusive breastfeeding, in particular due to better overall health and greater availability. The very varied level of education (30% illiterate, 30% university graduates) highlights the existence of inequalities in access to nutritional information. Mensah et al. [6], show that educated women more easily adopt appropriate dietary practices, with a significant impact on infant growth. In addition, the overrepresentation of stay-at-home mothers, although ensuring proximity to the infant, could reflect a certain economic vulnerability, reducing access to quality food. A significant proportion of mothers (57%) consume three meals a day, and 33% more with snacks. This regular rhythm is favorable to energy balance, essential during breastfeeding. Food quality is encouraging: 90% consume animal protein, 83.3% fruits/vegetables, and 80% whole grains. These intakes are essential for ensuring milk synthesis and enriching milk with micronutrients [7]. However, the daily consumption of ultra-processed foods by 40% of mothers is a major concern. According to Monteiro et al. [8], these products alter the overall nutritional quality of the diet and can indirectly affect milk composition, while exposing the child to an increased risk of metabolic disruption. Dietary restrictions affect 23% of mothers, often linked to traditional beliefs. These may exclude nutrient-rich foods (dairy products, eggs, fish), thus affecting protein, calcium, or essential fatty acid intake. Laar et al. [9], showed that these cultural practices persist widely in

sub-Saharan Africa and are rarely questioned by health professionals. Exclusive breastfeeding is practiced by 54% of mothers, a rate higher than the national average in Senegal (41%) [10]. This reflects good adherence to WHO recommendations. In addition, 58% of mothers breastfeed more than eight times a day. This frequency is ideal for stimulating lactation and ensuring good coverage of the infant's nutritional needs. Victora et al. [11], demonstrated that frequent feedings are linked to better linear growth and a longer duration of breastfeeding. According to the results, 60% of infants were diversified between 4 and 6 months, which is in line with WHO recommendations [12]. However, 10% started diversification before 4 months, which remains premature. According to Fewtrell et al. [13], too early introduction exposes a risk of digestive disorders, increased immune sensitivity and nutritional deficiencies. The study confirms the strategic potential of the food industry in the formulation of fortified foods adapted to the needs of breastfeeding mothers. In response to the increased physiological needs during breastfeeding, the development of products rich in essential micronutrients (iron, zinc, calcium, folic acid, DHA, etc.) represents a major opportunity to prevent nutritional deficiencies, both for the mother and the infant. Several products developed by industries (such as fortified infant flours, nutritional bars or functional milk drinks) can contribute to improving the nutritional density of maternal diets. Recent studies [14, 15], show that these formulations, when well designed and locally adapted, can optimize the quality of breast milk and have a positive effect on neonatal growth.

5. Conclusion and Perspectives

This work highlighted the significant impact of maternal dietary habits on the quality of breast milk and, by extension, on infant weight and height growth. The study conducted at the Albert Royer National Children's Hospital revealed that while some mothers adopt relatively balanced dietary practices, others remain exposed to risky nutritional behaviors, influenced by economic and cultural factors or a lack of information. The results show a diversity of dietary profiles, limited use of nutritional supplements and a still widespread lack of awareness of the link between maternal diet and milk quality. However, the data also indicate that nutritional advice and good feeding practices can have a positive impact on infant growth, particularly in an appropriate support framework.

Abbreviations

CHNEAR	Albert Royer National Children's Hospital
CHNUF	National University Hospital of Fann
WHO	World Health Organization
DHA	Docosahexaenoic Acid

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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